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TECHNOLOGY TRANSFER IN THE CONTEXT OF COMPETITION LAW IN THE MODERN CHINESE MARKET:

ADEQUACY AND SCOPE FOR IMPROVEMENT

Xu Lin

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TECHNOLOGY TRANSFER IN THE CONTEXT OF COMPETITION LAW IN THE MODERN CHINESE MARKET: ADEQUACY AND SCOPE FOR IMPROVEMENT

ABSTRACT

Technology transfer is crucial for China to gain advanced technology so as to facilitate its economy's growth, as well as to improve its enterprise's competitiveness. However, anti-competitive restrictions imposed on technology transfers not only severely restrict or eliminate the competition but also limit the technological advancement of China. The existing legislation was considered to be insufficient for effectively intervening in these technology transfer issues in China and requires much improvement.

Above all, this thesis discusses how the application of competition law to technology transfer can achieve innovation, efficiency, and consumer welfare, and advocates the exploitation of an effects-based approach to assess the intervention of competition law with intellectual property rights (IPRs). The thesis observes that a number of anti-competitive issues have occurred in the Chinese technology market. Nevertheless, Chinese legislation on the interface of IPRs and competition law has been delayed, which is one of the reasons for the inadequacy evident in the historical review. Whilst the existing legislation cannot properly address these issues. Finally, the thesis provides proposals with comprehensive guidelines for China to deal with some primary anti-competitive issues, including price fixing, price discrimination, allocation of markets, tying, grant-back, and refusals to license. Based on an effects-based approach, the proposals draw on the experiences of the United States and the European Union, whilst also considering China's unique characteristics.

In sum, China requires guidelines that embody an effects-based approach, far more nuanced and sophisticated than current provisions, in order to address these complex and troublesome issues involving the interface of IPRs, competition law, and the effective operation of a modern, technology-dominated market.

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[3] The ministries and commissions of the State Council, the People's Bank of China, the State Audit Administration as well as the other organs endowed with administrative functions directly under the State Council may, in accordance with the laws as well as the administrative regulations, decisions and orders of the State Council and within the limits of their power, formulate regulations and rules. Law of China on Legislation 2015, art 71.

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Brooke Group v Brown & Williams Tobacco 509 US 209 (1993)

Bunker v Stevens 26 F 245 (CC NJ 1885)

Business Electronic v Sharp Electronics 485 US 717 (1988)

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Continental Paper Bag v Eastern Paper Bag 210 US 405 (1908)

CSU v Xerox 203 F3d 1322 (Fed Cir 2000)

Cummer-Graham v Straight Side Basket 142 F2d 646 (5th Cir 1944)

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United States v Arnold Schwinn 388 US 365 (1967)

United States v Colgate 250 US 300 (1919)

United States v Container 393 US 333 (1969)

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Volvo Trucks North America v Reeder-Simco GMC 546 US 164 (2006)

White Motor v United States 372 US 253 (1963)

Wuxi Multimedia v Koninklijke Philips 2006 WL 6667002 (SD Cal 2006), aff'd, 280 Fed Appx 968 (Fed Cir 2008)

ACRONYMS AND ABBREVIATIONS

5th Guidelines	5th draft of Guidelines on Enforcing the Anti-Monopoly Law with Respect to Intellectual Property Rights 2012
7th Guidelines	7th draft of Guidelines on Enforcing the Anti-Monopoly Law with Respect to Abuse of Intellectual Property Rights 2016
AAC	Average Avoidable Cost
ABA Sections	American Bar Association Section of Antitrust Law, Section of Intellectual Property Law and Section of International Law
AMC	Anti-Monopoly Commission of PRC
AMEAs	Anti-Monopoly Enforcement Authorities
AML	Anti-Monopoly Law of PRC 2008
Antitrust Guidelines 1995	Antitrust Guidelines for the Licensing of Intellectual Property of United States 1995
Antitrust Guidelines 2017	Antitrust Guidelines for the Licensing of Intellectual Property of United States 2017
AUCL	Anti-Unfair Competition Law of PRC 1993
BPDMST	Bureau of Planning and Development in the Ministry of Science and Technology
CBHD	China Blue High-Definition
CCP	Chinese Communist Party
PRC	People's Republic of China
CPMTM	Centre for Promoting Management of Technology Market
Draft of the Rules	Rules of the Administration for Industry and Commerce on the Prohibition of Abuse of Intellectual

	Property Rights for the Purposes of Eliminating or Restricting Competition (Draft for Comments) of PRC 2014
EC	European Community
ECJ	European Court of Justice
EEC Treaty	Treaty Establishing the European Economic Community 1957 (amended in 2007)
EU	European Union
EUR	EURO
FDI	Foreign Direct Investment
FTC	Federal Trade Commission of the United States
GATT	General Agreement on Tariffs and Trade
GBP	British Pound Sterling
GC	General Court of the European Union
GDP	Gross Domestic Product
Guidance of Article 102	Communication from the Commission — Guidance on its Enforcement Priorities in Applying Article 82 of the EC Treaty to Abusive Exclusionary Conduct by Dominant Undertakings [2009] OJ C 45/02
New Guidelines 2017	Guidelines on Anti-Monopoly Law with Respect to Abusing Intellectual Property Rights (draft for comments) 2017
Guidelines of TTBER 316/2014	Communication from the Commission — Guidelines on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements [2014] OJ C89/3
Guidelines of TTBER 772/2004	Commission Notice — Guidelines on the application of Article 81 of the EC Treaty to technology transfer

	agreements [2004] OJ C101/2
IE	Internet Explorer
IPRs	Intellectual Property Rights
ISOs	Independent Service Organisations
LRAIC	Long-Run Average Incremental Cost
MFL	Most-Favoured-Licensee
MOFCOM	Ministry of Commerce of PRC
NDRC	National Development and Reform Commission of PRC
NDRC Guidelines	Guidelines on Anti-Monopoly with Respect to Abuse of Intellectual Property Rights (draft for comments) 2015
OECD	Organisation for Economic Co-operation and Development
OEMs	Original Equipment Manufacturers
PC	Personal Computer
R&D	Research and Development
FRAND	Fair Reasonable And Non-Discriminatory
RMB	Renminbi (The currency of PRC)
RPA	Robinson-Patman Act
Rules	Rules on the Prohibition of Abuse of Intellectual Property Rights for the Purposes of Eliminating or Restricting Competition of PRC2015
SAIC	State Administration for Industry and Commerce of PRC
SEPs	Standard Essential Patents
SMEs	Small and Medium Enterprises
SOEs	State-Owned Enterprises
TFEU	Treaty on the Functioning of the European Union 2012
TRIPs	Agreement on Trade-Related Aspects of Intellectual Property Rights 1995
TTBER 240/1996	Commission Regulation (EC) No 240/96 of 31 January 1996 on the application of Article 85 (3) of the

	Treaty to certain categories of technology transfer agreements [1996] OJ L031
TTBER 316/2014	Commission Regulation (EU) No 316/2014 of 21 March 2014 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to categories of technology transfer agreements
TTBER 772/2004	Commission Regulation (EC) No 772/2004 of 27 April 2004 on the application of Article 81(3) of the Treaty to categories of technology transfer agreements
UK	United Kingdom
US	United States
USD	United States Dollar
WAIP	WLAN Authentication and Privacy Infrastructure
WGSOSs	Work Group Server Operating Systems
WIPO	World Intellectual Property Organization
WLAN	Wireless Local Area Network
WMP	Windows Media Player
WTO	World Trade Organisation

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CHAPTER 1. INTRODUCTION[1]

1.1 Objectives and Background

This thesis aims to explore whether the competition law of the People's Republic of China (PRC) is adequate for tackling anti-competitive issues in technology transfer, bearing in mind that such issues are a relatively recent dilemma problem for China. Where inadequacies exist, the thesis will provide proposals for improving China's competition law on technology transfer, based on both China's current situation,[2] and the relevant experiences of the United States (US) and the European Union (EU).

Competition law is an essential supplement to the self-correcting mechanisms of the market economy, as it can prevent anti-competitive impediments and preserve competition,[3] as well as secure a healthy and competitive market.[4] A large number of countries had enacted competition law by the 20th century.[5] However, a market-based economic mechanism had only just been introduced in China by that time, forming part of the transition from a centrally planned economy[6] to a socialist market

[1] The original Chinese titles of the Chinese literature and some Chinese drafts and legislation mentioned in this thesis are provided, along with the English titles and Pinyin transliterations. Most of the translations of the Chinese laws and regulations mentioned are not official, but are provided by the author or third parties.

[2] The current situation may involve numerous aspects, but this thesis will focus predominantly on the positive and negative impacts of IPRs protection and enhancement of competition on innovation and consumer welfare in China, the historical development of IPRs and competition law in China, the current Chinese technology market and existing anti-competitive issues in the market, and the pre-existing relevant laws and regulations, etc.

[3] Yang-Ching Chao and others (eds), *International and Comparative Competition Law and Policies* (Kluwer Law International 2001) 72.

[4] Dermot Cahill and others, *European Law* (5th edn, 2011 Oxford University Press) 234.

[5] For example, the Sherman Act (15 USC §§ 1-7) and the Clayton Act (15 USC §§ 12-17, 29 USC §§ 52-53) were enacted respectively in 1890 and 1914 in the US; Canada enacted the Combines Investigation Act in 1923; the competition provisions in France's Napoleonic Code of 1804 were reinforced in 1926; the Act on Prohibition of Private Monopolisation and Maintenance of Fair Trade was enacted in 1947 in Japan; the Monopolies and Restrictive Practices (Inquiry and Control) Act and the Restrictive Trade Practices Act were enacted respectively in 1948 and 1956 in the United Kingdom; and the German Act Against Restraints of Competition was enacted in 1958.

[6] A centrally planned economy is defined as an economic system in which economic decisions for allocation of inputs are mainly decided by a central authority, normally a central government in a top-down administrative system, rather than by the interaction between demand of consumers and supply of manufacturers in the market. In this economic system, the government controls the investment,

economy[7] through the highly influential Reform and Opening-Up policy.[8] The existence of a market-based mechanism potentially creates a requirement for

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production, distribution, price, quantity, etc. of goods. This system enables a government to exploit resources to serve certain economic goals, and to satisfy consumer demand with a large investment in the industries that require it. Significant development in heavy industry can potentially be achieved in a short space of time, even in an undeveloped economic situation; the rapid construction of heavy industry by the Soviet Union in the 1930s is a good example of this. However, this economic system makes it difficult to acquire accurate information on consumer demand and to allocate inputs to efficient producers, and does not provide strong incentives to producers. Socialist countries, including China, always make use of a centrally planned economic system. Paul Kennedy, *The Rise and Fall of the Great Powers* (Random House 1987) 322-23 (analysing how the advantages of the centrally planned economy were exploited by the Soviet Union to secure achievements in the development of heavy industry in 1930); Ludwig von Mises, 'Economic Calculation in the Socialist Commonwealth' (*Mises Institute*, 1990) <http://mises.org/sites/default/files/Economic%20Calculation%20in%20the%20Socialist%20Commonwealth_Vol_2_3.pdf> accessed 20 April 2013 (criticising the centrally planned economy for its inability to gain accurate information on consumer preferences, shortages and surpluses, meaning that the planner cannot manufacture efficiently. Also refers to this problem as the 'economic calculation problem'); Ollman Bertell, *Market Socialism: The Debate Among Socialists* (Routledge 1997) 12 (stressing that the planner would direct companies and ministries at a lower level on what to produce according to democratically-determined national and social objectives); Robin Hahnel, *The ABCs of Political Economy* (Pluto 2002) 262 (stating that the centrally planned economy lacks economic democracy and self-management, and therefore cannot easily promote innovation and efficiency); Michael Ellman, 'The Rise and Fall of Socialist Planning' in Saul Estrin and others (eds), *Transition and Beyond: Essays in Honour of Mario Nuti* (Palgrave Macmillan 2007) 22 (highlighting the fact that the centrally planned economy lacks popular and democratic oversight of the local market); Steven N Durlauf and Lawrence E Blume (eds), *The New Palgrave: A Dictionary of Economics* (2nd edn, Palgrave Macmillan 2008) 879-80 (defining 'planned economy' and describing the central order for allocating resources in the centrally planned economy).

[7] The socialist market economy is a special economic model employed by China, officially defined as an economic system under which the market plays a basic role in the allocation of resources under the macro-economic control of the state. It is different from both the centrally planned economy, in which the central government solely makes direct orders for the allocation of resources, and the classic market economy, in which resources are primarily allocated in accordance with market indications of supply and demand. The socialist market economy was first proposed by Xiaoping Deng, who argued that the market was an instrument that could serve both a capitalist economy and a socialist economy, and that the market economy was not a standard for distinguishing capitalism and socialism in the 20th century. 14th Central Committee of the Communist Party of China (1992), 'Decision of the Central Committee of the Communist Party on Some Issues Concerning the Establishment of a Socialist Market Economic System' (中共中央关于建立社会主义市场经济体制若干问题的决定 Zhonggong Zhongyang Guanyü Jianli Shehui Zhuyi Shichang Jingji Tizhi Ruogan Wenti De Jueding) (*News of Communist Party of China*, 14 November 1993) <http://cpc.people.com.cn/GB/64162/134902/8092314.html> accessed 25 April 2013 (stating that it was the first time that the term 'socialist market economy' was used, together with relevant explanation and a statement of the aim to establish such an economy by the central government of China); Zhongliang Shi, 'Review and Experience of Economic Structure Reform in China' in Mohamed Osman Suliman and Osman Suliman (eds), *China's Transition to a Socialist Market Economy* (Quorum 1998) 3-15 (reviewing the economic reforms in China since the 1970s, including the transition to a socialist market economy, in which some scholars argue that the socialist market economy is a capitalist economy rather than a socialist economy); Global Study Association of Depaul University, 'China: Market Socialism or Capitalism?' (*Loyola University Chicago*, 13 May 2006) <http://www.luc.edu/faculty/dschwei/ChinaCap.GSA.pdf> accessed 25 April 2013 (arguing that the Chinese socialist market economy is not socialism, as the socialism involves production for use rather than profits, and the central government's direct orders rather than self-management and workplace democracy); Julan Du and Chengguang Xu, 'Market Socialism or Capitalism? Evidence from Chinese Financial Market Development' in János Kornai and Yingqi Qian (eds), *Market and Socialism: In the*

competition law in China, as it becomes necessary to safeguard the proper competitive order of the market; not only for the benefit of domestic companies, but also to regulate more experienced foreign companies acting in China who are more familiar with making use of market-related strategies or methods, including anti-competitive restrictions. The Anti-Monopoly Law of China[9] (AML) had a long gestation period, beginning in the 1980s, but it was only passed by the Standing Committee of the 10th National People's Congress on the 30th August 2007, coming into effect on the 1st August 2008. Because of China's vital role in the global economy,[10] the AML has a significant impact on the Chinese markets in goods and services, as well as on investment, trade, and other economic activities, both abroad and domestically.

Light of the Experiences of China and Vietnam (Palgrave Macmillan 2008) 88-109 (considering the current economic system to be a state capitalist system rather a socialist market economy. The financial market, as it currently exists, should not available in the market of socialism, and the state profits are retained by companies, instead of being allocated equitably to people under a social scheme.).

[8] The Reform and Opening-Up policy was an innovative proposal by Xiaoping Deng, who was a highly significant leader in the Chinese central government and was known internationally as an 'architect of reform'. The policy was widely supported, and in 1978 the 3rd Plenary Session of the 11th Central Committee confirmed that it would be implemented. The policy advocated treating the economic development and construction of social modernisation as the central task, rather than the class and political struggle which had previously been the focus. The policy consisted of two main sections. The first concerned domestic reform, involving most aspects of the country, and including business, education, the financial system, tax, property and the medical system, etc. The most outstanding achievements were the introduction of a market-based economic system into the traditional centrally planned economy, which allowed the private economy to enter the market, and the setting up of special economic zones to experiment with applying new policies to stimulate the economy. The second section of the policy was about opening up to the world, and it allowed foreign direct investment to China (initially only in the special economic zones with preferential policies); promoted foreign trade with other countries; and advocated integration with the rest of the world instead of closed borders. The policy mainly focused on economic reforms, but continued the political system of socialism and the single-party Communist dictatorship. The implementation of the policy significantly boosted China's economic development. Peter Harrold, 'China's Reform Experience to Date' (1992) World Bank Discussion Paper, WDPO 180 <http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/1999/10/14/000178830_98101903552078/Rendered/PDF/multi_page.pdf> accessed 1 May 2013 (mainly discussing the economic reform of China from 1978-90 and its achievements); Susan L Shirk, *How China Opens Its Door: The Political Success of the PRC's Foreign Trade and Investment Reforms* (Brookings Institution 1995) (highlighting the improvement in foreign direct investment and trade in China since the 20th century); Wu Qi, 'Changes and Challenges with 30 years of Reform and Opening Up' (*Xinhua News Agency*, 6 October 2008) <http://news.xinhuanet.com/english/2008-10/06/content_10155776.htm> accessed 1 May 2013 (discussing the development of China after the implementation of the Reform and Opening-Up policy, and the challenges that have arisen); Clem Tisdell, 'Economic Reform and Openness in China: China's Development Policies in the Last 30 Years' (2009) 39(2) Econ Anal & Pol'y 271, 285 (discussing the background and implementation of the Reform and Opening-Up policy over the last thirty years).

[9] An unofficial English version is provided in Appendix 1.

[10] Yin-Wong Cheung and Jakob de Haan, 'Introduction' in Yin-Wong Cheung and Jakob de Haan (eds), *The Evolving Role of China in the Global Economy* (MIT Press 2013) 1 (stating China has become the world's second largest economy and has doubled its share of output in the world during the last ten years; its gross domestic product (GDP) increased by almost 10% on average between 1979 and 2008).

However, as the first and most fundamental competition legislation in China, the AML primarily contains general principles,[11] which can result in difficulties when using it to tackle some anti-competitive issues, as it doesn't guarantee legal certainty and predictability. In order to address these limitations, the AML could be made more comprehensive, adequate, or expended upon.

On another note, the implementation of the Reform and Opening-Up policy not only leads to a transition in the domestic economic system, but also enhances communication and integration with the rest of the world. China was eventually able to join the World Trade Organisation[12] (WTO), an organisation whose aim is to establish a higher standard of intellectual property rights (IPRs) protection, as well as lower trade barriers and create a free market for member states.[13] Accordingly, China implemented a new regime of intellectual property legislation, thus greatly improving the protection of IPRs. Also, China recognised that one of the crucial methods of promoting economic development, and of improving the competitiveness of companies and nations, was through technological innovation,[14] and made this an important component of its economic expansion strategy.

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[11] The AML consists of eight chapters and fifty-seven provisions in total. In addition, a number of regulations exist that implement the AML but these are insufficient and not clear enough.

[12] The WTO is the only international organisation that focuses on trade matters between countries. The bulk of the WTO's work originates in the negotiations for the General Agreement on Tariffs and Trade (GATT), which took effect in 1948, and the negotiations of the Uruguay Round (1986-94). The WTO is presently holding new negotiations under the Doha Development Agenda that was launched in 2001. These negotiations mainly aim to lower trade barriers and open markets for trade. WTO, 'Who We Are' (*WTO*, no date) <http://www.wto.org/english/thewto_e/whatis_e/who_we_are_e.htm> accessed 2 May 2013. China was one of the original contracting parties to the GATT in 1948. The previous government (that had moved to Taiwan) announced China's withdrawal from the GATT in 1950, but the new government of China (established by the Communist Party in 1949) never recognised the withdrawal until it requested readmission to the GATT in July 1986. China formally joined the WTO on 11 December 2001, after adjusting its economic, legal, and other systems to satisfy the WTO's requirements in bilateral negotiations with 37 out of 157 member states. Jeffrey L Gertler, 'What China's WTO Accession is All About' in Deepak Bhattasali, Shantong Li, Will Martin (eds), *China and the WTO: Accession, Policy Reform, and Poverty Reduction Strategies* (World Bank 2004) 21-23. See also Thomas Rumbaugh and Nicolas Blancher, 'China: International Trade and WTO Accession' (2004) IMF Working Paper WP/04/36 <http://www.imf.org/external/pubs/ft/wp/2004/wp0436.pdf> accessed 3 May 2013.

[13] ibid.

[14] Linsu Kim and Richard R Nelson, *Technology, Learning and Innovation: Experiences of Newly Industrialising Economies* (Cambridge University Press 2000) 1 (showing that technological advance is a key driving force to economic growth by empirical studies); Sefer Pener and Ercan Sarýdoðan, 'The Effects of Science-Technology-Innovation on Competitiveness and Economic Growth' (2011) 24 Procedia – Soc & Behav Sci 815, 816 (holding that innovation has very important effects on competitiveness and sustainable economic growth at both microeconomic and macroeconomic levels); John H Dunning,

The level of high technology in China is behind that of developed countries, where multinationals own most advanced technologies.[15] Improvements in technology normally come about either through huge investments in research and development (R&D) to promote indigenous innovation, or through acquiring advanced technologies directly from abroad that can be exploited immediately and enable further innovation.[16] With respect to the former, the protection provided by IPRs can prevent a technology from being subject to free-riding; offer rights owners an opportunity to recoup their initial investment and earn extra profit; and, finally, encourage innovation.[17] Thus, the strengthening of IPRs protection in China could encourage innovation among indigenous companies.

With regard to technology transfer from abroad, especially core technologies, simply due to the risk of losing competitive advantage, technology owners may make use of IPRs to impose various restrictions on the transfers, in order to reserve a certain market share for themselves or to limit the competitiveness of transferees. Alternatively, they may unilaterally refuse to transfer, either because they intend to keep their dominant position (especially if there are a lack of substitutes in the

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Multinationals, Technology and Competitiveness (Routledge 2013) 6 (stating that technology is a primary means to improve competitiveness, but foreign direct investment is a major institutional mechanism for achieving this).

[15] Sunil Mani, 'Exports of High Technology Products from Developing Countries: Is it Real or a Statistical Artifact?' (2000) UNU/INTECH Discussion Paper <http://archive.unu.edu/hq/library/Collection/PDF_files/INTECH/INTECHdp2001.pdf> accessed 5 May 2013 (most developing countries do not have any role in the manufacture and export of high-tech products, which are dominated by developed countries); Lawrence Edwards and Robert Z Lawrence, 'Do Developed and Developing Countries Compete Head to Head in High-tech?' (2010) US National Bureau of Economic Research Working Paper No. 16105 <http://www.nber.org/papers/w16105.pdf> accessed 5 May 2013 (the empirical analysis shows that the imports from China to the United States are not like the high-tech products exported from the United States to China, so the balances of trade are unlikely to capture competitiveness).

[16] Developing countries can benefit from technology transfer and diffusion, as opposed to reinventing everything themselves. Also, empirical studies show that companies of developing countries are unable to access international markets whilst dependant on their own technological efforts, even in low and medium-technology industries. Nagesh Kumar and NS Siddharthan (eds), *Technology, Market Structure and Internationalisation: Issues and Policies for Developing Countries* (Routledge 2013) 2.

[17] Yongmin Chen and Thitima Puttitanun, 'Intellectual Property Rights and Innovation in Developing Countries' (2005) 78(2) J Dev Econ 474, 492; Christine Greenhalgh and Mark Rogers, *Innovation, Intellectual Property, and Economic Growth* (Princeton University Press 2010) 32.

market), or merely because they fear the possibility of imitations without the IPRs protection.

Restrictions on technology transfer and refusals to transfer technology for the purpose of preserving competitive advantage may seriously impede competition in the Chinese market, thus affecting consumer welfare. Competition law is needed to safeguard a competitive market. However, the application of competition law to the exercise of IPRs in technology transfer creates a dilemma of which law is to be preferred and how it should be dealt with. The valuable research on this point in China is, above all, to explore whether or not the anti-competitive issues that have arisen in technology transfer are solved by Chinese competition law; if they aren't, then it will explore ways to improve the competition legislation.

Chinese competition law specialising in the intersection area is extremely limited. Article 55 is the only IPRs-related article in the AML,[18] although there are a number of provisions scattered across other regulations and judicial interpretations.[19] Recently, the Anti-Monopoly enforcement authorities (AMEAs), including the State Administration for Industry and Commerce (SAIC), the Ministry of Commerce (MOC), the National Development and Reform Commission (NDRC) and the Anti-Monopoly Commission (AMC),[20] have attempted to draft uniform guidelines for the interface between IPRs and anti-monopoly law. In 2015, the Anti-Monopoly Commission tasked the State Intellectual Property Office (SIPO)[21] and the other three AMEAs with

[18] 'This law is not applicable to undertakings who exercise their intellectual property rights in accordance with the laws and administrative regulations on intellectual property rights; however, this law shall be applicable to the undertakings who eliminate or restrict market competition by abusing their intellectual property rights.' AML, art 55.

[19] Fore more details see Chapter 5 of this thesis.

[20] There are four AMEAs under the State Council in China. The Ministry of Commerce is responsible for anti-monopoly reviews regarding concentrations; the National Development and Reform Commission focuses on tackling price-related monopoly issues; the State Administration for Industry and Commerce deals with other non-price-related and non-concentration-related issues; and the Anti-Monopoly Commission coordinates the anti-monopoly work of these authorities. For more details about AMEAs, see Section 4.3.3 of Chapter 4 of this thesis.

[21] Although the SIPO is not one of the AMEAs, it may regulate exercise of IPRs involving anti-monopoly according to intellectual property law, such as patent law, that contain regulation in regard to anti-monopoly conducts. For example, according to China's patent law, one of the conditions for impose imposing compulsory licenses is that the exploitation of the patent is considered to constitute monopoly conduct. Patent Law of China 2009, art 48.

drafting the respective guidelines, following which the Commission would revise, adjust and integrate these guidelines into a single uniform set of guidelines.[22] The SAIC organised a task group that drafted the Guidelines on Enforcing the Anti-Monopoly Law with Respect to Intellectual Property Rights[23] since 2009. The new versions of these Guidelines are the 5th draft[24] (5th Guidelines), 6th draft and 7th draft[25] (7th Guidelines), which were issued for comments in 2012,[26] 2015 and 2016 respectively. The SAIC also drafted the Rules of the Administration for Industry and Commerce on the Prohibition of Abuse of Intellectual Property Rights for the Purposes of Eliminating or Restricting Competition (Draft for Comments)[27] (Draft of

[22] SAIC, 'Explanatory Notes for Drafting Guidelines on Enforcing the Anti-Monopoly Law with Respect to Abuse of Intellectual Property Rights (7th draft of SAIC) (《关于滥用知识产权的反垄断执法指南 (国家工商总局第七稿)》的起草说明 《Guanyu Lanyong Zhishi Chanquan De Fan Longduan Zhifa Zhinan (Guojia Gongshang Zongju Diqi Gao)》 De Qicao Shuoming),' (*SAIC*, 4 February 2016) <http://www.saic.gov.cn/fldyfbzdjz/gzdt/201602/t20160204_166524.html...> accessed 28 March 2016.

[23] 关于知识产权领域反垄断执法的指南 Guanyu Zhishi Chanquan Lingyu Fan Longduan Zhifa De Zhinan.

[24] SAIC Task Force (draft), American Bar Association (trans), 'The 5th Draft of Guidelines on Enforcing the Anti-Monopoly Law with Respect to Intellectual Property Rights (关于知识产权领域反垄断执法的指南 Guanyu Zhishi Chanquan Lingyu Fan Longduan Zhifa De Zhinan),' both Chinese and English version (*American Bar Association*, 2012) <http://www.americanbar.org/content/dam/aba/uncategorized/international_law/aba_china_aml_ip_guidelines_comments_finalpackage.authcheckdam.pdf> accessed 5 October 2015. The Guidelines were only draft and have not come into effect.

[25] SAIC, 'Guidelines on Enforcing the Anti-Monopoly Law with Respect to Abuse of Intellectual Property Rights (7th draft of SAIC) (关于滥用知识产权的反垄断执法指南 (国家工商总局第七稿) Guanyu Lanyong Zhishi Chanquan De Fan Longduan Zhifa Zhinan (Guojia Gongshang Zongju Diqi Gao)),' (*SAIC*, 4 February 2016) <http://www.saic.gov.cn/fldyfbzdjz/gzdt/201602/t20160204_166524.html...> accessed 28 March 2016. Compared with the 5th Guidelines, the 7th Guidelines have a clearer structure, and they also contain additional definitions and explanations of certain monopoly practices, such as pricing restrictions, output restrictions and allocation of markets between competitors. However, this may not sufficient, because the understanding of or the confirmation of the scope of these monopoly practices are merely an initial step; more specific guidelines are needed for dealing with these practices in addition to the general analytical approaches that have been provided in the Guidelines.

[26] SAIC (issue), American Bar Association (trans), 'Explanatory Notes for Drafting the Rules of the Administration for Industry and Commerce on the Prohibition of Abuses of Intellectual Property Rights for the Purposes of Eliminating or Restricting Competition (Draft for Comments) (关于《工商行政管理机关禁止滥用知识产权排除、限制竞争行为的规定(征求意见稿)》的起草说明 Guanyu 《Gongshang Xingzheng Guanli Jiguan Jinzhi Lanyong Zhishi Chanquan Paichu、Xianzhi Jingzheng Xingwei De Guiding (Zhengqiu Yijian Gao) De Qicao Shuoming》),' both Chinese and English versions (*American Bar Association*, 2014) <http://www.americanbar.org/content/dam/aba/administrative/antitrust_law/at_comments_201407saic.authcheckdam.pdf> accessed 5 October 2015.

[27] SAIC (draft), American Bar Association (trans), 'Rules of the Administration for Industry and Commerce on the Prohibition of Abuse of Intellectual Property Rights for the Purposes of Eliminating or Restricting Competition (Draft for Comments) (工商行政管理机关禁止滥用知识产权排除、限制竞争行为的规定(征求意见稿) Gongshang Xingzheng Guanli Jiguan Jingzhi Lanyong Zhishi Chanquan Paichu、Xianzhi Jingzheng Xingwei De Guiding (Zhengqiu Yijian Gao)),' both Chinese and English version

the Rules) and invited comments from the public.[28] On the 7th April 2015, the Rules on the Prohibition of Abuse of Intellectual Property Rights for the Purposes of Eliminating or Restricting Competition[29] (Rules) were promulgated, and they came into force on the 1st August 2015.[30] The NDRC drafted the Guidelines on Anti-Monopoly with Respect to Abuse of Intellectual Property Rights (draft for comments)[31] (NDRC Guidelines) on 31 December 2015. The AMC issued a uniform draft, Guidelines on Anti-Monopoly Law with Respect to Abusing Intellectual Property Rights (draft for

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(American Bar Association, 2014) <http://www.americanbar.org/content/dam/aba/administrative/antitrust_law/at_comments_201407saic.authcheckdam.pdf> accessed 5 October 2015.

[28] The SAIC acknowledged that it gained a greater understanding of anti-competitive issues in the area of IPRs and recognised that these issues were also important, complicated and sensitive to other countries and regions during the process of drafting the above guidelines. Considering that there has not been much time to implement the AML and that the SAIC lacks the relevant experience, it would be somewhat premature to draft a set of comprehensive and systematically complete guidelines. SAIC (issue), American Bar Association (trans), 'Explanatory Notes for Drafting the Rules of the Administration for Industry and Commerce on the Prohibition of Abuses of Intellectual Property Rights for the Purposes of Eliminating or Restricting Competition (Draft for Comments) (关于《工商行政管理机关禁止滥用知识产权排除、限制竞争行为的规定(征求意见稿)》的起草说明 Guanyu 《Gongshang Xingzheng Guanli Jiguan Jinzhi Lanyong Zhishi Chanquan Paichu、Xianzhi Jingzheng Xingwei De Guiding (Zhengqiu Yijian Gao) De Qicao Shuoming》),' both Chinese and English versions (*American Bar Association*, 2014) <http://www.americanbar.org/content/dam/aba/administrative/antitrust_law/at_comments_201407saic.authcheckdam.pdf> accessed 5 October 2015.

[29] 关于禁止滥用知识产权排除、限制竞争行为的规定 Guanyu Jingzhi Lanyong Zhishi Chanquan Paichu、Xianzhi Jingzheng Xingwei De Guiding. SAIC, 'Rules (official Chinese version)' (*SAIC*, 7 April 2015) <http://www.saic.gov.cn/zwgk/zyfb/zjl/fld/201504/t20150413_155103.html> accessed 10 April 2015. An unofficial English version is provided in Appendix 2. Except for the exclusion of applying AML to copyright and the abuse of issuing infringement warning letters, which were contained in the Draft of the Rules, the Rules have very few other differences to the Draft of the Rules. Draft of the Rules, arts 14,15.

[30] The Rules are slimmer than the 5th and 7th Guidelines as the Rules exclude some of the content of these Guidelines, such as an assessment of the positive and negative effects of exercising IPRs on competition, and price-related anti-competitive issues. 5th Guidelines, art 11 and 7th Guidelines, art 6 (offering approaches that consider both negative and positive aspects of anti-competitive conduct); Jing Wan (万静), 'Guidelines on Anti-Monopoly With Respect To Intellectual Property Rights Will Be Published' (知识产权发垄断指南将出台 Zhishi Chanquan Fan Longduan Zhinan Jiang Chutai) (*Legal Daily*, 5 June 2015), <http://epaper.legaldaily.com.cn/fzrb/PDF/20150605/06.pdf> accessed on 10 July 2015 (stating that this may be because the NDRC, rather than the SAIC, is in charge of price-related anti-competitive issues, and so it will be the responsibility of the NDRC to formulate relevant guidelines or regulations, although both the 5th and 7th Guidelines contain price-related regulations).

[31] NDRC, 'Guidelines on Anti-Monopoly with Respect to Abuse of Intellectual Property Rights (draft for comments) (关于滥用知识产权的反垄断指南 (征求意见稿) Guanyu Lanyong Zhishi Chanquan De Fan Longduan Zhinan (Zhengqiu Yijian Gao)),' (*NDRC*, 31 December 2015) <http://jjs.ndrc.gov.cn/fjgld/201512/t20151231_770233.html> accessed 2 February 2016. Like the 7th Guidelines, the NDRC Guidelines contains several main parts: general analytical approaches or issues, identification of relevant markets, monopoly contracts and abuse of dominant position. However, the analysis in the NDRC Guidelines is somewhat less detailed, and fewer specific issues are covered.

comments)[32] (New Guidelines 2017), based on drafts made by other AMEAs on 23 March 2017 and called for comments.

Both the Rules and the Guidelines have provided general analytical procedures on the enforcement of the AML in the context of IPRs,[33] and factors relevant to the analysis of the effects that the exercise of IPRs has on competition.[34] But they have only offered basic pointers for specific anti-competitive issues,[35] which are dramatically arduous when used to analyse specific issues of a more complex nature. Whilst this model of legislation provides more scope for AMEAs to apply the AML, it allows for uncertainty and ambiguity of its interpretation. Companies operating, or intending to operate, in the Chinese market require a transparent process and predictable outcome if they are to make informed commercial decisions *ex ante,* and thus take responsibility for their subsequent conduct. Such predictability and certainty are also vital for AMEAs and courts to make coherent decisions.[36]

In view of this information, it is worth considering the competition legislation of the US and the EU, two primary representatives of the modern era.[37] The US policy is set

[32] AMC, 'Guidelines on Anti-Monopoly with Respect to Abuse of Intellectual Property Rights (draft for comments) (关于滥用知识产权的反垄断指南 (征求意见稿) Guanyu Lanyong Zhishi Chanquan De Fan Longduan Zhinan (Zhengqiu Yijian Gao)),' (*AMC*, 23 March 2017) <http://fldj.mofcom.gov.cn/article/zcfb/201703/20170302539418.shtml> accessed 2 April 2017. The mentioned specific anti-competitive issues and relevant analysis in this Guidelines are less detailed comparing with guidelines made by SAIC.

[33] 5th Guidelines, art 7; 7th Guidelines, art 5; NDRC Guidelines, art 1(3); Rules, art 15; New Guidelines 2017, arts 1, 2.

[34] 5th Guidelines, art 10; 7th Guidelines, art 6; NDRC Guidelines, art 1(3); Rules, art 16; New Guidelines 2017, art 4.

[35] The 5th Guidelines replicate, almost word for word, the provisions of the AML regarding general anti-competitive conduct 5th Guidelines, arts 13-16. The 7th Guidelines merely provides a definition of some specific anti-competitive practices, rather than a detailed analysis of them 7th Guidelines, ch 3. The Rules merely mention that, with regard to IPRs, the relevant provisions in the AML will be applied to monopoly agreements. Rules, art 4. The Rules stipulate only a few provisions for some specific anti-competitive practices, such as refusals to license, restrictions on the other parties to transactions, tying, and other restrictions on transactions. Rules, arts 7-10. The New Guidelines 2017 offer only a few conditions of applying competition law for several issues only. New Guidelines 2017, ch 2.

[36] Recent AML enforcement decisions against foreign companies in China have been criticised for suspected selective enforcement. Were adequate detailed and clear statute and procedure law in place, it would aid with the understanding of foreign companies and commercial associations, as well as enabling Chinese AMEAs to defend and justify their decisions. For further details, see Section 4.3.3 of Chapter 4 of this thesis.

[37] Marcus Glader, *Innovation Markets and Competition Analysis: EU Competition Law and US Antitrust Law* (Edward Elgar 2006) 3; Einer Elhauge and Damien Geradin, *Global Competition Law and Economics*

out in the Antitrust Guidelines for the Licensing of Intellectual Property of United States 2017[38] (Antitrust Guidelines 2017); while the primary policy of the EU consists of Commission Regulation (EU) No 316/2014 of 21 March 2014 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to categories of technology transfer agreements [2014] OJ L93/17 39 (TTBER 316/2014) and its guidelines[40] (Guidelines of TTBER 316/2014). Other regulations, reports, and most importantly, a large body of relevant case law, are available in the US and the EU, making the experiences of the US and the EU a valuable reference when providing proposals for improving the relevant competition legislation in China.

1.2 Structure and Scope

1.2.1 Structure

This thesis comprises eight chapters. Chapter 1 is an introductory chapter, providing an overview of the thesis, including its objectives and background, structure and scope, a literature review, and research methodologies. The main objective of the study is to discuss whether the current competition law is adequate to regulate anti-competitive issues in technology transfer in China, and how to improve it. Restrictions on technology transfer are heavily present in the Chinese market. Whilst there are some relevant provisions scattered amongst various laws and regulations, the current competition legislation for IPRs are the AML,[41] containing a single article[42] in regard to

(Hart 2007) 5; Csongor Istvan Nagy, *EU and US Competition Law: Divided in Unity?: The Rule on Restrictive Agreements and Vertical Intra-brand Restraints* (Ashgate 2013) 1.

[38] The Antitrust Guidelines issued by the US Department of Justice and the Federal Trade Commission on 12 January 2017.

[39] The TTBER 316/2014 entered into force on 1 May 2014 and will expire on 30 April 2026. It supersedes the Commission Regulation (EC) No 772/2004 of 27 April 2004 on the application of Article 81(3) of the Treaty to categories of technology transfer agreements [2004] OJ L123/11 (TTBER 772/2004) and makes some amendments.

[40] Communication from the Commission — Guidelines on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements [2014] OJ C89/3. It also supersedes the guidelines of TTBER 772/2004. Commission Notice — Guidelines on the application of Article 81 of the EC Treaty to technology transfer agreements [2004] OJ C101/2 (Guidelines of TTBER 772/2004).

[41] The AML was passed by the Standing Committee of the 10th National People's Congress on 30 August 2007 and came into effect on 1 August 2008. The AML is the first law to specifically address anti-

exercise of IPRs, and the Rules,[43] which are general in nature and not adequately detailed to address the anti-competitive issues. Thus, there is a gap between the existing issues and the availability of suitable law to apply and better guidelines are expected. For the purpose of providing proposals, the 7th Guidelines, the Rules and the New Guidelines 2017 will serve as references for discussion, and the experiences of both the US and the EU will be considered. The structure is outlined in the present subsection. In terms of academic scope, the discussion primarily focuses on the transfer of patent rights, know-how, and software copyright, while trade-mark licensing will be excluded. In terms of geographical scope, the study will be confined to Mainland China; Hong Kong, Macau and Taiwan will not be considered. The literature review consists of a discussion of the relationship between IPRs and competition law; current research on anti-competitive issues in technology transfer in China; and the application of the AML to the issues in China. The research methodology of the thesis primarily involves doctrinal legal research, comparative legal research and historical legal research.

Chapter 2 provides a theoretical basis for the research that follows. It consists of an analysis of the effects of competition law and the IPRs system on innovation, efficiency, and consumer welfare in technology transfer, and a discussion of a particular approach to tackling anti-competitive issues. From an economic point of view, innovation pursued primarily through the IPRs system brings dynamic efficiency in the long run, increasing social fortune and consumer welfare.[44] Static efficiency, which aims to ensure the fair allocation of resources and products to achieve immediate

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competitive issues in China, but it contains only general provisions and needs to be expanded to include more detail in order to improve the interpretation and implementation.

[42] 'This law is not applicable to undertakings who exercise their intellectual property rights in accordance with the laws and administrative regulations on intellectual property rights; however, this law shall be applicable to the undertakings who eliminate or restrict market competition by abusing their intellectual property rights.' AML, art 55.

[43] The Rules were promulgated on 7 April 2015 and came into force on 1 August 2015. Whilst they provide a relatively systematic framework for application of competition law to exercise of IPRs, the provisions are too general and simplistic to tackle specific anti-competitive issues. Although the formulation of such legislation can be viewed as progress in the interfaced area between competition law and IPRs in China, the general nature allows difficulties to arise during application.

[44] Joseph E Stiglitz and Carl E Walsh, *Economics* (4th edn, WW Norton 2011) 35; Herbert Hovenkam and others, *IP and Antitrust: An Analysis of Antitrust Principles Applied to Intellectual Property Law* (2nd edn, Aspen 2010) Ch 1, 13; Massimo Motta, *Competition Policy: Theory and Practice* (Cambridge University Press 2004) 55.

benefits for consumers, is promoted by the competition mechanism.[45] Protecting IPRs[46] and encouraging competition[47] could achieve dynamic efficiency by promoting technological innovation, the most important tool for driving the development of society as a whole, and enhancing the competitiveness of nations and companies. However, the IPRs system does not necessarily facilitate innovation in all cases, and may result in anti-competitive issues in technology transfer that need to be rectified by competition law. This indicates that the relationship between competition law and the IPRs system is complementary as well as contradictory. When assessing whether and to what extent competition law should be applied to the anti-competitive issues arising from the exercise of IPRs, an effects-based approach[48] can be applied. This approach consists in weighing the positive and negative effects that the intervention of competition law might have, and discovering whether they are ultimately beneficial for efficiency and consumers. Moreover, for a developing country, R&D spillovers are an important element in improving the technological level,[49] and incremental

[45] Walter Distaso, Paolo Lupi and Fabio M Manenti, 'Static and Dynamic Efficiency in the European Telecommunications Market: The Role of Regulation on the Incentives to Invest and the Ladder of Investment' in Information Resources Management Association (ed), *Networking and Telecommunications: Concepts, Methodologies, Tools, and Application* (Information Science Reference 2010) 259. ibid, Massimo Motta, 40.

[46] Agreement on Trade-Related Aspects of Intellectual Property Rights, Annex 1C of the Marrakesh Agreement Establishing the World Trade Organisation (signed 1994, took effect 1995), art 7 ('[t]he protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology...'); Herbert Hovenkam and others, *IP and Antitrust: An Analysis of Antitrust Principles Applied to Intellectual Property Law* (2nd edn, Aspen 2010) 1-3 (stating the IPRs protection of the US is the utilitarian or economic incentive framework that relates to incentive for innovation).

[47] Michele Boldrin and others, 'Competition and Innovation' (2011) Cato Paper on Pub Pol'y 109, 149 (arguing the empirical studies show that '[b]ecause competition fosters productivity growth, antitrust and competition policies should be seen as key tools to foster innovation'); Geoffrey A Manne and Joshua D Wright, 'Innovation and the Limits of Antitrust' (2010) 6 (1) Comp L & Econ 153, 153-54 (stating innovation is a critical dimension of competition).

[48] An effects-based approach attempts to assess whether and to what extent competition law can apply to the exercise of IPRs. Considering that both the application of competition law and the exercise of IPRs can have negative as well as positive effects, this approach will assess the effects of such an application on various values, including innovation, dissemination of technology, efficiency, consumer welfare, etc. If the positive effects of such an application outweigh the negative effects, the application should be considered to be justified. This approach is different from a conduct-based approach, which attempts to categorise certain conducts occurring in the exercise of IPRs that that fall under competition law. For more details, see Section 2.4.3 of Chapter 2 of this thesis.

[49] Thomas K Cheng, 'A Developmental Approach to the Patent-Antitrust Interface' (2012) 33 Nw J Int'l L & Bus 1, 8-10.

livelihood of citizens should be a vital objective.[50] Both points can be achieved by applying competition law in technology transfer in China.

The conflicts between competition law and the IPRs system result in anti-competitive issues in technology transfer. Chapter 3 studies the current technology transfer market and the relevant anti-competitive issues that arise in China. The modernisation of China requires the support of advanced technologies, and technology transfer from abroad is one way to achieve this. Foreign technology transferors could benefit from aspects of the potential market, such as large transfer fees, a large population, a relatively low-cost labour force, and efficient production capacity. However, they often impose anti-competitive restrictions on licensing agreements or even refuse to license certain critical technologies relying on the exercise of IPRs.[51] This distorts or impedes competition in the market for technologies or relevant embodiments, and has a negative impact on consumer welfare.

Additionally, anti-competitive issues do not exist seriously in the technology transfer market between indigenous companies currently.[52] This may be because their capability for creating advanced technology is relatively low, and technology owners

[50] ibid 16-18.

[51] Junko Yoshida, 'Chinese DVD Player Makers Sue Consumer Giants over Royalties' (*EE Times*, 26 January 2005) <http://www.eetimes.com/electronics-news/4051512/Chinese-DVD-player-makers-sue-consumer-giants-over-royalties> accessed 13 November 2012 (Chinese DVD player makers were charged an excessively high licensing fee). Juan Jiang (蒋隽), 'The first time a Guangdong company has sued Microsoft over a Monopoly' (广东企业首诉微软垄断 Guangdong Qiye Shou Su Weiruan Longduan) (*Information Times*, 23 November 2012) <http://informationtimes.dayoo.com/html/2012-11/23/content_2028204.htm> accessed on 26 September 2013 (price discrimination). 'Dongjin Responses to Intel's Lawsuit' (*China Tech News*, 31 January 2005) <http://www.chinatechnews.com/2005/01/31/2257-dongjin-responses-to-intels-lawsuit> accessed 18 September 2012 (restriction on using fields). Li Jing, 'Patent Power' (*China Daily*, 12 March 2007) <http://www.chinadaily.com.cn/bw/2007-03/12/content_824904.htm> accessed 13 November 2012 (refusals to license).

[52] The number of companies in China in 2010, 2011 and 2012 was 11.36 million, 12.53 million and 13.66 million respectively. However, the number of technology transfer contracts among companies in China in those three years was only 12,377, 11,067 and 11,858 respectively. SAIC, 'The General Status of Development of Market Actors in China' (全国市场主体发展总体情况 Quanguo Shichang Zhuti Fazhan Zongti Qingkuang) (*SAIC*, 2013) <http://www.saic.gov.cn/zwgk/tjzl/zxtjzl/xxzx/201301/P020130110600723719125.pdf> accessed 2 February 2014; Bureau of Planning and Development in the Ministry of Science and Technology and Centre for Promoting Management of the Technology Market in China, '2013 Annual Report on Statistics of China Technology Market' (*Torch High Technology Industry Development Centre of Ministry of Science and Technology of China*, June 2013) <http://www.chinatorch.gov.cn/jssc/tjnb/201402/3deea28b705d4ed9968088bd071cb82c/files/3ccf62975c544b98b6e4f716d2b08cfe.pdf> accessed 15 December 2013.

prefer to acquire technological advantages by exploiting the technology themselves rather than by transferring it to others. Yet another reason could be that assigning know-how, rather than licensing patents,[53] accounts for the predominant percentage of technology transfer,[54] the reason being that this helps to limit the disclosure of technology and avoid counterfeiting.[55] However, with the incremental expenditure on R&D, the increasing number of patents granted, the progress that has been made in the protection of IPRs, and the improvements in acknowledging the illegitimacy of anti-competitive conducts, technology transfer is very likely to be facilitated, especially patent licensing, between indigenous companies. Thus, there is a considerable potential for severe anti-competitive issues to arise in this context.

In the face of existing and potential serious anti-competitive issues in the Chinese market, proper competition law is urgently required. It is therefore necessary to investigate whether existing Chinese competition law is adequate for resolving these issues.

As competition law is a relatively recent development in China, the discussion on the adequacy of the Chinese competition law will begin with a historical review of the

[53] Know-how differs from other types of IPRs in that it is strictly confidential. If know-how were licensed to various licensees, this would increase the risk of its disclosure to non-licensees. Such disclosure would inevitably decrease the value of the know-how, since free-riders could exploit it without the owner's consent and without paying a fee. Thus, know-how differs from other types of IPR in that it does not prevent others who discover it fairly and honestly from using/exploiting it. This is in stark contrast to patent licensing, which legally prevents another inventor from using the technology without permission, no matter how it was discovered. For this reason, it is preferable for know-how to be assigned rather than to license the invention. Fangtao Sun and others, 'Seven Tips for Technology Transfer in China' (2012) 221 Managing Intell Prop 70, 70. A technology can be licensed to more than one licensee, and the licensor can easily impose restrictions on various aspects of the technology, such as royalties, output, field of use, grant-back, and non-compete, so that they are able to control the territory and diffusion of the technology. However, a technology can be assigned to just one party in return for a lump sum. The assignor then loses the ownership and control of the technology, and therefore has fewer options to impose restrictions.

[54] For example, assignment of know-how accounted for 75.05% of technology transfers between indigenous companies in China in 2014, as compared with 14.71% for licensing of patents, 5.07% for assignment of patents and 2.01% for assignment of computer software. Bureau of Planning and Development in the Ministry of Science and Technology and Centre for Promoting Management of the Technology Market in China, 'Annual Report on Statistics of China Technology Market 2015' (*Torch High Technology Industry Development Centre of Ministry of Science and Technology of China*, 4 August 2015) <http://www.innofund.gov.cn/jssc/tjnb/list.shtml> accessed 15 August 2015.

[55] Bryan Mercurio, 'The Protection and Enforcement of Intellectual Property in China since Accession to the WTO: Progress and Retreat' (2012) 1 China Persp 23, 23-24.

evolution of IPRs protection and competition law in China in Chapter 4. The development of IPRs protection will be discussed with respect to three aspects: traditional philosophy, external pressure, and recent improvement. A key point is that the essence of IPRs directly conflicts with traditional Chinese culture and political attitudes.[56] For this reason, IPRs protection has emerged and developed under external pressure from abroad, primarily as a result of accession to the WTO.[57]

Competition law emerged in China in the late 20th century, alongside the transformation of the economic system from a centrally planned economy to a socialist market economy, as a result of the Reform and Opening-Up policy. The new market-based mechanism has played a significant role in the growth of the Chinese economy. The increased market competitiveness of the private sector and entry of foreign multinationals has heightened the requirement for proper regulation in the area. There was a clear demand for competition law, and the AML finally took effect in 2008. With respect to the path of modernisation that China has taken, it has been attempting to upgrade, from manufacturing-based economy to innovation-based economy,[58] improving the livelihood of Chinese people and boosting the economy in the process. This requests that the completion law should secure a heathy and fair competition in the market and maximise consumer welfare as well as avoid impeding the incentive of innovation in technology transfer.

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[56] Wei Shi, 'Culture Perplexity in Intellectual Property: Is Stealing a Book an Elegant Offense?' (2006) 32 N C J Int'l L & Com Reg 1, 40-44; John R Allison and Lianlian Lin, 'The Evolution of Chinese Attitudes Toward Property Rights in Invention and Discovery' (1999) 20 U Pa J Int'l Econ L 735, 774; William P Alford, *To Steal A Book is An Elegant Offense: Intellectual Property Law in Chinese Civilization* (Stanford University Press 1995) 9-13.

[57] Sumner La Croix and Denise Eby Konan, 'Intellectual Property Rights in China: The Changing Political Economy of Chinese-American Interests' (2002) 25(6) World Econ 759; Derek Dessler, 'China's Intellectual Property Protection: Prospects for Achieving International Standards' (1995) 19 Fordham Int'l LJ 181, 230-33.

[58] Chen Xin, 'It's Now Time to Re-tool "World's Factory"' (*China Daily*, 12 September 2012) <http://english.peopledaily.com.cn/90778/7946135.html> accessed 25 September 2012; Alex Frew McMillan, 'China's Role as 'World's Factory' Coming to an End' (*Consumer News and Business Channel of CNBC*, 6 February 2011) <http://www.cnbc.com/id/41035650/China_s_Role_as_World_s_Factory_Coming_to_an_End> accessed 11 September 2012.

It can be concluded that the development of competition law and IPRs in China has been tardy and unparallel. This could be one historical reason for the inadequacy of competition law for tackling IPRs-related anti-competitive issues.

After having the historically-based study of the inadequacy of competition law, Chapter 5 examines current competition legislation in China in order to reach a fuller understanding of the inadequacy. A few relevant provisions, scattered throughout laws and regulations[59] that existed prior to the emergence of the AML, are observed, and are found to be unsystematic and lacking in detailed interpretations. In addition, Article 55 of the AML,[60] the only article in the AML that deals with anti-competitive issues in relation to IPRs, is merely a general and simplistic principle, potentially confusing,[61] and incapable of resolving certain problems. The same can be said of the other regulations and judicial interpretations regarding implementation of the AML.[62] Although the 7th Guidelines, the Rules and the New Guidelines 2017 demonstrate the impressive development in attitude and understanding of Chinese AMEAs, they are

[59] Foreign Trade Law of China 2004, art 30 (non-challenge, tying and exclusive grant-back); Regulations for the Implementation of the Law of China on Chinese-Foreign Equity Joint Ventures 2011, art 43 (fair licensing fee, restriction on price, quantity and territory, exploitation of a technology after expiry of the agreement, grant-back); Technology Contract Law of China 1987 (repealed 1999) and Regulations on the Implementation of the Technology Contract Law 1989 (repealed 1999) (monopolisation of technologies, impediment to technology progress); Regulations on the Administration of Technology Import Contracts 1985 (repealed 2002), art 4 and Detailed Rules for the Implementation of the Regulations on Administration of Technology Import Contract 1988 (repealed 2002), art 12 (tying, selection of other suppliers to provide raw materials, restrictions on R&D, grant-back, etc.); Contract Law of China 1999, art 329 (any technology contract that illegally monopolises technologies, impedes technological progress, or infringes upon the technological fruits of others is null and void); Regulations on the Administration of Technology Imports and Exports of China 2002, art 29 (restrictions on transferee of technologies); Interpretation of the Supreme People's Court concerning Some Issues on the Application of Laws for the Trial of Cases on Disputes regarding Technology Contracts No 20/2004 (restrictions on R&D, non-compete, field of use, tying, restrictions on the technology-related objects and non-challenge); Patent Law of China 2001, art 48 (compulsory licensing).

[60] 'This law is not applicable to undertakings who exercise their intellectual property rights in accordance with the laws and administrative regulations on intellectual property rights; however, this law shall be applicable to the undertakings who eliminate or restrict market competition by abusing their intellectual property rights.' AML, art 55.

[61] For more details, see Section 5.2.1 of Chapter 5 of this thesis.

[62] See Regulations of the Supreme People's Court on Issues of Application of Law to the Trial of Cases of Civil Disputes resulting from Monopoly Conducts 2012；Regulations on the Administration for Industry and Commerce concerning Prohibition of Monopoly Agreements 2011；Regulations on the Administration for Industry and Commerce concerning Prohibition of Abuse of Administrative Power to Eliminate or Restrict Competition 2011；Regulations on the Administration for Industry and Commerce concerning Prohibition of Abuse of Dominant Market Position 2011；Regulations on the Anti-Price Monopoly 2011.

too brief to provide a solid basis for analysing and resolving issues in practice. Such inadequate legislation results in legal uncertainty and unpredictability in the domain of competition law, and prevents the two legal systems from functioning efficiently. It also makes technology owners less confident about transferring technologies in the Chinese market, and reduces incentives for innovation, ultimately harming consumer welfare. Therefore, more comprehensive detailed regulations are called for.

The following two chapters focus on providing legislative proposals to improve China's competiton law. Chapter 6 analyses a number of primary anti-competitive restrictions that may be imposed in technology transfer agreement. Such restrictions include price fixing, price discrimination, market allocation, tying and grant-back. Firstly, some general discussion on each issue is provided, and then the relevant legislation and case law of the US and the EU are examined.[63] Secondly, the current legislation in China, together with the relevant provisions of the 7th Guidelines, the Rules and the New Guidelines 2017, are discussed.[64] Finally, assessments of the anti-competitive restrictions, depending on an effects-based approach are proposed. Both positive and negative effects on efficiencies, such as innovation, technology dissemination, competition in the market, and consumer welfare, are taken into account. The proposals are based on consideration of China's unique situation, as well as upon the experiences of the US and the EU. In order to support the proposal, a number of recent cases in China are discussed in detail.[65]

[63] The competition laws of the US and the EU are two examples of typical systems that have been developed over many years and amassed a wealth of experience. They have much in common as well as exhibiting differences – with each other. It is therefore valuable for Chinese legislation to draw on their experiences, whilst also considering the specific requirements of China and its technology market.

[64] Most provisions relating to the application of competition law to technology transfer are scattered across various laws and regulations and are too simplistic. The draft of the 5th Guidelines and the Rules that came into force in August 2015, specialising in the interface between competition law and IPRs, should have more emphasis placed upon them. However, they both remain too simplistic, and some of their provisions are almost replicated from the general provisions of the AML. Only a few issues, such as tying and refusal to license, have been provided with a little more guidance, although it is still not detailed enough for purpose. The same situations can be also found in the 7th Guidelines and the New Guidelines 2017.

[65] IPRs-related anti-competitive issues are relatively new to China, and so only a few cases have been presented to the court. Potentially, there will be further cases in the future, coinciding with the growth of technology importation and indigenous innovation. The current Chinese cases discussed in the thesis include *Kam Hing v Microsoft* (2013) Guangzhou Intermediate People's Court No 21/2013 ((2013) 穗中法知民初字第 21 号 Sui Zhong Fa Zhi Min Chu Zi Di 21 Hao) (price discrimination); *Huawei v InterDigital* (2011) Shenzhen of Guangdong Intermediate People's Court No 858/2011 ((2011) 深中法知民初字第 858

Chapter 7 discusses the situation where technology owners refuse to transfer technology. Traditionally, technology owners can decide whether and to whom they wish to transfer their technology. If technologies have been granted IPRs, this strengthens the exclusivity of exploiting them. However, refusals to transfer may impede competition in the market. Therefore, with the development of competition law, the IPRs might be overruled in exceptional cases, in order to secure a competitive market. It is clear that refusals to transfer are very complicated to assess, as it is difficult to justify the intervention of competition law to deny the IPRs owner the choice of transfer, especially as this choice could almost be considered the most basic right safeguarded by the two vital elements of the modern market economy: freedom of contract and exclusivity of IPRs. US and EU law differ somewhat with regard to the application of competition law to refusals to transfer technology. The US leans more towards protecting inventors' right of refusal, with a view to safeguarding incentives to innovate, while the EU imposes restrictions on the practice of refusing to transfer in exceptional circumstances, the aim being to protect competition in the market and consumer welfare.[66] The essential facilities doctrine has been considered a fundamental ground to intervene in a refusal to license, through the application of competition law,[67] in the 7th Guidelines, the Rules and the New Guidelines 2017.

号 (2011) Shen Zhong Fa Zhi Min Chu Zi Di 858 Hao), aff'd, (2013) Guangdong High People's Court No 306/2013 ((2013) 粤高法民三终字第 306 号 (2013) Yue Gao Fa Min San Zhong Zi 306 Hao) (price discrimination, unfairly high price, and refuse to license); *Qihoo v Tencent* (2011) Guangdong High People's Court No 2/2011 ((2011) 粤高法民三初字第 2 号 (2011) Yue Gao Fa Min San Chu Zi Di 2 Hao), aff'd, (2013) Supreme People's Court No 4/2013 ((2013) 民三终字第 4 号 (2013) Min San Zhong Zi Di 4 Hao) (abuse of dominant position); *Ribang v Jonshon & Jonshon* (2010) Shanghai No 1 Intermediate People's Court No 169/2010 ((2010) 沪一中民五(知)初字第 169 号 (2010) Hu Yi Zhong Min Wu (Zhi) Chu Zi Di 169 Hao), rev'd, (2012) Shanghai High People's Court No 63/2012 ((2012) 沪高民三(知)终字第 63 号 (2012) Hu Gao Min San (Zhi) Zhong Zi Di 63 Hao) (restriction on resales, allocation of markets, price fixing); *Beijing Dongjin v Intel* (2006) (field of use); *TSUM v Sony* (2004) Shanghai No 1 Intermediate People's Court No 223/2004 ((2004) 沪一中民五(知)初字第 223 号 (2004) Hu Yi Zhong Min Wu (Zhi) Chu Zi Di 223 Hao) (tying, refusal to license).

[66] Amedeo Arena and others, 'Two Bodies of Law Separated by A Common Mission: Unilateral Conduct by Dominant Firms at the IP/Antitrust Intersection in the EU and the US' (2013) 9(3) ECJ 623, 670-75. Mauro Squitieri, 'Refusals to License under European Union Competition Law after Microsoft' (2012) 11 J Int'l Bus & L 65, 78-82.

[67] Lisa Mays, 'The Consequences of Search Bias: How Application of the Essential Facilities Doctrine Remedies Google's Unrestricted Monopoly on Search in the United States and Europe' (2015) 83 Geo Wash L Rev 721, 737-42. Maxwell Meadow, 'The Essential Facilities Doctrine in Information Economies: Illustrating Why the Antitrust Duty to Deal is Still Necessary in the New Economy' (2015) 25 Fordham Intell Prop Media & Ent LJ 795, 796-98.

However, clear conditions regarding application of the doctrine were not offered. Based on an effect-based approach, this thesis provides specific guidelines for assessing whether and to what extent the competition law should be applied to refusals to transfer, taking into account the situation of China, and the experiences of the US and the EU.

Chapter 8 summarises the arguments of this thesis. Above all, it indicates that it is justified to apply competition law to the exercise of IPRs in technology transfer, when the positive effects of such an application outweigh the adverse ones. This offers a justifiable basis and an effects-based approach for furthering Chinese competition law in such a troublesome intersection. Secondly, observations on the evolution of the two legal systems in China offer historical reasons for the inadequacy of competition law for tackling existing and potential severe anti-competitive issues in technology transfer, which has been demonstrated by an examination of existing relevant law and regulations. Finally, comprehensive guidelines for assessing and tackling some primary anti-competitive issues are proposed.

1.2.2 Scope

It is useful to define some key terms, not only to ensure that they are understood accurately but also to limit the scope of the study. These key terms are competition law, technology transfer, and the geographic extent of China.

1.2.2.1 Competition Law

Anti-competitive practices and unfair competition practices are very similar, as they both have negative impacts on competition, markets, and consumer welfare, etc. Laws regulating these practices aim to safeguard the competitive order and provide fair competitive opportunities, in order to promote the vitality of the market and consumer welfare. Differences also exist between the two types of practice. The former consists primarily of restrictive agreements, abuse of dominance, and anti-competitive

acquisitions and mergers that intend to distort competition.[68] In terms of the latter, the Paris Convention for the Protection of Industrial Property states that '[a]ny act of competition contrary to honest practices in industrial or commercial matters constitutes an act of unfair competition'.[69] According to the Organisation for Economic Co-operation and Development[70] (OECD), unfair competition practices are a 'sort of fraudulent behaviour or misappropriation of property rights'.[71] Also, unfair competition practices are considered to include counterfeiting, commercial bribery, false advertisement, infringing trade secrets, and discrediting competitors.[72]

In some countries around the world, such as Germany, competition law refers to laws that regulate both anti-competitive practices and unfair competition practices.[73] However, other countries, such as Canada[74] and the US,[75] have adopted a narrower definition of competition law, legislating on unfair competition practices and anti-

[68] Alison Jones and Brenda Sufrin, *EU Competition Law: Text, Cases, and Materials* (5th edn, Oxford University Press 2014) 1-3.

[69] Acts of unfair competition include 1) creating confusion; 2) false allegations to discredit competitors; and 3) misleading the public. Paris Convention for the Protection of Industrial Property (signed 1883, took effect 1884, amended 1979). See also Pinar Akman, *The Concept of Abuse in EU Competition Law: Law and Economic Approaches* (Bloomsbury Publishing 2012) 152 (stating unfair competition law prevents 'dishonest and fraudulent rivalry in trade and commerce.')

[70] The OECD was established in 1961 and has 34 member states. It now includes a large number of developed countries and emerging countries such as Mexico, Chile, and Turkey. However, China is not a member. The OECD aims to promote policies that will improve economic growth and social welfare throughout the world. It provides a forum enabling governments to work and communicate with each other to determine the problems they have in common. Its remit covers the economy, society, environment, etc. from a macro perspective, as well as microeconomic matters concerning individuals, such as income tax, education, and pensions. OECD, 'About Us' (*OECD*, no date) <http://www.oecd.org/about/> accessed 25 February 2012.

[71] OECD, *China in the World Economy: An OECD Economic and Statistical Survey* (Kogan Page 2002) 405.

[72] Benjamin M Daniels, 'Proximately Anza: Corporate Looting, Unfair Competition, and the New Limits of Civil RICO' (2007) 85 Wash U L Rev 611, 611-12; Andrew Wedeman, 'The Challenge of Commercial Bribery and Organised Crime in China' (2013) 22(79) J Contemp China 18, 19-20.

[73] The Wettbewerbsrecht, the competition law of Germany, regulates both unfair competition practices and anti-competitive practices. Wettbewerbsrecht consists of Lauterkeitsrecht, which is a law of fair trading practices, and Kartellrecht, a cartel law. David J Gerber, *Law and Competition in Twentieth Century Europe* (Oxford University Press 1998) 4.

[74] 'The Competition Act is a federal law governing most business conduct in Canada. It contains both criminal and civil provisions aimed at preventing anti-competitive practices in the marketplace.' 'What is the Competition Act' (*Competition Bureau of Canada*, 11 January 2012) <http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/h_00148.html#competition> accessed 28 March 2012. See Competition Act of Canada 1985 (c-34).

[75] Daniel Shickich, 'Finding Safe Harbor: Navigating Washington's New Unfair Competition Law' (2012) 8 Wash J L Tech & Arts 1, 3-4.

competitive practices separately. The EU has also adopted the narrower approach.[76] The relevant legislation of competition law includes Articles 101 and 102 of the Treaty on the Functioning of the European Union (TFEU) and the TTBER 316/2014 and its Guidelines, but not the Unfair Commercial Practices Directive.[77] According to an OECD study, unfair competition is not generally considered to be a part of competition law.[78]

In China, the term 'competition law'[79] is largely restricted to academic studies and is not used in legislation. Most academic scholars in China agree that competition law is to be understood in the broader sense. For example, both Zhong and Wang consider that competition law includes anti-unfair competition law and anti-monopoly law.[80] In contrast, others[81] in China advocate understanding it in the narrower sense, considering this to be clearer and more logical, facilitating the integration of research in China with research in most other countries. The broader understanding of competition law allows ambiguity and confusion within academic research on the regime of competition law. In practice, there are two relevant pieces of legislation in

[76] Hanns Ullrich, 'Anti-Unfair Competition Law and Anti-Trust Law: A Continental Conundrum' (2005) European University Institute Working Paper Law No. 2005/01 <http://cadmus.eui.eu/bitstream/handle/1814/2832/law05-01.pdf> accessed 12 December 2012 ('[t]he community … has reformed the substance of its rules on restraints of competition and obliged Member States to follow it closely … However, it expressly left Member States' related systems of granting enterprises protection against unfair business practices of competitors and other enterprises unaffected.')

[77] Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005 concerning unfair business-to-consumer commercial practices in the internal market and amending Council Directive 84/450/EEC, Directives 97/7/EC, 98/27/EC and 2002/65/EC of the European Parliament and of the Council, and Regulation (EC) No 2006/2004 of the European Parliament and of the Council (Unfair Commercial Practices Directive) [2005] OJ L149/22.

[78] 'It is important to understand that bans of unfair trade practices or unfair competition are not generally referred to as being a part of "competition law"'. OECD, *China in the World Economy: An OECD Economic and Statistical Survey* (Kogan Page 2002) 405

[79] Competition law (竞争法 Jingzheng Fa), anti-monopoly law (反垄断法 Fan Longduan Fa), anti-unfair competition law (反不正当竞争法 Fan Bu Zhengdang Jingzheng Fa).

[80] Mingzhao Zhong (钟明钊), *Competition Law* (竞争法 Jingzheng Fa) (Law Press (法律出版社 Falü Chuban She) 2008) 1 ('the competition, in the anti-unfair competition law and anti-monopoly law, both of which are included in competition law of economic law, is closed to competition of economics, so examination on economic competition is the premise for the study of competition law'); Wangin Xiaoye Wang (王晓晔), *Competition Law* (竞争法学 Jingzheng Fa Xue) (Social and Scientific Documents Press (社会科学文献出版社, Shehui Wenxian Chuban She) 2007) 1.

[81] Guangyao Xu (许光耀), *General Discussion on EC Competition Law* (欧共体竞争法通论 Ougongti Jingzheng Fa Tonglun) (Wuhan University Press 2006 (武汉大学出版社 Wuhan Daxue Chuban She) 2006)16-25.

China: the Anti-Unfair Competition Law of China[82] (AUCL) and the AML. In this thesis, the term competition law will be understood in the narrower sense, excluding anti-unfair practice legislation.

1.2.2.2 Technology Transfer

Technology has played a crucial role in the history of human society, and has evolved from being used as a basic means of survival to a significant productive force for development. It now refers to information or techniques involved in the creation of goods or services. The World Intellectual Property Organisation[83] (WIPO) defines technology as:

> [S]ystematic knowledge for the manufacture of a product, the application of a process or the rendering of a service, whether that knowledge be reflected in an invention, an industrial design, a utility model, or a new plant variety, or in technical information or skills, or in the services and assistance provided by experts for the design, installation, operation or maintenance of industrial plant or for the management of an industrial or commercial enterprise or its activities.[84]

Technology is considered to include almost all skills and information protected by intellectual property laws, such as patents, copyrights, and trade marks; and those protected by trade secrecy laws, such as know-how. All WTO members are required to provide effective enforcement of the minimum standards for intellectual property protection set out in the Agreement on Trade-Related Aspects of Intellectual Property Rights[85] (TRIPs).

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[82] It came to force on 1 December 1993.

[83] The WIPO was established in 1976 and now has 187 member states. It is a global forum for services, policy, information, and cooperation in relation to intellectual property, and aims to 'lead the development of a balanced and effective international intellectual property system that enables innovation and creativity for the benefit of all. The mandate, governing bodies and procedures are formulated in the WIPO Convention. Convention Establishing the World Intellectual Property Organisation (signed 1967, took effect 1970).

[84] WIPO, *Licensing Guide for Developing Countries* (Geneva 1977) 28.

[85] Agreement on Trade-Related Aspects of Intellectual Property Rights, Annex 1C of the Marrakesh Agreement Establishing the World Trade Organisation (signed 1994, took effect 1995). The TRIPs was discussed at the final stage of the Uruguay Round of trade negotiations that took place between 1986 and 1994. It set out minimum standards for various forms of intellectual property regulation, and permitted

Due to the differing character of the various types of IPRs, legislation regulating them varies, and the legal definition of the term 'technology' in those laws and regulations may differ from the everyday meaning. For instance, in TTBER 316/2014, technology includes know-how, patents, utility models, designs, semiconductor products, products that are eligible for supplementary protection certificates, plants, and software.[86] Legislation in China defines the term 'technology' as patents and know-how.[87] With the rapid development of information and skills, many new technologies have appeared and played an essential role in the modern social and economic framework, not only of developed countries but also of China, where a number of laws and regulations[88] have been implemented to deal with those new technologies. Furthermore, the Supreme People's Court of China has attempted to widen the definition of technology, extending the scope of regulation relating to it accordingly.[89]

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member countries to decide on their own internal policies and implementation procedures. Demaret describes it as 'the largest and most ambitious attempt to harmonize intellectual property rights on a world scale.' Paul Demaret, 'The Metamorphoses of the GATT: From the Havana Charter to the World Trade Organisation' (1995) 34 (1996) 34 Colum J Transnat'l L 123, 162.

[86] TTBER 316/2014, art 1(b). In TTBER 772/2004, the term 'technology' includes patents, know-how, and software, but according to the definition of 'patent' and its guidelines, the scope of technology is almost the same as in the TTBER 316/2014. TTBER 772/2004, art 1(b), (h) and Guidelines of TTBER 772/2004, para 46.

[87] 'Technology transfer contracts include contracts for the assignment of patents, assignment of patent application rights, transfer of technical secrets, and patent licensing.' Contract Law of China 1999, art 342. 'Technology imports and exports, as referred to in these Regulations, means [...] The acts referred to in the preceding paragraph include the assignment of patents, assignment of patent application rights, transfer of technical secrets, patent licensing, and technology transfer through technical services and other means.' Regulations on Administration of Technology Imports and Exports 2002, art 2.

[88] For example, Regulations on the Protection of New Varieties of Plants 1997, Regulations on the Protection of Layout Designs of Integrated of Circuits 2001, Copyright Law of China 2001 and Regulations on the Protection of Computer Software 2002. There is still no legislation on supplementary protection certificates for medicinal products or other products for which such supplementary protection certificates may be obtained.

[89] 'Technological achievements' refers to a technological scheme which is concerned with products, techniques, materials and their improvement resulting from scientific knowledge, information and experience, and includes patents, patent applications, technical secrets, software, layout designs of integrated circuits, and new varieties of plants, etc. Interpretation of the Supreme People's Court concerning Some Issues on the Application of Laws for the Trial of Cases on Disputes regarding Technology Contracts No 20/2004, art 1. The Interpretation tries to explain 'technological achievements' in Chapter eighteen on Technology Contract in the Contract Law of China. Technological achievements have been mentioned mainly in relation to job-related technological achievements in Section one of the general provisions in this chapter, while other parts of the chapter, including Section three on Technology Transfer Contracts, refer to 'technology' rather than 'technological achievements'. Because Section three already explicitly defines technology transfer contracts as including contracts for the assignment of patents, assignment of patent application rights, transfer of technical secrets, and patent licensing, it is difficult to incorporate software, layout designs of integrated circuits, and new varieties of plants, into

Considering the character of technology and relevant objects protected under current Chinese law, the scope of the term 'technology' in this thesis will be defined as know-how, patents, semiconductor products, plants, and software.

It should be noted that the scope of the term 'patents' in US and EU legislation differs from its scope in Chinese legislation. In US law, patents can be granted to inventions,[90] designs[91] and plants.[92] In EU legislation, patents are mainly granted for inventions rather than for utility models and designs.[93] According to China's patent law, patents are granted for inventions, utility models, and designs.[94] Furthermore, the definition of patents in TTBER 772/2004[95] was not included in TTBER 316/2014, and some types of rights previously under patents have been separated from patents.[96] However, the change to the definition of patents does not affect the scope of the definition of 'technology'. This is the same in both regulations. In this thesis, the understanding of the term 'patent' includes inventions, utility models, and designs.

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technology in the area of transfer. However, this does at least demonstrate the willingness of legal professionals to extend the scope of technology.

[90] Inventions patentable (35 USC 101).

[91] Patents for designs (35 USC 171).

[92] Patents for plants (35 USC 161).

[93] 'European patents shall be granted for any inventions, in all fields of technology, provided that they are new, involve an inventive step and are susceptible of industrial application.' European Patent Convention 2007, art 52(1). However many individual EU member states have laws for utility models protection, such as Germany, Spain, France, and Italy. Manuel Lobato, 'Spain: Some interesting peculiarities of Spanish utility models' (*Bird & Bird*, 09 January 2013) <http://www.twobirds.com/English/News/Articles/Pages/spain_interesting_peculiarities_spanish_utility_models_0113.Aspx> accessed 14 July 2013; Bardehle Pagenberg, 'Utility Model Protection in Germany' (*Bardehle Pagenberg*, February 2014) <http://www.bardehle.com/fileadmin/contentdocuments/broschures/Utility_Model_Protection_in_Germany.pdf> accessed 16 July 2014. Whilst the United Kingdom (UK), Luxembourg, and Sweden have certain law, together with the EU have certain laws or directives that cover design rights. Council Regulation (EC) No 6/2002 of 12 December 2001 on Community designs [2002] OJ L3/1 (providing different protection terms for registered and non-registered design rights.).

[94] 'Article 1. This Law is enacted to protect patent rights for inventions-creations, to encourage inventions-creations, to foster the spreading and application of inventions-creations, and to promote the development of science and technology, for meeting the needs of the construction of socialist modernization.' 'Article 2. In this Law, "inventions-creations" mean inventions, utility models and designs'. Patent Law of China 2009, arts 1, 2.

[95] '"[P]atents" means patents, patent applications, utility models, applications for registration of utility models, designs, topographies of semiconductor products, supplementary protection certificates for medicinal products or other products for which such supplementary protection certificates may be obtained and plant breeder's certificates.' TTBER 772/2004, art 1(1)(h).

[96] '"[T]echnology rights" means know-how and the following rights [...] (i) patents, (ii) utility models, (iii) design rights, (iv) topographies of semiconductor products, (v) supplementary protection certificates for medicinal products or other products for which such supplementary protection certificates may be obtained, (vi) plant breeder's certificates and (vii) software copyrights'. TTBER 316/2014, art 1(b).

The law on know-how or trade secrets provides an alternative way of protecting technical innovations legally and, together with the patents system, constructs a framework of rules that aims to preserve the rights and interests of proprietors in relation to almost all kinds of technologies. Know-how is practical knowledge of how to do something,[97] often characterised as 'secret', 'substantial', and 'identified' in EU law.[98] These three characteristics are also considered as standards to identify know-how in China,[99] although it has been described in Chinese legislation using different terms: 'non-patent technology', 'technical secrecy', and 'mostly proprietary technology'.[100] The term 'trade secrets' is defined in the AUCL and comprises

[97] *Beecham Group v Bristol Laboratories International SA* [1978] RPC 521.

[98] TTBER 316/2014, art 1(1)(i). For further detailed interpretations, see the Guidelines of TTBER 316/2014, para 45. The definition of know-how had included 'non-patented' in TTBER 772/2004, which has been deleted in the new regulation. This may be because if the know-how has been patented, it would be granted a patent rather than other types of right. TTBER 772/2004, art 1(i) and Guidelines of TTBER 772/2004, para 47.

[99] There are several helpful interpretations, although some have expired. 1) Proprietary technology: 'Contracts for licensing proprietary technology refer to those for the provision or impartment of technical knowledge for manufacturing a product or applying a technology, as well as for product designs, technological processes, formulae, quality control and management, which is neither publicized nor under the legal protection of industrial property rights.' Detailed Rules for the Implementation of the Regulations on Administration of Technology Import Contracts 1988 (repealed 2002), art 2(2). 2) Non-patent technology: 'Non-patent technology: (a) is a technical proposal or knack concerning knowledge, experience and information; (b) has a secret status and cannot be obtained by the public; (c) has practical utility and affords the proprietor economic interests and competitive advantages; (d) has been subject to secret-keeping measures and has never been provided to persons who do not afford an obligation of keeping it secret.' Regulations of the Supreme People's Court on the Resolution of Cases of Science and Technology Disputes No 6/1995 (repealed 2000), art 51. 3) Technical Secrets: 'Technical secrets refer to any technology information which is unknown to the public, which has business value, and concerning which the proprietor has taken secret-keeping measures.' Interpretation of the Supreme People's Court concerning Some Issues on the Application of Laws for the Trial of Cases on Disputes regarding Technology Contracts No 20/2004, art 1.

[100] There are some examples. 1) Proprietary technology: 'Each joint venturer may invest in cash or may contribute buildings, factory premises, equipment or other materials, industrial property, proprietary technology, or the right to the use of a site, appraised at appropriate prices, as investment.' Regulations for the Implementation of the Law of China on Chinese-Foreign Equity Joint Ventures 2011, art 22. See also Regulations for the Implementation of the Law of China on Wholly Foreign-Owned Enterprises 2014, art 25. 2) Non-patent Technology: 'The investment or conditions for cooperation contributed by the Chinese and foreign parties may be provided in cash or in kind, or may include the right to the use of land, industrial property rights, non-patent technology or other property rights.' Law of China on Chinese-Foreign Contractual Joint Ventures 2000, art 8. See also Law of China on the Promotion of Small and Medium-Sized Enterprises 2003, art 28. 3) Technical Secrecy: 'The acts mentioned in the preceding paragraph include assignment of patent rights, assignment of patent application rights, licensing for patent exploitation, assignment of technical secrets, technical services and transfer of technology by other means.' Regulations on Administration of Technology Imports and Exports 2002, art 2.

technological information and business operation information.[101] In this thesis, the terms will be used synonymously.

Software has been instrumental in enabling computers to carry out operations for various purposes in the information age. The information embodied in software can be regarded as potentially extremely valuable technology. Currently, software can be protected both by patent law and copyright law. There is almost no doubt that copyright law mainly protects the source code, which is the core of the software. This enables it to operate in a certain field, and is the primary protection model for most software.[102] Also, under specific conditions, software can also currently be granted patent protection. This usually happens when it achieves a novel technical effect in its operation or the functioning of the computer.[103] In this thesis, the transfer of software copyright is within the scope of technology transfer.

Now that the scope of technology has been defined, the method of transfer will be discussed. A technology owner can exploit his technology in various ways. Firstly, if he possesses the necessary production facilities, alongside management and marketing skills, he could use his technology to manufacture products to earn profits. Secondly, he could commercialise the technology by transferring it to others by means of a

[101] 'Trade secrets refer to any technology information or business operation information which is unknown to the public, can bring about economic benefits to the proprietor, has practical utility and concerning which the proprietor has taken secret-keeping measures.' AUCL 1993, art 10.

[102] See Copyright Law of China 2011; Regulations on Protection of Computer Software 2013; Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the legal protection of computer programs [2009] OJ L111/16; Copyrights Act (17 USC) .

[103] In the US, software has been granted patent protection. 'A practical application of a computer-related invention is statutory subject matter. This requirement can be discerned from the variously phrased prohibitions against the patenting of abstract ideas, laws of nature or natural phenomena'. Computer Related Examination Guidelines 1996. In the EU, programs for computers are excluded from patentability, and any invention that brings a non-obvious 'technical contribution' or deals with a 'technical problem' in a non-obvious way is patentable, even if that technical problem is solved by running a computer program. European Patent Convention 1973, art 52; European Patent Office, Decision of 24 February 2006, Case Number: T0469/03, Reasons 5.1 to 5.3 (*European Patent Office*, 24 February 2006), http://www.epo.org/law-practice/case-law-appeals/pdf/t030469eu1.pdf, accessed 18 September 2012. See also Case T258/03 Hitachi/ Auction Method [2004] 12 OJEP 575, [2005] EPOR 55 (computer-implemented invention for solving business problems only, rather than technical problems, is considered non-patentable due to absence of inventive step). In China, the software itself, or the carrier of such software, would not be patentable. If the application of software is for solving technical problems, exploiting technological methods, or generating technological effects, the software is then deemed to be patentable. Guidelines on Examination of Patent 2006, ch 2.

licence or assignment. Licensing means that the owner authorises others to use the technology within the scope agreed by the parties, but with the owner still retaining the ownership of the technology and charging royalties normally. Assignment means that the owner transfers the ownership of the technology to others; that is, he gives up the proprietary rights upon transfer. It should be noted that licensing can take place on an exclusive or non-exclusive basis, and licences can be issued in relation to different geographical areas and for differing periods of time. The issues associated with competition in licensing, such as restrictions on licensing objects, and restrictions on licensing fields and output restrictions, are not relevant in the case of assignments.[104] Therefore, this thesis will primarily focus on licensing. In addition, patent pools and industrial standards that involve more than two parties are forms of technology transfer. Given that they have some unique characteristics, this thesis will focus on technology transfer between two parties, although it will involve patent pool and industrial standards when necessary.

1.2.2.3 Geographic Scope: The People's Republic of China

China consists of Mainland China, the Hong Kong Special Administrative Region, the Macau Special Administrative Region, and Taiwan Province.[105] Hong Kong and Macau have their own economic, political, and legal systems, that are based on their own constitution-like basic laws.[106] Taiwan also has its own political and legal system, and is self-governing in practice. These systems differ considerably from those in Mainland China. Pursuant to the basic laws, the AML does not apply to Hong Kong and Macau, which have their own competition laws, nor does it apply to Taiwan, in practice. Despite having its own separate economic, political, and legal system that includes a

[104] For example, only an assignment of technology rights for the purpose of the production of contract produce is able to constitute the 'technology transfer agreement;' others may not. TTBER 316/2014, art 1(c)(ii).

[105] 'The state may establish Special Administrative Regions when necessary'. Constitution of China 2004, art 31.

[106] Hong Kong 'shall exercise a high extent of autonomy and enjoy executive, legislative and independent judicial power'. The Basic Law of Macau has a similar provision. The basic laws and their amendments and interpretations need to be approved by the National People's Congress of China. Basic Law of Hong Kong, art 1.

competition system, Taiwan is regarded by China as being a part of China.[107] However, some other countries, such as the US and the UK, may not share this view.[108] Due to the differences between these regions and Mainland China, and for reasons of space, the study will not include Hong Kong, Macau and Taiwan, and 'China' will refer only to Mainland China.

1.3 Literature Review

1.3.1 The Relationship between IPRs and Competition Law

Some scholars hold the view that IPRs and competition law are in conflict. The exclusive rights of IPRs are regarded as market power that may impede effective competition,[109] and the damage caused by market power may extend to slowing or distorting innovation.[110] From an economic perspective, IPRs promote dynamic competition, while competition law focuses on static competition, and so the supremacy of static efficiency pursued by competition law creates a conflict with dynamic efficiency that IPRs aim to achieve.[111] In addition, IPRs are assigned at an

[107] 'Taiwan is part of the sacred territory of the People's Republic of China', Constitution of China 2004, Preamble.

[108] Phillip C Saunders, 'Long-term Trends in China-Taiwan Relations: Implications for U.S. Taiwan Policy' (2005) 45 (6) Asian Survey 970.

[109] Katrin Nyman-Metcalf Katrin and others, 'The Freedom to Conduct Business and the Right to Property: The EU Technology Transfer Block Exemption Regulation and the Relationship Between Intellectual Property and Competition Law' in Tanel Kerikmäe (ed), *Protecting Human Rights in the EU* (Springer Berlin Heidelberg 2014) 37; David Bainbridge, *Intellectual Property* (Longman 2009) 234-37; Robert D Weaver and Justus Wessler, 'Monopolistic Pricing Power for Transgenic Crops When Technology Faces Irreversible Benefits and Cost' (2004) 11 App Econ Lett 969, 968.

[110] Michele Boldrin and David K Levine, *Against Intellectual Monopoly* (Cambridge University Press 2010) 3-8; Ove Granstrand, 'Innovation and Intellectual Property' (DRUID Summer Conference on Creating, Sharing and Transferring Knowledge, The Role of Geography, Institutions and Organisations, Copenhagen, 12-14 June 2003) <http://www.druid.dk/uploads/tx_picturedb/ds2003-891.pdf> accessed 7 May 2013; Roger Andewelt, 'Recent Revolutionary Changes in Intellectual Property Protection and the Future Prospects' (1986) 50 Alb L Rev 509.

[111] Pierre Régibeau and Katharine Rockett, 'The Relationship between Intellectual Property Law and Competition Law: An Economic Approach' (*Essex University*, June 2004) <http://www.essex.ac.uk/economics/discussion-papers/papers-text/dp581.pdf> accessed 2 April 2012. There are relevant discussions from an economic perspective. See William M Landes and Richard A Posner, *The Economic Structure of Intellectual Property Law* (Harvard University Press 2003); Ernest Gellhorn, William Kovacic and Steven Calkins, *Antitrust Law and Economics* (West Group 2004) Ch III; Justus Haucap, 'The "More Economic Approach" after 10 Years: Remarks by an Economist' (*Internationales Forum EU-Kartellrecht, Brussels*, 9 March 2010) <https://studienvereinigung-kartellrecht.de/downloads/forum-kartellrecht/speech-haucap.pdf> accessed 5 September 2012; Herbert

early stage of being created, while competition law always intervenes at a later stage when IPRs have been exercised and an anti-competitive effect has been proved. As a result of the imbalance of receiving information from different time periods, attempts by competition law to revisit the balance between the gain in the innovation incentive, and the loss in the exercise of such exclusive rights, is highly likely to be contrary to the previous intention embodied in IPRs.[112] Nowadays, however, IPRs and competition law are widely considered to be integrated. Above all, the exclusivity of IPRs does not necessarily lead to market power.[113] Both IPRs and competition law aim to improve economic growth, technological advance, and consumer welfare, but do so through different mechanisms.[114] They promote competition as well as innovation.[115]

There could be a potential clash between IPRs and competition law, as they have previously achieved different objectives through distinct methods. The most difficult potential conflict lies in the fact that the maintenance of access to markets appears to be fundamentally opposed to the exclusive right to keep others away from markets. However, recently IPRs and competition law have been widely recognised as complementing each other, because they both pursue the common aims of promoting innovation and competition, and ultimately of increasing consumer welfare, albeit by different means. IPRs offer exclusive rights to the rights owner for a given period as a

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Hovenkamp, *Federal Antitrust Policy* (4th edn, West 2011) s 5.2. For more details of static and dynamic completion and efficiency, see Section 2.3.1 of Chapter 2 of this thesis.

[112] Change Howard F, 'Patent Scope, Antitrust Policy and Cumulative Innovation' (1995) 26 RAND J Econ 34.

[113] Andrea Stazi, 'Intellectual Property Rights and Market Power in The European Union: The Fil Rouge Of Consumer Welfare' (*Social Science Research Network*, 1 June 2011) <http://ssrn.com/abstract=1898185> accessed 15 November 2011. See also OECD, 'Competition Policy and Intellectual Property Rights' (*OECD*, 1997) <http://www.oecd.org/competition/abuse/1920398.pdf> accessed 16 June 2013. This opinion also appeared in cases, such as *United States v Microsoft* 84 F Supp 2d 9 (1999) (the court stated that possession of the copyright over its use or exploitation solely does not constitute market power, as there are other substitutes available).

[114] Atul Patel and others, Intellectual Law & Competition Law (2011) 6 (2) J Int'l Comp L & Tech 120, 120; Luc Peeperkorn, 'IP Licences and Competition Rules: Striking the Right Balance' (2003) 26(4) W Comp 527.

[115] Youngjin Jung, KFTC's Foray into the Intersection between Competition Law and Intellectual Property Law: A Path towards Convergence or Divergence? (2011) 21 Comp L Int'l 21, 21-22 (stating 'competition law and IPR laws share the same basic objectives of promoting consumer welfare, innovation and efficiencies'); Hanns Ullrich, 'Intellectual Property, Access to Information, and Antitrust: Harmony, Disharmony, and International Harmonization' in Rochelle Dreyfuss, Diane L Zimmerman and Harry First (eds), *Expanding the Boundaries of Intellectual Property - Innovation Policy for the Knowledge Society* (Oxford University Press 2001) 372 (competition is not a natural phenomenon but rather a complex evolution system that includes systematic innovation).

reward, as well as an incentive to the wider process of innovation and R&D investment. On the other hand, competition law aims to preserve a competitive and innovative market by maintaining access to markets and preventing barriers and monopolisation of markets.[116] In some circumstances, however, contradictions arise,[117] and in such cases it may be necessary to intervene in the exercise of IPRs through the application of competition law.[118]

1.3.2 Anti-competitive Issues in Technology Transfer in China

1.3.2.1 The Attention Drawn to Anti-competitive Issues in Foreign-related Technology Transfer

Most articles that discuss the relationship between IPRs and competition law in China, and are published in Chinese academic journals, address restrictions imposed by foreign multinationals when they transfer technologies to China. Shen and Xie, according to analysis on foreign-related cases of IPRs, propose five principles for the regulation of IPRs through competition law. The principles include considering the regulation of competition law on IPRs from the perspective of China's attempt to

[116] '[T]here was a period when the misunderstanding of the economic effects of IPRs led EC competition law and policy to attempt to place overly strict limits on the exercise of IPRs, particularly in the field of patent licensing. Today, however, the interrelationship between the two systems of law is characterised more by its accommodations than by its conflict. These accommodations tend to occur most often as an incidental result of the ordinary doctrines of each system. Thus, intellectual property laws make a contribution to effective competition and maintaining access to market by devices within their own internal doctrine that strive to maintain a balance between "initial" inventors and creators and "follow-on" invention and creation [...] Within EC competition law the accommodation also tends to occur more owing to the incidental effect of the logic of the general doctrines of competition law rather that in the form of special treatment [...]' Steven D Anderman and J Kallaugher, *Technology Transfer and the New EU Competition Rules: Intellectual Property Licensing after Modernisation* (Oxford University Press 2006) part II.

[117] Yaniv Gal, 'Patent Law in the Antitrust Scope: Between Social Advancement and Competition Impingement' (2011) 11 J Marshall Rev Intell Prop L 367, 384-98, 411 (analysing situations in which the exercise of a patent may conflict with competition law, but proposes adjustments to the patent system *ex ante*, rather than intervention via the application of competition law).

[118] Thomas K Cheng, 'A Developmental Approach to the Patent-Antitrust Interface' (2012) 33 Nw J Int'l L & Bus 1, 78 (arguing that '[t]his conflict stems from the fact that antitrust law prohibits the acquisition or maintenance of monopoly power through exclusionary means while patent rights confer market power,' and proposes that developing countries should challenge the value of innovation incentives that result from the patent system, thus avoiding unnecessary harm to consumer welfare.).

develop peacefully, aiming to protect national interests and consumer welfare, etc.[119] Kong and Hu analyse situations in which multinationals set up technical barriers, establish technical standards, and engage in collusion of patents to sustain a monopoly position. They suggest that one solution is to regulate multinationals through competition law.[120] Guo notes that foreign companies exploit the unilateral suppression of technology that can be achieved through refusal to license a patent, in order to restrict the development of Chinese companies; this could be regulated through competition law.[121] These discussions highlight the severe difficulties that Chinese companies encounter when importing technologies from abroad, and also the requirement for legislation regarding the application of competition law to IPRs, to focus on addressing those problems. However, simply focusing on the avoidance or resolution of such anti-competitive problems, rather than considering the positive effects, stemming from IPRs protection, on innovation and diffusion. Foreign technology owners may be reluctant to transfer technologies because the intervention of competition law could minimise potential profits.

1.3.2.2 Research on Domestic Technology Transfer Focusing on its Effects on Innovation and Economic Growth as Opposed to Anti-competitive Issues

The situation regarding anti-competitive issues in technology transfer between indigenous companies may differ from the situation regarding foreign-related

[119] Muzhu Shen and Weiwei Xie (沈木珠，解薇薇), 'Research on the IPRs-related Anti-Monopoly Legislation in China: Discussing the Crisis of IPRs Faced by Chinese Companies' (中国知识产权领域的反垄断立法思考：从中国企业面临的知识产权危机谈起 Zhongguo Zhishi Chanquan Lingyü De Fan Longduan Lifa Sikao: Cong Zhongguo Qiye Mianlin De Zhishi Chanquan Weiji Tanqi) (2005) 3 Science of Law (法律科学 Falü Kexue) 112.

[120] Qingjiang Kong and Feng Hu (孔庆江，胡峰), 'Discussion on the IPRs Strategy of Multinationals in Transferring Technologies to China, and Relevant Solutions' (论跨国公司对华技术转让中的知识产权战略及其对策 Lun Kuaguo Gongsi Duihua Jishu Zhuanrang Zhong De Zhishi Chanquan Zhanlue Jiqi Duice) (2007) 5 Law Science Magazine (法学杂志 Faxue Zazhi) 39. See also Sangeeta Puran, 'Technology Transfer Framework in the People's Republic of China' (2011) 11(6) BSLR 193,197-98 (analysing the legal framework of transferring technologies from abroad to China, and emphasising that transfer agreements that include certain restrictions may be invalidated according to Chinese laws and regulations).

[121] Dezhong Guo (郭德忠), 'Legal Governance of Technology Suppression: the Auto Industry as the Main Field of Vision' (技术抑制的法律规制：以汽车工业为主要领域 Jishu Yizhi De Falv Guizhi: Yi Qiche Gongye Wei Zhuyao Lingyü) (2012) 14(1) Journal of Beijing Institute of Technology (Social Sciences Edition) (北京理工大学学报(社会科学版) Beijing Ligong Daxue Xuebao (Shehui Kexue Ban)) 98.

technology transfer. However, in order to avoid discrimination, the legislation should apply to all types of technology transfer, whether or not it is foreign-related. It is therefore important to examine the domestic technology transfer market. Unfortunately, there is not a great deal of available literature specifically relating to this market. There are a few articles that analyse the status of domestic technology transfer, some of which may be relevant for anti-competitive conduct. Wang and Ren conclude that the proportion of creations resulting from patents and know-how transferred from third parties is low and, according to empirical research, most result from self-creation.[122] Yang mentions a few examples of conduct that constitute abuse of IPRs, including the exclusive dealing in trade mark licensing in franchising businesses. In Fujian province of China, Some companies have attempted to mould their technologies into technological standards for an industry or product, so that they can charge a fee for testing other companies needed to ensure that they satisfy the standards. Especially, most anti-competitive restrictions are imposed by foreign licensors.[123] Wu finds strong evidence that domestic R&D makes a significant contribution to productivity growth, whereas neither domestic nor foreign technology transfer has a major influence on productivity growth in Chinese manufacturing industries. He suggests that the government should reform the mechanisms of science and technology-related activities, and strengthen the protection of IPRs.[124]

A number of articles by economists studying innovation and technologies from various perspectives have been published also in journals outside China. In their article, Ang and others suggest that better enforcement of IPRs could facilitate

[122] Chengbin Wang and Shengce Ren (王呈斌，任声策), 'Conduct of Innovation and Patent Licensing of Manufacturing Companies in China: Based on the Empirical Analysis of Zhejiang Province' (我国制造企业的创新与专利许可行为：基于浙江省的实证分析 Woguo Zhizao Qiye De Chuangxin Yu Zhuanli Xuke Xingwei: Jiyu Zhejiang Sheng De Shizheng Fenxi) (2009) 10 Science and Technology Management Research (科技管理研究 Keji Guanli Yanjiu) 491.

[123] Junhui Yang (杨军辉), 'An Initial Investigation on Competition regarding IPRs in Fujian Province: Strengthening the Regulation on Abuses of IPRs' (对福建省知识产权领域竞争状况的初步调查：兼谈加强规制滥用知识产权行为 Dui Fujian Sheng Zhishi Chanquan Lingyu Jingzheng Zhuangkuang De Chubu Diaocha: Jiantan Jiaqiang Guizhi Lanyong Zhishi Chanquan Xingwei) (2011) 11 Biweekly of Administration for Industry and Commerce (工商行政管理 Gongshang Xingzheng Guanli) 53.

[124] Yanbing Wu, 'R&D, Technology Transfer and Productivity Growth: Evidence from Chinese Manufacturing Industries' (Conference on China and the Global Economy: Economic Integration and Protectionism, Bejing, 12-13 June 2010) <http://www.rcie-cn.org/conferences/2010/papers/wu_yanling.pdf> accessed 14 November 2012.

financing and investment in R&D, and this would promote economic growth. They note the importance of protection by IPRs in order to spur innovation in China, but do not mention what effect such protection might have on competition.[125] Dobson and Safarian emphasise that the national innovation system, based on a political system with centrally concentrated power and a socialist market economic system, focuses on scientific mega-projects, and this may have a negative impact on Small and Medium Enterprises (SMEs) with respect to self-innovation, which is primarily encouraged through competition. The significance of the role of competition in self-innovation in China will have implications for the legislation, in terms of the application of competition law to IPRs.[126] Hu and others note the strong returns that result from both R&D and technology transfer in Chinese firms, and emphasise that the impacts of technology transfer on productivity are largely conditional upon their interactions with in-house R&D.[127]

1.3.3 Application of the AML to Regulate Anti-competitive Issues in Technology Transfer

Research on anti-competitive issues relating to IPRs in technology transfer are far more new than that on common anti-competitive practices in China, and only a few monographs on the topic have been published there.[128] One representative example is Intellectual Property and Anti-Monopoly Law: Study on Anti-Monopoly Issues

[125] James Ang and others, 'Does Enforcement of Intellectual Property Rights Matter in China? Evidence from Financing and Investment Choices in the High Tech Industry' (2014) 96 Rev Econ & Stati 332.

[126] Wendy Dobson and A Edward Safarian, 'The Transition from Imitation to Innovation: An Enquiry into China's Evolving Institutions and Firm Capabilities' (2008) 19 J Asian Econ 301.

[127] Albert GZ Hu and others, 'R&D and Technology Transfer: Firm-Level Evidence from Chinese Industry' (2005) 87(4) Rev Econ Stat 780.

[128] In addition to the two books to be introduced specifically, a number of related books have appeared in China. See Mingyü Lü (吕明瑜), *Legal Control on Monopoly of IPRs* (知识产权垄断的法律控 Zhishi Chanquan Longduan De Falv Kongzhi) (Law Press (法律出版社 Falü Chuban She) 2005); Jianwei Li (李建伟), *Innovation and Balance: Regulation of Anti-Monopoly Law on Abuse of IPRs* (创新与平衡：知识产权滥用的反垄断法规制 Chuangxin Yu Pingheng: Zhishi Chanquan Lanyong De Fan Longduan Fa Guizhi) (China Economic Publishing House (中国经济出版社 Zhongguo Jingji Chuban She) 2008); Gangzhi Peng (彭志刚), *Refusal to License IPRs: Research on Legal Issues of Anti-Monopoly* (知识产权拒绝许可：反垄断法律问题研究 Zhishi Chanquan Jujue Xuke: Fan Longduan Falü Wenti Yanjiu) (Law Press (法律出版社 Falü Chuban She) 2011).

Relating to Abuse of Intellectual Property Rights[129] by Wang, a leading Chinese researcher in this area. This book is one of the first to study the overlap of the two fields in China. It examines the relationship between anti-monopoly law and IPRs, and comments on the competition law regimes in a number of different countries and regions. It then focuses on abuse of dominant position, collusion and merger, and finally outlines the formulation of the AML, and the various problems that may arise as a result of the application of the AML to IPRs in China. The book provides a systematic discussion of the application of competition law to IPRs. However, only a relatively small part is devoted to discussing the problems regarding technology transfer in China. In particular, it does not provide any specific proposals for new guidelines or legislation in China.

Guo's book, The Regulation of Anti-monopoly on Patent Licensing,[130] focuses on the use of patent licences rather than on IPRs as a whole. It mainly discusses US and EU legislation, and only provides a very general and abstract opinion on the legislation of China. A third book is Regulation of Anti-Monopoly Law on Exercise of Patents[131] by Wu, which discusses the relation between market power and patenting. It specifically studies refusals to license, tying, patent pools, and industry standards, but contains very little research on the situation in China. Foreign monographs that focus on this area in China are difficult to find.

Many articles by Chinese scholars have devoted a great deal of attention to the introduction of foreign laws, rather than offering detailed proposals for legislation in China.[132] In her book, Lü suggests a framework for anti-competitive censorship in the

[129] Xianlin Wang (王先林), *Intellectual Property and Anti-Monopoly Law: A Study on Anti-Monopoly Issues Relating to Abuse of Intellectual Property Rights* (知识产权与反垄断法：知识产权滥用的反垄断问题研究 Zhishi Chanquan Yu Fan Longduan Fa: Zhishi Chanquan Lanyong De Fan Longduan Wenti Yanjiu) (Law Press (法律出版社 Falü Chuban She) 2008).

[130] Dezhong Guo (郭德忠), *The Regulation of Anti-Monopoly Law on Patent Licensing* (专利许可的反垄断规制 Zhuanli Xuke De Fan Longduan Guizhi) (China Water Power Press (中国水利水电出版社 Zhongguo Shuili Shuidian Chuban She) 2007).

[131] Guanghai Wu (吴广海), *Regulation of Anti-Monopoly Law on Exercise of Patents* (专利权行使的反垄断法规制 Zhuanli Quan Xingshi De Fan Longduan Fa Guizhi) (Intellectual Property Publishing House (知识产权出版社 Zhishi Chanquan Chuban She) 2012).

[132] Xiaoye Wang (王晓晔), 'The Anti-Monopoly Law in the Compulsory Licensing of IPRs' (知识产权强制许可中的反垄断法 Zhishi Chanquan Xuke Zhong De Fan Longduan Fa) (2007) 4 Modern Law Science

context of IPRs, including a standard of competitive harm, a definition of relevant market, an analysis of 'differential treatment', and a cost-benefits analysis, but these are only some general methods.[133] Meng is another author on the subject, and she proposes a number of principles, rather than a detailed discussion on specific anti-competitive restrictions.[134]

A few foreign journal articles have been published that discuss the interface between IPRs and competition law in China. Hanzlik points out that the single article of the AML regarding IPRs lacks a method and mechanism of enforcement, and so will have very little effect on foreign investors. Her conclusion is based on an in-depth examination of the legal and economic landscape in China, and of the IPRs-related article in the various drafts of the AML.[135] Harris and Ganske primarily examine the provisions regarding abuse of dominant position and the IPRs-related article in the AML, and comment that these provisions may apply to foreign firms with substantial market shares in technology markets.[136] Tian provides an overview of the likely influence of the AML on the protection of IPRs and relevant commercialisation in China, and proposes a general principle for the creation of relevant legislation in

(现代法学 Xiandai Faxue) 91; Dejun Geng (耿德俊), 'Regulation of the Anti-Monopoly Law on Grant-Back of Licensing IPRs' (知识产权许可中回授的反垄断法规制 Zhishi Chanquan Xuke Zhong De Fanlong Duan Fa Guizhi) (2009) 1 Journal of Henan Administrative Institute of Politics and Law (河南政法管理干部学院学报 Henan Zhengfa Ganbu Guanli Xueyuan Xuebao); Guangyao Xu (许光耀), 'Analysis of the Anti-Monopoly Law on Tying' (搭售行为的反垄断法分析 Dashou Xingwei De Fan Longduan Fa Fenxi) (2011) 11 Electronic Intellectual Property (电子知识产权 Dianzi Zhishi Chanquan) 80.

[133] Mingyü Lü (吕明瑜), 'A General Analytical Framework for the Licensing of Intellectual Property Rights to Limit Anti-Competitive Censorship' (知识产权许可限制反竞争审查的一般分析框架 Zhishi Chanquan Xuke Xianzhi Fan Jingzheng Shencha De Yiban Fenxi Kuangjia) (2003) 1 Journal of Henan University of Economics and Law (河南财经政法大学学报 Henan Caijing Zhengfa Daxue Xuebao) 87.

[134] Yanbei Meng (孟雁北), 'Regulating and Limiting the Regulation: Research on IP Licensing from China's Anti-Monopoly Law—Concurrent Discussion on the Formulation of China's Guidelines for Anti-Monopoly Enforcement in the Field of Intellectual Property Rights' (规制与规制的限制：透视中国反垄断法视野中的知识产权许可行为—兼论中国《知识产权领域反垄断执法指南》的制定 Guizhi Yü Guizhi De Guizhi: Toushi Zhongguo Fan Longduan Fa Shiye Zhong De Zhishi Chanquan Xüke Xingwei—Jianlun Zhongguo 《Zhishi Chanquan Lingyü Fan Longduan Zhifa Zhinan》De Zhiding) (2012) 1 Journal of Graduate School of Chinese Academy of Social Sciences (中国社会科学院研究生院学报 Zhongguo Shehui Kexue Yuan Yanjiu Sheng Yuan Xuebao) 82.

[135] Mary J Hanzlik, 'The Implications of China's Anti-Monopoly Law for Investors: Problematic Protection of Intellectual Property' (2008) 3 Entrepreneurial Bus LJ 75. See also D Daniel Sokol and Wentong Zheng, 'FRAND in China' (2013) 22 Tex Intell Prop 71, 76-79; Bing Chen, 'Erasing the Misunderstanding on China's Anti-Monopoly Law: A Comparative Study' (2011) 6(4) Front L China 609, 615-16.

[136] H Stephen Harris and Rodney J Ganske, 'The Monopolisation and IP Abuse Provisions of China's Anti-Monopoly Law: Concerns and A Proposal' (2008) 75 ALJ 213.

China.[137] These works primarily focus on the macro function of the AML on IPRs-related areas, rather than discussing specific methods for analysing the relevant issues. Some of these works are more interested in the possible impacts had on foreign companies doing business related to China, rather than focusing on legislation from the perspective of Chinese companies. Emch and Hou discuss the scattered pre-existing laws regarding the application of competition law to IPRs in China, and give a brief introduction of some key provisions in the Rules. This work is an overview of the strategy, and addresses a number of issues on a general basis; it does not provide an analysis of specific issues.[138] Chow compares the application of competition law to technology transfer in the EU and in China. He focuses in particular on territorial restriction, grant-back, and level of transferred technology, and the discussion regarding China is largely restricted to the AML.[139] Evans and Zhang discuss IPRs in the context of how to assess unfair pricing under competition law in China by learning from the US and EU experiences.[140] Finally, Harris and others discuss how to regulate IPRs-related anti-competitive issues under the AML. The AML has a single article specifically relating to IPRs, and the analysis of applying other general provisions for common practice to IPRs-related issues might be doubted and lacks clarity.[141]

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[137] Yijun Tian, 'The Impacts of the Chinese Anti-Monopoly Law on IP Commercialization in China & General Strategies for Technology-Driven Companies and Future Regulations' (2010) 9 Duke L & Tech Rev 1.

[138] Adrian Emch and Liyang Hou, 'Antitrust Regulation of IPRs – China's First Proposal' (*Competition Policy International*, 2014) <https://www.competitionpolicyinternational.com/assets/Uploads/AsiaAugust142.pdf> accessed 1 September 2014. See also Michael Jacobs and Xinzhu Zhang, 'China's Approach to Compulsory Licensing of Intellectual Property under its Anti-Monopoly Law' (2011) 6 Comp Pol'y Int'l 181 (concluding that compulsory licensing of intellectual property in China is complex, and providing some general rather than specific proposals of approaches).

[139] Daniel CK Chow, 'A Comparison of EU and China Competition Laws that Apply to Technology Transfer Agreements' (2014) 9(3) I/S: J L & Pol'y Info Soc'y 497. See also Natalie Yeung, 'IP and Competition Law — The Chinese Perspective' (2015) doi: 10.1093/jaenfo/jnv012 JAE (analysing anti-competitive issues relating to standard essential patents, such as compulsory licensing, FRAND royalty rule, tying according to cases in China, and experiences of the US and EU); Salil Mehra and Yanbei Meng, 'Essential Facilities with Chinese Characteristics: A Different Perspective on the Conditional Compulsory Licensing of Intellectual Property' (2015) 10.1093/jaenfo/jnv013 AEJ (discussing the provisions of the Rules in relation to the application of compulsory licensing to standard essential patents in China).

[140] David S Evans and Vanessa Zhang, 'Assessing Unfair Pricing under China's Anti-Monopoly Law for Innovation-Intensive Industries (2014) University of Chicago Coase-Sandor Institute for Law & Economics Research Paper No 678 <http://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=1668&context=law_and_economics> accessed 1 September 2014.

[141] H Stephen Harris and others, *Anti-Monopoly Law and Practice in China* (Oxford University Press 2011) 209-61.

1.4 Research Methodology

The basic method employed in this thesis is the doctrinal legal research that mainly studies legal concepts, statutory provisions and cases, etc.[142] The principles and rationale embodied in competition law and the IPRs system are observed. Legal terminologies, statutory provisions and guidelines are prominently discussed with regard to their merits, defects, characteristics and adequacy. Case studies have been widely used in the analysis of US and EU law, and are significant components of the legal resources of both jurisdictions. Although case law is not as important in China as it is in the US,[143] a few relevant Chinese cases have been analysed in order to assess the adequacy of current regulations. Finally, a comprehensive legal proposal is provided to resolve anti-competitive issues that arise in China.

An important methodology used in this thesis is comparative legal research, which aims at studying 'comparable laws or legal institutions from different juristictions'.[144] In this thesis, when discussing how to address specific anti-competitive issues, the experiences the US, the EU and China as regards statutory provisions, case law, etc. are examined in detail and compared, and this is considered a basis for providing proposals for China.

[142] S N Jain, 'Doctrinal And Non-Doctrinal Legal Research' (1975) 17(4) JILI 516, 516 (stating that doctrinal research 'involves analysis of case law, arranging, ordering and systematising legal positions, and study of legal institutions, but it does more — it creates law and its major tool (but not the only tool) to do so is through legal reasoning or rational deduction.') Terry Hutchinson and Nigel Duncan, 'Defining And Describing What We Do: Doctrinal Legal Research' (2012) 17(1) Deakin LR 83, 84-85 (stating that the doctrine includes 'legal concepts and principles of all types — cases, statutes, and rules' and 'doctrinal research is research into the laws and legal concepts').

[143] A civil law system is utilised in China, and so the primary source of law is statute and decisions made by courts have limited effect. However, the interpretations made by the Supreme Court on specific issues are followed by other courts.

[144] Khushal Vibhute and Filipos Aynalem, 'Legal Research Methods' (*Ethiopian Legal Brief*, 2009) <https://chilot.files.wordpress.com/2011/06/legal-research-methods.pdf> accessed 15 July 2015. See also Geoffrey Wilson, 'Comparative Legal Scholarship' in Mike McConville and Wing Hong Chui (eds), *Research Methods for Law* (Edinburgh University Press 2007) 87-103.

Historical legal research – studying the past to understand the present[145] – is used in the thesis to analyse the historical development of IPRs protection and competition law in China, and also to examine the evolution of legislation and case law relating to specific anti-competitive issues in both the US and the EU. This may involve different methods and different emphases, depending on the period. A historical study is helpful to determine factors affecting the progression of law, and to illustrate the developmental trends of law over time. It also enables the identification of recommendations to facilitate improvement, and ways to prevent the problems that have previously arisen in Chinese legislation.

[145] P M Bakshi, 'Legal Research And Law Reform' in Shashi Kant Verma and Mohammad Afzal Wani (eds) *Legal Research And Methodology* (2nd edn, India Law Institute 2001) 113, 123-28 (stating that historical research for law reform can '[find] out the previous law in order to understand the reason behind the existing law and the course of its evolution). See also Gavin Little, 'Literature and Legal History: Analysing Methodology' (2005) 3 ESLJ 1, 1-2 (focusing on using literature in legal history); David Ibbetson, 'Historical Research in Law' in Mark Tushnet and Peter Cane (eds), *The Oxford Handbook of Legal Studies* (Oxford University Press 2005) 253-59 (discussing the value of historical research in legal studies).

CHAPTER 2. EFFECTS OF COMPETITION LAW ON TECHNOLOGY TRANSFER: INNOVATION, EFFICIENCY, AND CONSUMER WELFARE

2.1 Introduction

For the purposes of exploring the adequacy of competition law for regulating anti-competitive issues relating to technology transfer in China, and of suggesting improvements, it is essential to understand the effects of competition law on technology transfer. These effects should be considered from the perspectives of innovation, efficiency, and consumer welfare,[1] in order to ensure that the application of competition law to technology transfer is justifiable, and to determine how best to assess the necessity and extent of intervention via competition law. A comparison of mechanisms that aim to achieve these objectives in both competition law and the intellectual property rights (IPRs) system can demonstrate the effects.

From the perspective of economics, a competition mechanism and the IPRs system pursue types of efficiencies that are necessary for the development of society and of benefit to consumers, but they do so in different, even contradictory, ways. Technological innovation, as a significant method of offering dynamic efficiency,

[1] The discussion will focus on three goals that are to be achieved by competition law: innovation, efficiency, and consumer welfare. Promoting innovation is a primary aim of the IPRs system, as well as a dynamic efficiency that provides people with essential and long-term interests. It therefore must be proven that the application of competition law would not impede the promotion of innovation from the IPRs system, or the competition mechanism also induces innovation. In addition to dynamic efficiency, it must be demonstrated that competition law leads to static efficiency; something the IPRs system does not achieve. Finally, it is necessary to ensure that these efficiencies are shared by consumers, although different systems may achieve this differently, such as long-term benefits or immediate welfare. See also Joshua D Wright and Douglas H Ginsburg, 'The Goals of Antitrust: Welfare Trumps Choice' (2012) 81 Fordham L Rev 2045, 2045-48 (stating the contemporary goal of competition law is consumer welfare, especially consumer choice); Robert H Lande, 'A Traditional and Textualist Analysis of the Goals of Antitrust: Efficiency, Preventing Theft from Consumers, and Consumer Choice' (2012) 81 Fordham L Rev 2349, 2349-52 (discussing that the overriding purpose of competition law is to prevent enterprises stealing from consumers by charging them supra-competitive prices); Herbert Hovenkamp, 'Competition for Innovation' (2012) Colum Bus L Rev 799, 811-15 (examining three areas in which competition is likely to promote innovation, including relationship between innovation and market structure, remedies developed by competition, and deficient intellectual property policy that should be dealt with by competition law).

including the increase of social wealth and consumer welfare,[2] can be achieved through a competition mechanism,[3] as well as through the IPRs system.[4] The exercise of IPRs may impose anti-competitive restrictions in technology transfer, which need to be regulated by competition law. The intervention by competition law may impede the mechanism of incentive for innovation that is embodied within the IPRs system. So the question is how to assess whether or not the application of competition law to the exercise of IPRs is justified. The approach should consider the effects of both the IPRs system and competition law on efficiency and consumer welfare.

Specific to Chinese competition legislation in regard to technology transfer, the research and development (R&D) spillovers and the livelihoods of Chinese citizens that will be influenced by the application of competition law to exercise of IPRs will be analysed from the perspectives of developing countries.

2.2 Efficiency, Consumer Welfare, and Required Mechanisms: from an Economic Perspective

2.2.1 An Overview of Static and Dynamic Efficiencies, and Relevant Immediate and Long-term Consumer Welfare

[2] It is widely agreed that innovation contributes to economic development, and benefits consumers ultimately. See Robert M Solow, 'Technical Change and the Aggregate Production Function' (1957) 39 Rev Econ & Stat 312, 316 (the empirical work indicates that nearly 85% of nonfarm economic growth in the 20th century, up to the 1950s, came from innovation); Elhanan Helpman, *The Mystery of Economic Growth* (Harvard University Press 2009) 34-35 (stating technological innovation promotes economic growth); Thomas Piketty (aut) and Arthur Goldhammer (trans), *Capital in the Twenty-First Century* (Harvard University Press 2014) 34-35 (stating innovation is the dominant contributor to economic growth).

[3] Herbert Hovenkamp, 'Competition for Innovation' (2012) Colum Bus L Rev 799, 811-15 ; Michele Boldrin and others, 'Competition and Innovation' (2011) 1 Cato Papers on Pub Pol'y 109, 135 (showing that more competition results in more patents).

[4] Yahong Li, 'Intellectual Property and Innovation: A Case Study of High-Tech Industries in China' (2011) 13 Or Rev Int'l L 263, 270-72 (stating that the role of IPRs in innovation is largely positive); Tom Nicholas, 'What Drives Innovation?' (2010) 77 ALJ 787, 807-08 (examining three factors to promote innovation: IPRs, the supply side of innovation, and financing of technology development); James A Lewis, *Intellectual Property Protection: Promoting Innovation in a Global Information Economy* (CSIS Press 2008) (showing the development of countries with their improvement of IPRs protection).

Efficiency is a core factor in economic activities and it relies on the notion of opportunity cost; that is, the cost of using any resource is the return that this resource would have obtained in its best possible alternative use.[5] It is usually divided into static efficiency and dynamic efficiency. Static efficiency requires suppliers and consumers to take into account the opportunity cost of resources so as to choose the best way to use them; it includes productive efficiency and allocative efficiency.[6] Productive efficiency refers to the competitive pressure on undertakings to operate at the lowest possible cost, which is based on price and cost economics where the ideal pricing mechanism is that the price of a commodity is equal to the marginal cost of producing it.[7] It provides the possibility for the undertaking to charge a lower price to gain competitiveness in the market, and this benefits consumers. In a market with sufficient competition, such a possibility can be realised. It also implies that the given resources have been allocated in the best possible way to generate a minimum price for consumers, and this is termed allocative efficiency.[8] Based on this, consumers will be satisfied that the actual purchase price is consistent with the appropriate cost they considered and the price they wish to pay, leading to the commodity being consumed in an optimal way. In other words, the perfect market mechanism results in Pareto optimality.[9] Static competition concentrates on price and quantity,[10] and consumers normally select suppliers on this basis when quality is equal. Therefore, it is important

[5] Pierre Régibeau and Katharine Rockett, 'The Relationship Between Intellectual Property Law and Competition Law: An Economic Approach' (*Essex University*, June 2004) <http://www.essex.ac.uk/economics/discussion-papers/papers-text/dp581.pdf> accessed 2 April 2012.

[6] 'Static efficiency occurs when marginal production costs are minimized (production efficiency) or when the price consumers pay in exchange of a good or service equals the production cost (allocative efficiency).' Walter Distaso, Paolo Lupi and Fabio M Manenti, 'Static and Dynamic Efficiency in the European Telecommunications Market: The Role of Regulation on the Incentives to Invest and the Ladder of Investment' in Information Resources Management Association (ed), *Networking and Telecommunications: Concepts, Methodologies, Tools, and Application* (Information Science Reference 2010) 259.

[7] ibid. See also Massimo Motta, *Competition Policy: Theory and Practice* (Cambridge University Press 2004) 40.

[8] ibid.

[9] The use of resources will be Pareto-efficient when it is not possible to change the situation to make at least one person better off without making one person worse off. Roger J van den Bergh and Peter D Camesasca, *European Competition Law and Economics: A Comparative Perspective* (2nd edn, Sweet & Maxwell 2006) 64.

[10] Ernest Gellhorn, William Kovacic and Steven Calkins, *Antitrust Law and Economics* (West Group 2004) Ch III.

for an undertaking to offer low prices and large quantities in order to gain competitive advantage.

Dynamic efficiency, also called technological progress or innovation efficiency,[11] can be achieved 'through the invention, development and diffusion of new products and production processes that increase social wealth.'[12] It occurs in R&D over the long-term,[13] and it would be more if it fuels more entrepreneurial creativity and coordination.[14] It is different to static efficiency, in that it does not aim to prevent the wasting of certain resources but to continually discover and create new products. Therefore, dynamic efficiency can be explained as the rate of introduction of new products into a market, whilst the process of developing supra-quality products is referred to as dynamic competition.[15] The essence of dynamic competition is to maintain creative vitality in the market, to encourage market actors to be involved in innovation, and to introduce improved quality products that will ultimately benefit consumers. This is supported by Schumpeter's notable theory of 'creative destruction,' which not only describes capitalism as an 'evolutionary process' occurring from the inside and driven by new methods of production, new markets, and new forms of industrial organisation that capitalist enterprise creates, but also advocates 'competition from the new commodity, the new technology, the new source of supply, the new type of organisation'.[16]

2.2.2 Different Mechanisms to Achieve Efficiency and Consumer Welfare

[11] Joseph F Brodley, 'The Economic Goals of Antitrust: Efficiency, Consumer Welfare and Technological Progress' (1987) 62 NYU L Rev 1020, 1025.

[12] ibid.

[13] Joseph E Stiglitz and Carl E Walsh, *Economics* (4th edn, WW Norton 2011) 35.

[14] The standard dynamic efficiency is inextricably linked with entrepreneurship. The features of entrepreneurship include generation of new information, resolution of social maladjustment, transmission of information, exertion of coordination, competition and sustainability. Jesús Huerta De Soto, *The Theory of Dynamic Efficiency* (Routledge 2009) 8-10.

[15] Massimo Motta, *Competition Policy: Theory and Practice* (Cambridge University Press 2004) 55.

[16] The static efficiency, advocating that market power should be eliminated to guarantee the function of the market mechanism for allocating resources efficiently, is challenged by the Schumpeter's theory, which argues that the long-term gains from innovation contributed by market power may dwarf the short-term gains from intervention to make a more competitive market. Joseph A Schumpeter, *Capitalism, Socialism and Democracy* (2nd edn, Martino Fine Books 2010) 81-84, 145-50.

In static efficiency, productive efficiency and allocative efficiency do not always need the same market structure. The reduction of cost to improve productive efficiency relies on extension of the productive scale, proper allocation of inputs, and exploitation of better or new technology that can be achieved by technological innovation of dynamic competition. In contrast, allocative efficiency needs sufficient competition in the market so that there are more small undertakings, stronger competition, lower prices, and greater benefits for consumers, and thus higher allocative efficiency. The achievement of dynamic efficiency relies on distinct market structures: either sufficient competition,[17] under which it would be consistent with allocative efficiency, or large-scale undertakings or dominant market power[18] that would conflict with allocative efficiency. In terms of the contribution to social wealth, dynamic efficiency has been ranked above static efficiency. The reason being that the former offers unlimited new technologies and creations to people,[19] the latter functions within the scope of given resources. Productive efficiency is ranked above allocative efficiency because productive efficiency increases social wealth over the whole range of outputs,[20] and gains from lower production costs are recurring and cumulative;[21] the increase in allocative efficiency is marginal.[22] However, it is necessary to facilitate allocative efficiency, otherwise the benefits of technological innovation

[17] Technological innovation can be promoted in the regime of competition by fearing competitive pressure from competitors and pursuing better or new technologies to gain competitive advantages or the first-entry profits. For further details regarding promoting technological innovation by competition mechanism, see Section 2.3.1 of this chapter of the thesis.

[18] Undertakings with a monopoly or a dominant position find it easier to gain the large amount of financial and intellectual resources required for innovation of high technologies in the contemporary world. In more competitive markets, the resources are likely to be shared by many competitors, with none acquiring resources adequate to conduct high technology innovation.

[19] Herbert Hovenkam and others, *IP and Antitrust: An Analysis of Antitrust Principles Applied to Intellectual Property Law* (2nd edn, Aspen 2010) Ch 1, 13.

[20] Oliver E Williamson, 'Economies as an Antitrust Defence: The Welfare Tradeoffs' (1968) 58 Am Econ Rev 18, 21-32.

[21] Reduced costs generate a margin between productive inputs and outputs, and such a surplus was reinvested to create a recurring and cumulative effect. D Bruce Johnsen, 'Wealth is Value' (1968) 15 JLS 263, 277.

[22] Oliver E Williamson, 'Economies as an Antitrust Defence: The Welfare Tradeoffs' (1968) 58 Am Econ Rev 18; Frederic M Scherer and David Ross, *Industrial Market Structure and Economic Performance* (3nd edn, Houghton Mifflin 1989) 407; Steven N Durlauf and Lawrence E Blume (eds), *The New Palgrave: A Dictionary of Economics* (2nd edn, Palgrave Macmillan 2008) 538. Allocative efficiency normally maximises the consumption value of existing materials and social wealth at a fixed point in time when price is at a marginal or incremental cost , while productive and dynamic efficiencies contain growth factors by which social wealth improves over time. Paul J McNulty, 'Economic Theory and the Meaning of Competition' (1968) 82 Q J Econ 639, 650-56; Christian C von Weizsäcker, *Barriers to Entry* (Springer-Verlag 1980) 175.

will be enjoyed by only a minority, which deviates from the ultimate goal of innovation to provide consumer welfare[23] for all.

In sum, consumer welfare can be achieved primarily in two ways: lower prices and sufficient supplies, and innovated products through the generation of static and dynamic efficiency. However, the two types of efficiency are not completely independent; in fact, they overlap. Lower prices and sufficient supplies can be achieved by technological innovation, which mainly pursues dynamic efficiency, as well as through static competition. The innovated products can be promoted by both an innovation mechanism, and a competition mechanism that creates pressure on competitors to innovate.

2.3 Both an IPRs System and Competition Law Promote Technological Innovation to Achieve Dynamic Efficiency and Consumer Welfare

2.3.1 The Mechanism of an IPRs System to Encourage Technological Innovation

Due to the emergence of a diversity of property types and the complexity of business networks, property rights were granted so that these could be exploited efficiently.[24]

[23] Consumer welfare can be defined as direct and explicit economic benefits received by consumers of a particular product, as measured by its price and quality in the sense of competition law. Joseph F Brodley, 'The Economic Goals of Antitrust: Efficiency, Consumer Welfare and Technological Progress' (1987) 62 NYU L Rev 1020, 1033. Consumer surplus refers to the difference between the price a consumer is willing to pay for a good or service and the price they actually pay. Producer surplus means the amount of income a producer receives that exceeds what it would demand for supplying a given good or service. Intuitively, producer surplus can be thought of as economic profits. Total surplus, also known as social total welfare or social total fortune, equals consumer surplus plus producer surplus. Jean Tirole, *The Theory of Industrial Organisation* (MIT Press 1993) 7-12; Andreu Mas-Colell, Michael D Whinston and Jerry R Green, *Microeconomic Theory* (Oxford University Press 1995) s 10C.

[24] The protection of property by granting a right of ownership in property law can be traced back to Roman law. Ownership is the most comprehensive right a person can have regarding an object. Boudewijn Bouckaert, *Property Law and Economics* (Edward Elgar 2010) 27. Property rights involve maintenance of order and peace, assignment of the property, adjudication on the ownership, entitlement of exploitation of the property, rewards to investment, and benefits to diffusion of information. Initially, property rights generally applied to physical property, but these rights were later granted to intellectual property, such as technology, which has become a key method of competition for modern companies. Pierre Régibeau and Katharine Rockett, 'The Relationship between Intellectual Property Law and Competition Law: An Economic Approach' (*Essex University*, June 2004)

Compared with traditional physical property, the intangibility of technology means that it can easily leave the control of the owner. Technology has strong public-good characteristics and tends to generate significant amounts of socially useful information, making the dissemination of information an important concern.[25] In other words, its use will not reduce or eliminate the benefit to others. However, when innovation became an intentional economic activity that demanded a large investment in intelligence, finance, time, etc., the grant of exclusive IPRs was considered necessary to declare the ascription of ownership and entitlement of exploitation. It also provided an opportunity to recoup investment and make a profit, and to encourage more investment in R&D.[26] Without it, the incentive for innovation would be weakened, as everyone would simply wait for others to create new technologies, rather than investing in R&D themselves. Thus, technological progress and the development of society would not evolve very much.[27] In other words, the

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<http://www.essex.ac.uk/economics/discussion-papers/papers-text/dp581.pdf> accessed 1 February 2012. See also Mark A Lemley, 'A New Balance between IP and Antitrust' (2007) 13 Sw J L & Trade Am 237.

[25] ibid Régibeau and Rockett. When technology was simply an unintentional outcome of an individuals' actions at an early stage of the development of people, or a project launched by a country aiming to disseminate the technology as widely as possible (in order to meet a massive and critical demand or to improve the whole level of an industry), the public-good characteristic could redound technology to achieve the wealth-maximisation of social welfare.

[26] There are additional benefits from IPRs. Firstly, IPRs contribute to economic growth in both developed and developing countries, especially as a critical instrument in alleviating poverty by trade. Keith E Maskus, 'Intellectual Property Rights and Economic Development' (2000) 32 Case W Res J Int'l L 471; Sanjaya Lall, 'Indicators of the Relative Importance of IPRs in Developing Countries' (2003) 32(9) Res Pol'y 1657; United Nations Development Programme, 'Human Development Report 2014' (*United Nations Development Programme*, 2014) <http://hdr.undp.org/sites/default/files/hdr14-report-en-1.pdf> accessed 2 February 2015. Secondly, IPRs promote the development of small industries and SMEs. Vidhan Maheshwari and Pratishtha Bhatnagar, 'Small Scale Industries and IP Management: Need to Recognise Intellectual Assets' (2008) 13(2) J Intell Prop Rts 139; Kostandini Genti and F Mills Bradford, 'Valuing Intellectual Property Rights in an Imperfectly Competitive Market: A Biopharming Application' (2009) 41(3) J Agr & App Econ 571. Thirdly, IPRs strike a balance between the interests of innovators and the interests of the public, in an environment of flourishing creativity and innovation. Carlos A Primo Braga and Carsten Fink, 'The Economic Justification for the Grant of Intellectual Property Rights: Patterns of Convergence and Conflict' in Frederick Abbott and David J Gerber (eds), *Public Policy and Global Technological Integration* (Kluwer 1997) 99-121; Sumner La Croix and Denise Eby Konan, 'Intellectual Property Rights in China: The Changing Political Economy of Chinese-American Interests' (2002) 25(6) World Econ 759.

[27] The incentive mechanism of IPRs has now been widely accepted. Agreement on Trade-Related Aspects of Intellectual Property Rights, Annex 1C of the Marrakesh Agreement Establishing the World Trade Organisation (signed 1994, took effect 1995), art 7 ('[t]he protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology...'); Patent Law Of China 2009, art 1 ('this law is enacted to protect patent rights for inventions-creations, to encourage invention-creation, to foster the spread and application of inventions-creations, and to promote the development and innovation of science and technology ... '); Constitution of the United States 1787, s 8 ('[t]o promote the Progress of Science and

core mechanism of an IPRs system provides the incentive for innovation to pursue dynamic efficiency, through which the continual improvement of social welfare can be bestowed upon consumers and society.[28] It is important to bear in mind that IPRs do not guarantee the realisation of economic profits for right owners, because this is affected by certain factors, such as the commercial operation of the market, the availability of substitutes, the cost of manufacturing relevant products, consumer requirements, and the general state of the economy in a given country.

Innovation comprises stand-alone innovation,[29] also called initial innovation, and follow-on innovation.[30] Take patents[31] as an example. Patents promote the former in

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useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries'); Herbert Hovenkam and others, *IP and Antitrust: An Analysis of Antitrust Principles Applied to Intellectual Property Law* (2nd edn, Aspen 2010) 1-3 (the US's IPRs protection is the utilitarian or economic incentive framework that relates to incentive for innovation). Meanwhile, there remains disagreement between various groups, such as right owners, users, special interest groups, and consumers, as to the appropriate level of protection, with some preferring more and some preferring less IPRs protection. Hanns Ullrich, 'Expansionist Intellectual Property Protection and Reductionist Competition Rules' (2004) 7 J Int'l Econ L 401 (advocating a pro-intellectual property protection attitude, and agreement to strengthen IPRs to grant the IPRs owners a far greater monopoly); Munish Saini and Kuljit Kaur, 'A Review of Open Source Software Development Life Circle Models' (2014) 8 Int'l J of Softw Engin and its App 417 (the movement of Open Source Software that 'is defined as the software whose resource code is available along with the software and user has the freedom to run, copy, distribute, study, change and improve the software under the licensing policies' is advocated to release the protection of IPRs on software).

[28] 'The economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that … [it] is the best way to advance public welfare through the talents of authors and inventors in "Science and useful Arts."' *Mazer v Stein* 347 US 201 (1954) 35.

[29] Stand-alone innovation refers to innovation that is independent of other inventions or creations and not a cumulative process in which inventions build on each other. For example, innovations in the pharmaceutical and biotechnological industry are much more original due to its unique character. It is also called autonomous innovation when it 'can be introduced without modifying other components or items for equipment.' David J Teece, 'Firm Organization, Industrial Structure and Technological Innovation' (1996) 31 J Econ Behav & Org 193, 205.

[30] Follow-on innovation describes an innovation that is based on other innovations. Normally, it needs to be combined with the previous innovation for production, and this frequently occurs in the area of electronics and computers. Vincenzo Denicolò and Christine Halmenschlager, 'Optimal Patentability Requirements with Complementary Innovations' (2012) 56(2) Eur Econ Rev 190, 191-93 (suggesting that requirements for patentability should be more stringent for complementary innovations than for stand-alone innovations, so as to reduce the fragmentation of intellectual property and save on social costs. The strength of the protection should also be higher once the patent has been granted so that it preserves the incentives of innovation.) See also ibid (it can be defined as systemic innovation when it 'requires significant readjustment to other parts of the system.')

[31] Patents grant right owners exclusive rights over the exploitation of inventions, as long as their subject matter satisfies some requirements. Patentability essentially requires novelty, an inventive step, and industrial utility. Patents Act 1977 (UK), art 14(5)(a). See also Patent Law of China 2009, art 22 (Chinese patent legislation requires the subject matter to possess novelty, inventiveness and practical applicability); Patents for designs (35 USC §§ 101-103, 112) (in US legislation, the subject matter needs to be novel, non-obvious and useful.). The protected period for patents is usually twenty years from the date of filing the

three ways. Firstly, the exclusivity of patents provides the patentee a legal protection from free-riding. This acts as an incentive and safeguard for investment in R&D, and enhances the appropriability of the innovation to the innovator.[32] Secondly, patents make the invention-related information a tradable commodity in order to facilitate commercialisation,[33] instead of keeping it a trade secret. Thus, the improvement of efficiency and reduction of transactional costs encourage innovation. Thirdly, disclosure of the innovation in patents ensures that a considerable amount of information is available to help people interested in the area, thus cutting the cost of further innovation.[34] As for follow-on innovation,[35] in addition to initial innovators,[36] as a result of disclosure, independent follow-on innovators can access patents to develop innovation.

2.3.2 The Function of Competition Law in the Promotion of Technological Innovation

Competition law, also called antitrust law, is regarded as a method of curbing market distortion, preventing a monopoly and the abuse of a dominant position, and disciplining other anti-competitive conducts.[37] It encourages the optimum allocation

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application, and it is necessary to disclose information about the invention. Patents Act 1977 (UK), art 25(1); 35 USC §§ 154(a)(2); Patent Law of China 2009, art 42(in China, the protection period for an invention is twenty years, and ten years for both utility model and designs.).

[32] Dietmar Harhoff, 'The Role of Patents and License in Securing External Finance for Innovation', in David B Audrestch and others (eds), *Handbook of Research on Innovation Entrepreneurship* (Edward Elgar 2011) 55-56.

[33] Bronwyn H Hall, 'Business Method Patents, Innovation and Policy' (2003) US National Bureau of Economic Research Working Paper No. 9717 <http://www.nber.org/papers/w9717.pdf> accessed 27 March 2012.

[34] Kenneth W Dam, 'The Economic Underpinnings of Patent Law' (1994) 23 JLS 247, 267.

[35] 'Innovation is often an ongoing, cumulative process, with each generation of innovations building on what came before.' Suzanne Scotchmer, 'Standing on the Shoulders of Giants: Cumulative Research and the Patent Law' (1991) 5 J Econ Persp 29.

[36] Initial innovators could conduct the follow-on innovation themselves, based on their proficient acquaintance with the innovation, or they could license it to others. This would provide efficient and central management of subsequent development efforts, thus avoiding unnecessary duplication of R&D activities and wasteful racing for follow-on patent rights. Edmund W Kitch, 'The Nature and Function of the Patent System' (1977) 20 J L & Econ 265, 276 (stating that a broad patent places its owner in a position 'to coordinate the search for technological and market enhancement of the patent's value so that duplicative investments are not made and so that information is exchanged among the searchers.').

[37] Maurice E Stucke, 'Reconsidering Antitrust's Goals' (2012) 53 BC L Rev 551, 564-65; Alison Jones and Brenda Sufrin, EU Competition Law: Text, Cases, and Materials (5th edn, Oxford University Press 2014) 1-3. See also Herbert Hovenkam and others, *IP and Antitrust: An Analysis of Antitrust Principles Applied to*

of resources and enhances consumer welfare through fair prices and adequate supply.[38] Its primary objective is to drive price as close to cost as possible, and to squeeze excess profits out of the economy in the short-term.[39]

Competition law can also be used to promote technological innovation.[40] In a free market with sufficient competition, undertakings normally compete by offering lower prices for the same products, or by providing better or newer products. To achieve this, undertakings have to invest in R&D to create new technologies that can improve productive efficiency for the same products, or can acquire the first-entry advantages for new products on the market. Such a free and competitive market has been a basic objective for competition law, and is the underlying principle of the free market economy[41] that has evolved from a number of theories.[42] Therefore, it can be said that

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Intellectual Property Law (2nd edn, Aspen 2010) ss 1.2, 1.5 (stating that competition law protects the competitive order in the market by preventing certain conducts that threaten the free market.).

[38] ibid.

[39] Anurag Gupta and Satyajeet Mazumdar, 'Competition Law and Intellectual Property Rights: Whether Conflicting or Complementing Each Other to Serve a Common Purpose?' (2011) 2(2) Asian JL & Econ 1, 1-5.

[40] Michele Boldrin and others, 'Competition and Innovation' (2011) 1 Cato Papers on Pub Pol'y 109, 135 (showing that increased competition equates to more patents); Kim Them Do, 'Competition Law and Policy and Economic Development in Developing Countries' (2011) 8(1) Manchester J Int'l Econ L 18, 20 (stating that competition pressure is essential for large companies to have incentive to improve products and reduce price); Einer Elhauge and Damien Geradin, *Global Competition Law and Economics* (2nd edn, Hart Publishing 2011) 4-6 (arguing that more competition generates higher rates of innovation); Herbert Hovenkamp, 'Competition for Innovation' (2012) 3 Colum Bus L Rev 799, 811-15 (examining three areas in which competition is likely to promote innovation, including relationship between innovation and market structure, remedies developed by competition, and deficient intellectual property policy that should be dealt with by competition law).

[41] The basis of the free market theory can be traced back to Adam Smith. He believed that governments should remove artificial obstacles to the operation of the free market, and that individual market actors should pursue their interests by competing in the marketplace, with a free competition environment led by the mechanisms of supply and demand instead of the 'visible hand' of government. Adam Smith, *The Wealth of Nations* (Penguin 1999).

[42] There are three main schools of thought on the free market theory. The first is the Harvard school, which set out a paradigm of 'Structure—Conduct—Performance'. It concludes that the final market performance relies on the origin of market structure. It thus believes that the function of competition law should stress the remedies of market structure, rather than the remedies of conduct of companies. Accordingly, small businesses should be preserved, and large and concentrated businesses should be regulated. Edward Sagendorph Mason, *Economic Concentration and the Monopoly Problem* (Harvard University Press 1957). See also Herbert Hovenkamp, *Federal Antitrust Policy: The Law of Competition and its Practice* (4th edn, West 2011) 45-50. The second is the Chicago school. This holds the view that people are rational, and the market could be self-correcting so that since few barriers to entry exist, the economies of scale will profit industries normally. In particular, the ability to correct remedies and to achieve efficiency by the market itself without government interference should be trusted. Therefore, it sees the pursuit of efficiency as the sole objective of competition law. Robert Pitofsky, *How Chicago Overshot the Mark: The Effect of Conservative Economic Analysis on US Antitrust* (Oxford University

competition law promotes technological innovation, through the intermediary of facilitating competition in markets.

Contemporary innovation has become a capital and time-consuming process.[43] An innovation ecosystem is a new model, where a large company invests in crucial technologies, in order to establish a stable platform that creates an innovative environment for smaller companies.[44] Meanwhile, large companies need

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Press 2008); Charles E Mueller, 'Antitrust Economics and the "The Flying Dutchman": How Economists Ruined Antitrust in Reagan's 1980s' (2008) 34 Antitrust L & Econ Rev 1; Daniel A Crane, 'Chicago, Post-Chicago and Neo-Chicago' (2009) 76 U Chi L Rev 1911. The third one is the Post-Chicago school. This recognised indications for the issues regarding market and efficiency by economics. Therefore it requires the competition law to consider some more factors and risks in relation to the market other than undue belief on the perfection and capability of self-correct of the market. Whilst it makes greater demands on competition authorities and decision-makers. Antonio Cucinotta, Roberto Pardolesi and Roger J Van den Bergh, *Post-Chicago Developments in Antitrust Law* (Edward Elgar 2002); Ernest Gellhorn, William Kovacic and Steven Calkins, *Antitrust Law and Economics* (West Press 2004). There are other ideas and theories informing the Post-Chicago school, such as game theory, contestable markets, raising rivals' costs, and transaction cost economics. William J Baumol and others, *Contestable Markets and the Theory of Industry Structure* (Harcourt Brace Jovanovich 1982); Dennis W Carlton and Jeffrey M Perloff, *Modern Industrial Organisation* (Pearson Addison Wesley 1982) 371-79; William J Baumol and others, 'Contestable Markets: An Uprising in the Theory of Industry Structure' (1983) 73 Am Econ Rev 491; Ernest Gellhorn, William Kovacic and Steven Calkins, *Antitrust Law and Economics* (West Press 2004); Roger J Van den Bergh and Peter D Camesasca, *European Competition Law and Economics: A Comparative Perspective* (2nd edn, Sweet & Maxwell 2006) 94-98; John von Meumann and Others, *The Theory of Games and Economics Behaviour* (60th edn, Princeton University Press 2007).

[43] This can be demonstrated by an examination of the modern pharmaceutical industry. In this industry, large companies with strong funding and many intellectuals can obtain much of the benefit of innovation, simply because they have large R&D budgets. Christian Garavaglia and others, 'Technological Regimes and Demand Structure in the Evolution of the Pharmaceutical Industry' in Andreas Pyka and Esben Sloth Andersen (eds), *Long Term Economic Development: Demand, Finance, Organisation, Policy and Innovation in a Schumpeterian Perspective* (Springer 2013) 62-63 (the pharmaceutical industry is a high R&D and marketing intensive sector, and the market is mainly dominated by a core of inventive companies. Competition among small companies almost does not exist). Schumpeter noted, as early as the 1950s, that large-scale firms were the most powerful engines of progress. Joseph A Schumpeter, *Capitalism, Socialism and Democracy* (2nd edn, Martino Fine Books 2010) 58. Subsequent economists developed the 'Schumpeterian Hypothesis,' which shows that larger companies have a greater incentive to invest in R&D, and relevant empirical studies have partly proved this to be the case. Michael Mandel, 'Scale and Innovation in Today's Economy' (*Progressive Policy Institute*, December 2011) <http://progressivepolicy.org/wp-content/uploads/2011/12/12.2011-Mandel_Scale-and-Innovation-in-Todays-Economy.pdf> accessed 1 November 2012; Peter W Roberts, 'Innovation and Firm-Level Persistent Profitability: A Schumpeterian Framework' (2001) 22 Man & Dec Econ 248, 248-49. New products in a fast-developing information age, such as the iPhone, Android, and even the 4G network, need advanced companies, or a core of companies that hold sufficient resources, to create such technology. It is almost impossible for small companies to do this.

[44] Michael Mandel, 'Scale and Innovation in Today's Economy' (*Progressive Policy Institute*, December 2011) <http://progressivepolicy.org/wp-content/uploads/2011/12/12.2011-Mandel_Scale-and-Innovation-in-Todays-Economy.pdf> accessed 1 November 2012.

competitors.[45] Otherwise large companies would have fewer incentives to innovate, because the investment in R&D would be a large cost for an investment that may not lead to a valuable creation, and the profits of innovated products would 'steal' profits from earlier products of monopolists.[46] Therefore, if large companies abuse their dominant position, or they collaborate to exclude necessary competition, competition law can regulate them to preserve a competitive market and to promote innovation.

2.4 Anti-competitive Issues Resulting from the Exercise of IPRs in Technology Transfer Could Be Rectified by Competition Law to Secure Efficiency and Consumer Welfare

2.4.1 Adverse Effects of the IPRs System on Innovation

The IPRs system has some adverse effects;[47] in particular, it may impede innovation. Take patents, for instance; the disclosure to the public of technology protected by

[45] Federal Trade Commission Staff, 'Anticipating the 21st Century: Competition Policy in the New High-Tech, Global Marketplace' (*Federal Trade Commission*, May 1996), Ch 6 <https://www.ftc.gov/system/files/documents/reports/anticipating-21st-century-competition-policy-new-high-tech-global-marketplace/gc_v1.pdf> accessed 27 March 2012 (stating without continual innovation, an incumbent may have more to lose from entry than other potential entrants may gain.). For example, if the smartphone had not needed to be developed in order to compete with traditional phones, consumers would not now be enjoying the convenience and diverse functions of the newer phones. In addition, if the iPhone did not face stiff competition from Samsung and other brands of smartphones, then Apple may not need to release improvements to their phones and features with such regularity. Apple has released a new iPhone every year since 2007 when the first iPhone came out. Buster Hein, 'Weirder Every Year: the History of iPhone Launch Lines' (*Cult of Mac*, 21 September 2012) <http://www.cultofmac.com/192051/weirder-every-year-the-history-of-iphone-launch-lines-gallery/> accessed 5 November 2013; Kelly Faircloth, 'Once Again America Forgets That A New iPhone is Released Every Year' (*Observer*, 20 September 2013) <http://betabeat.com/2013/09/once-again-america-forgets-that-a-new-iphone-is-released-every-year/> accessed 5 November 2013.

[46] Large companies can become complacent and rely on traditional markets and bureaucratic inefficiency. Kenneth J Arrow, 'Economic Welfare and the Allocation of Resources for Invention' in Kenneth J Arrow (ed), *Essays in the Theory of Risk-Bearing* (North Holland Publishing 1971) 144, 156-60 (arguing that a monopolist is reluctant to innovate by fearing that the new creation will displace its own established technology, while competitors are concerned that if they do not conduct innovation then someone else will.)

[47] It also increases social costs. For example, royalties, secured by exclusive IPRs to achieve rewards, result in additional social costs, compared with the potential zero cost when technology is disseminated for free. Meanwhile, it has the effect of the 'tragedy of the anticommons'. For instance, the granting of too many patents will create 'patent thickets', and this raises the social cost by increasing royalties, transaction costs, and even litigation costs and may also lead to a patent holdup. Michael A Heller, 'The Tragedy of the Anticommons: Property in the Transition from Marx to Markets' (1998) 111 Harv L R 621 (referring to the 'tragedy of the anticommons' means that multiple gatekeepers of common resources can

patents may not be as prominent as assumed,[48] and the exploitation of follow-on innovation practised by other independent innovators must rely on the consent of the initial innovator. The possibility of being charged a high price for the permission,[49] or even a refusal to license the initial patent for various reasons, such as recoupment, reservation of monopoly, or restriction or elimination of competition, will greatly discourage the follow-on innovation. An empirical study shows that the patent effect on innovation varies between industries. For the pharmaceutical and chemical industries, patents have been found to play a vital role in incentives for innovation.[50] However, in some industries, other mechanisms, such as secrecy, lead-time, learning curve, complexity, customer lock-in strategies, and frequent product renewals, have been deemed more effective incentives to maintain competitive advantage than patent.[51] In these latter industries, the incentive role of patent systems may not be very effective, but its negative effects still exist.

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underutilise those resources due to the required costs to access them); Michael A Heller and Rebecca S Eisenberg, 'Can Patents Deter Innovation? The Anticommons in Biomedical Research' (1998) 280 Sci 698 (stating that the theory of the 'tragedy of the anticommons' also applies to patent thickets which lead to excessive transaction costs being incurred to get permission from a large number of patent holders, in order to exploit a new technology.) See also Bronwyn H Hall and Rosemary Ham Ziedonis, 'The Patent Paradox Revisited: An Empirical Study of Patenting in the U.S. Semiconductor Industry, 1979-1995' (2001) 32 RAND J Econ 101 (defining patent thickets as referring to a situation where the legal exploitation of a technology or relevant production needs to be granted permission by many other patent holders). Cristiano Antonelli, 'The Tradeoff of Intellectual Property Rights Reconsidered' (2008) EU Directorate for Research Working Paper No 006187 <http://www.proppi.uff.br/revistaeconomica/sites/default/files/V.10_N.2_DOSSIER_2_Cristiano_Antonell.pdf> accessed 2 November 2012 (stating that patent holdup impedes the utilisation of creations and is contrary to the goodwill embodied in the IPRs system).

[48] It is estimated that disclosed patent information reduces the investment cost of other follow-on inventors by only 0.75%, so the benefit of disclosure of patents to follow-on innovations may be questioned. Christopher Taylor and Aubrey Silberston, *The Economic Impact of the Patent System: A Study of the British Experience* (Cambridge University Press 1973) 212.

[49] Michele Boldrin and David K Levine, *Against Intellectual Monopoly* (Cambridge University Press 2010) 10 (stating that IPRs may damage the process of innovation because IPRs confer rights, not only relating to inventions, but also the price at which inventions are sold.)

[50] Edwin Mansfield, 'Patents and Innovation: An Empirical Study' (1986) 32 Mgmt Sci 173 (pharmaceutical industry participants reported that 60% of inventions would not have been developed and 65% would not have been commercially introduced in the absence of patent protection); Richard C Levin, 'Appropriating the Returns From Industrial Research and Development' (1987) 18(3) Brookings Pap Econ Ac 783; Wesley Cohen, Richard Nelson and John Walsh, 'Protecting Their Intellectual Assets: Appropriability Condition and Why US Manufacturing Firms Patent (Or Not)' (2000) US National Bureau of Economic Research Working Paper No. 7552 <http://www.nber.org/papers/w7552.pdf?new_window=1> accessed 30 March 2012.

[51] After conducting a survey of about 1500 R&D labs in the US manufacturing sector, it was found that the majority of firms tended to use patents the least among the various methods, whereas secrecy and lead time were used most frequently. ibid Cohen, Nelson and Walsh. According to data from the third Community Innovation Survey (CIS3) of many countries, covering the period 1998-2000, in both the

The adverse effects indicate that the IPRs system does not necessarily promote innovation, and so when the system is intervened by other laws, such as competition law, the intervention does not intend to automatically impede innovation.

2.4.2 Anti-competitive Issues Resulting from the Exercise of IPRs in Technology Transfer

The adverse effects of the IPRs system may affect competition as well as innovation. The exclusive rights conferred by IPRs provide an opportunity to achieve monopolisation or gain market power. When IPRs owners have these advantages in the market, they may conduct anti-competitive restrictions to distort or eliminate competition for the purpose of getting supra-competitive profits.

According to the willingness of technology owners to transfer technology, the anti-competitive issues can be categorised as 'when technology owners transfer technology' and 'when technology owners refuse to transfer technology'.[52] Take the patent licence, for example. When a patentee is willing to license a patent to others, the parties normally need to conclude a licensing agreement, through which the patentee grants some or all of the rights under the patent, rather than its ownership to the licensee.[53] The licensor may collude with licensees or abuse a dominant position in the relevant market by imposing restrictions to restrain competition, including limiting the licensee's competitiveness;[54] driving existing competitors out of the market; and

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manufacturing and the services sectors the use of patents as a means of protection is relatively small when compared with lead time, secrecy, and trade mark usage. Florence Jaumotte and Nigel Pain, 'Innovation in the Business Sector' (2005) OECD Economics Department Working Paper No 459 <http://www.oecd-ilibrary.org/docserver/download/5lghb8lzt5r1.pdf?expires=1427130442&id=id&accname=guest&checksum=E5FA53331A6D63329BE9D2E9818D972D> accessed 26 July 2013.

[52] In addition to the willingness criteria, there could be other criteria such as monopoly agreements and abuse of dominant position, pricing-related conducts and non-pricing-related conducts.

[53] Patent licensing agreements are those by which the patentee gives the licensee some of the rights in the patent that accompany ownership and the remaining rights rest with the licensor. Jay Dratler, *Licensing of Intellectual Property* (Law Journal Press 2003) s 1.01.

[54] Normally, the patentee has technological advantage and so has a dominant status when concluding the licensing agreement that imposes restrictions on the licensee. However, in some cases where the licensee acquires a more active advantage, for example, the exploitation of the patent, these need other

preventing new entrants from entering the market in order to charge supra-competitive prices that harm consumer welfare, etc. The restrictions can vary, including price fixing, price discrimination, output restrictions, allocation of markets, grant-back, non-compete, non-challenge, etc. There are situations where patentees refuse to license the patent to others, because they intend to exploit the patent solely by themselves.[55] The refusal may be anti-competition, especially when such a refusal becomes an impediment for the rare substitutes to enter a monopolised market.

2.4.3 An Effects-based Approach Employed in Applying Competition Law to IPRs

It demonstrates an interface between the IPRs system and competition law with regard to innovation and competition. The IPRs system does not necessarily promote innovation, and so IPRs protection shall not be absolutely immune from intervention by other laws, such as competition law. Competition law is likely to apply when the anti-competitive issues generated from the exercise of IPRs in technology transfer restrict and eliminate competition. In order to ensure the sharing of technological improvements by consumers, which is the ultimate goal of technology innovation, on a fair basis, competition law may function *ex post* to regulate anti-competitive issues in technology transfer. It can even penetrate the scope of IPRs, when necessary, for the purpose of protecting a competitive market in which consumers can access products at a lower price and in sufficient quantities. Competition law can also be employed *ex ante*. For example, this can be done through a mechanism of review beforehand, to prevent the merger of two technology companies that would have led to the loss of

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very special technologies to work together or a large amount of financial support that few licensees can afford. The licensee may conversely impose restrictions on the licensor for the exploitation of the technology in the agreement.

[55] If the patentee, as the only one who is entitled to exercise the patent right, mothballs it because he wants to set up 'patent thickets' rather than commercialise it, this may be regarded as an abuse of the patent due to unjustifiable subjectivity and opposition to the ultimate goal of patents, which is to practise the technology to gain rewards, thus encouraging innovation and increasing consumer welfare. Moreover, long-term postponement without justifiable cause will delay the potential welfare due to the consumer, and also affect advance access for follow-on innovation. Patent law *ex ante* may regulate these negative conducts. Patent Law of China 2009, art 48 (1) (If an invention or utility model that has been granted a patent has not been exploited in three years without justifiable cause, a compulsory licence can be applied for.).

competition and innovation in a particular market.[56] It is evident that whilst some legal systems primarily focus on the achievement of innovation as great and as numerous as possible, others aim to ensure that the benefits of innovation can be shared by both inventors and consumers. This constitutes an optimised and sustainable system for the development of people and society.

However, the dilemma is that such an application of competition law, leading to static efficiency, and occasionally even dynamic efficiency, may impede the mechanism of IPRs to promote innovation that provides dynamic efficiency.[57] An effects-based approach can be relied upon to maximise the efficiencies and minimise adverse effects, stemming from both the IPRs system and competition law.[58] If the positive effects of such interference outweigh the negative effects, the application of competition law should be considered justified.[59] Otherwise, competition law should tolerate the exercise of IPRs.

For instance, patent licensing agreements are not deemed to be anti-competitive *per se*.[60] Rather, they promote innovation by providing a reward from royalties, and they

[56] Although the merger and acquisition of technology in technology transfer is not within the scope of this thesis, the *ex ante* function by competition law strengthens the role of competition law play in the field of IPRs.

[57] In the process of achieving dynamic efficiency, new maladjustments will inevitably appear. Hence, a certain amount of waste is inevitable and inherent in any market economy. This is the cost of dynamic competition. Jesús Huerta De Soto, *The Theory of Dynamic Efficiency* (Routledge 2009) 11.

[58] This indicates that anti-competitive practices through exercising IPRs are not automatically caught by competition law, but may be exempted from it. This is happens when the conduct provides a benefit by promoting technological innovation and benefiting consumers, and the value outweighs the adverse effects, such as anti-competitive effects. This is the internal trade-off mechanism in competition law, to assess and decide whether competition law shall be applied to the exercise of IPRs.

[59] This is also because that IPRs protect innovators from imitation by free-riders, but not from competition by substitution. Joseph Drexl and others, 'Comments of the Max Planck Institute for Intellectual Property, Competition and Tax Law, (Munich) on the Directorate General Competition Discussion Paper of December 2005 on the Application of Article 82 of the EC Treaty to Exclusionary Abuses' (2006) 37 IIC 558. It is important to determine how to assess a case in which a loss from one side can be compensated by the other side, because if the compensation is insufficient for the loss then it may not make sense to apply competition law to IPRs. In different industries, market structures, jurisdictions, and periods, and in different backgrounds of culture, economy, and politics, the objectives of constructing or preserving a competitive market could be various, and the intervention of competition law to IPRs could be adjusted accordingly, to a certain degree.

[60] 'There is no presumption that intellectual property rights and licence agreements as such give rise to competition concerns [...] The great majority of licence agreements are therefore compatible with Article 101.' Communication from the Commission — Guidelines on the application of Article 101 of the Treaty

accelerate the dissemination of technology by increasing patent exploitation. They also benefit static efficiency by allocating the patent, as a type of input for production, to the proper place where others inputs such as capital, labour, production facilities, management, and distribution means are abundant to combine with the patent to manufacture products. However, the agreements are also capable of restricting or eliminating competition if they include anti-competitive restrictions.[61] These restrictions can generally be categorised into two types according to their legality: restrictions considered very likely to be illegal due to them being anti-competitive; and restrictions considered to be anti-competitive but which need to be assessed on a case by case basis. Some restrictions are regarded as generating hardly any positive efficiency at all, and so may be *per se* illegal[62] under US law or are identified as 'hardcore restrictions' excluded from block exemptions in European Union (EU) law.[63] For example, price fixing, which deprives the licensee of the freedom to determine the sale price for the products embodying licensed patents. Output restrictions, in which both licensors and licensees are obliged to observe such restrictions under reciprocal

on the Functioning of the European Union to technology transfer agreements [2014] OJ C89/3 (Guidelines of TTBER 316/2014), para 9.

[61] Some restrictions are not anti-competitive, such as by secrecy clauses; obligations on the licensee not to sub-license the technology; obligations not to use the license after the expiry of the licensing agreement on the condition that the patent right remains valid and in force; and obligations to pay minimum royalties or to produce a minimum quantity of products. Ozgur Ozturk and Pinar Ozturk, 'Patent Right Competition Law Interface' (Conference on Technology Management for the Global Future, Istanbul, 8-13 July 2006) <http://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=4077348> accessed 1 April 2012. The block exemption of restrictions in certain conditions from the intervention of competition law is formulated in EU law. Commission Regulation (EU) No 316/2014 of 21 March 2014 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to categories of technology transfer agreements [2014] OJ L93/17.

[62] *Per se* illegal refers to conduct that is inherently illegal without considering any extrinsic proof or defence. It is often used in the US to categorise anti-competitive conducts conclusively presumed to be unreasonable restrictions on trade. The horizontally anti-competitive agreement was traditionally regarded as *per se* illegal. *Per se* illegal can be traced back to *Addyston Pipe & Steel v United States* 175 US 211 (1898). However, in modern times, some of the conducts have been excluded from being *per se* illegal and only a few conducts that have outstanding anti-competitive effects will be regarded as *per se* illegal by courts, such as price fixing and market allocation. 'Anti-trust law does, however, helpfully and intelligibly reject certain defences to or justifications for some alleged antitrust violations on the grounds that those defences are per se inadmissible. The outcomes that antitrust law generated will not change significantly as a consequence of realizing that per se rules do not define antitrust violation, but instead govern the disposition of some defences. This realisation, however, will help courts structure more rational inquiries that pay increased attention to the substantive goals of antitrust law. In order to improve anti-trust analysis, courts therefore should abandon the notion of per se violations and focus on categorizing certain defences as per se inadmissible.' Thomas G Krattenmaker, 'Per Se Violations in Antitrust Law: Confusing Offenses with Defences' (1988) 77 Geo LJ 165.

[63] Commission Regulation (EU) No 316/2014 of 21 March 2014 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to categories of technology transfer agreements.

agreements of competing technologies, have very strong anti-competitive effects but less in the way of positive effects, and are categorised under the second type of restriction. Other restrictions may bring about anti-competitive effects but also possess the ability to generate positive effects. These restrictions should be analysed on an individual basis so that positive and negative effects can be compared when deciding whether competition law should be applied, such as by restrictions on royalties; territorial exclusivity; field of use; tying; grant-back; and non-compete. Both categorisations are based on a comparison of the positive and negative effects.

2.5 Two Particular Factors Considered in Chinese Competition Legislation in Technology Transfer: From the Perspective of a Developing Country

Considering that both positive and negative impacts can stem from IPRs and competition law, it is crucial to weigh up these impacts when deciding how best to deal with the interface of the two legal systems, in order to maximise efficiency and minimise defects. In addition to these inherent effects, external factors should be considered from a macro perspective by legislators.[64] Countries will have different objectives, dependant on their individual situations. If a country prioritises innovation, even agreeing to tolerate the loss of consumer welfare in the short term, dynamic efficiency will win out, and patents will beat competition law from the point of view of legislators, anti-monopoly enforcement authorities (AMEAs), and courts. By contrast, if consumer welfare is regarded as the most important goal, for example, when income is very important to consumers in a developing country,[65] even upon the sacrifice of

[64] Relatively, these factors may be considered to affect the goals of the enforcement of competition law. The goals are categorised into two groups: efficiency-based and non-efficiency-based goals. The former consists of dynamic and static efficiencies from an economic perspective, as discussed in Section 2.3.1 of this chapter of this thesis; the latter encompasses items such as the protection of small business, improvement of international competitiveness, eradication of poverty, and pursuit of fairness, equality and justice. David W Barnes, 'Nonefficiency Goals in the Antitrust Law of Merger' (1989) 30(4) Wm & Mary L Rev 787, 797; Dina I Waked, 'Antitrust Goals in Developing Countries: Policy Alternatives and Normative Choices' (2015) 38 (3) Seattle U L Rev 945, 951-52.

[65] Frederic M Scherer, 'A Note on Global Welfare in Pharmaceutical Patenting' (2004) 27 World Econ 1127, 1131-32.

innovation promoted by patents, the application of competition law to the exploitation of patents will be strict.

Solving issues that arise from the interface is more difficult for developing countries,[66] because these would not only be based on the analysis of positive and negative effects, but would be considered in a broader context, such as the impact on politics[67] or on the historical trend of law,[68] especially in terms of economic growth and development. The economic growth and environment of developing countries is very different to that of developed countries. As a result, many analytical instruments and approaches in competition law that have been developed by and that worked for the latter may not necessarily suit the former, although they are useful to learn from. As a developing country, it is essential that China does not consider and view the interface between IPRs and competition law from the same perspective as developed countries when making proper competition legislation.[69]

[66] There is no way of distinguishing between the terms developing country and developed country, but the main criterion is the extent of the development. The World Bank defines a developing country as 'one in which the majority lives on far less money—with far fewer basic public services—than the population in highly industrialised countries. Five million of the world's six billion people live in developing countries where incomes are usually under USD 2.00 (GBP 1.25) per day and a significant portion of the population lives in extreme poverty (under $1.25 (GBP 0.78) per day).' Lynge Nielsen, 'Classifications of Countries Based on Their Level of Development: How it is Done and How it Could be Done' (2011) IMF Working Paper WP/11/31 <https://www.imf.org/external/pubs/ft/wp/2011/wp1131.pdf> accessed 2 August 2013. The World Bank uses 'industrialised country' to mean 'developed country.' Whilst China has become the second biggest economic entity in the world due to its large GDP, its low GDP per capita means that it is still regarded as a developing country. World Bank, 'About Development' (*World Bank*, 2012) <http://web.worldbank.org/WBSITE/EXTERNAL/EXTSITETOOLS/0,,contentMDK:20147486~menuPK:344190~pagePK:98400~piPK:98424~theSitePK:95474,00.html> accessed 2 August 2013.

[67] For example, in order to win a vote, politicians may need to consider whether the law and policy will please consumers or industrial undertakings the most.

[68] Both IPRs and competition law were introduced to China from abroad. Whilst they have developed to a certain degree, the interface of the two systems is relatively new in China. If the legislation regarding the interface is merely copied from abroad, rather than first considering whether it can be assimilated into the development of the two systems in China, there must be a large gap between its legislation and implementation for market actors to understand and accept it. It could lead to disruption of the legislation due to major conflict. This is a good reason to review the historical development of the two types of law in China. For more details, see Chapter 4 of the thesis.

[69] 'Some measures of protective antitrust policy might be necessary so that developing countries overcome the industrial and development gap between them and more advanced nations.' Dina I Waked, 'Antitrust Goals in Developing Countries: Policy Alternatives and Normative Choices' (2015) 38(3) Seattle U L Rev 945, 975.

2.5.1 Application of Competition Law Improves the Facilitation of R&D Spillovers

Using patents as an example, competition law can facilitate R&D spillovers[70] by restricting the exercise of patent rights, including restrictions imposed on patentees' licensing. Economic growth promoted by technological progress[71] can be achieved by two primary methods:[72] innovation by investment in R&D, such as through enhancement of innovation incentives that stem from the reward mechanism of patents; and diffusion of the innovation, such as technology transfer[73] and imitation,[74] from which R&D spillovers can be captured.[75] In terms of the former, patents are very

[70] R&D spillovers refer to where a certain aspect of new knowledge or an invention is not only exploited by the inventor but can be used by other researchers. William J Baumol, *The Free Market Innovation Machine: Analysing the Growth Miracle of Capitalism* (Princeton University 2002) 5. See also Richard C Levin and others, 'Appropriating the Returns from Industrial Research and Development' (1987) 18(3) Brookings Pap Eco Ac 783, 806-07 (R&D spillovers take place in application of patents and trade shows); Elhanan Helpman, *The Mystery of Economic Growth* (Harvard University Press 2009) 34, 38 (R&D spillovers 'become available to other innovators and thereby reduce future R&D costs for everyone, and the more R&D was performed in the past the larger this stock and the cheaper it is to do R&D today'); Richard Gilbert, 'Looking for Mr. Schumpeter: Where Are We in the Competition-Innovation Debate?' (2006) 6 Innov Pol'y & Econ 159, 202 (stating that a company can benefit from improvements in productivity by learning from the innovations of another company).

[71] ibid Gilbert (R&D is a major source of economic growth); Bart Verspagen, 'Innovation and Economic Growth' in Jan Fagerberg and others (eds), *The Oxford Handbook of Innovation* (Oxford University Press 2005) 486, 489 (technological progress affects productivity and is also regarded as an exogenous variable).

[72] Chun-Chien Kuo and Chih-Hai Yang, 'Knowledge Capital and Spillover on Regional Economic Growth: Evidence from China' (2008) 19(4) China Econ Rev 594, 603-604 (empirical results indicate that both investments in R&D and technology imports contribute to regional economic development).

[73] Paul Krugman, 'A Model of Innovation, Technology Transfer, and the World Distribution of Income' (1979) 87(2) J Pol Econ 253; Slavo Radosevic, *International Technology Transfer and Catch-Up in Economic Development* (Edward Elgar 1999); Garrick Blalocka and Paul J Gertler, 'Welfare Gains from Foreign Direct Investment through Technology Transfer to Local Suppliers' (2008) 74(2) J Int'l L & Econ 402.

[74] Udo Zander and Bruce Kogut, 'Knowledge and the Speed of the Transfer and Imitation of Organizational Capabilities: An Empirical Test' (1995) 6(1) Org Sci 76 (company competes not only through creation, replication, and transfer of their own knowledge but also through their ability to imitate the product innovations of competitors); Gerhard Schewe, 'Imitation as a Strategic Option for External Acquisition of Technology' (1996) 13(1) J Eng & Tech Magt 55 (a company needs to acquire the capabilities to be successful in imitation and entering the market: strengths in the areas of technology, marketing, and production, and the existence of suitable information gathering capabilities); Ivan Abel, 'From Technology Imitation to Market Dominance: the Case of iPod' (2008) 18(3) Competitiveness Rev: An Int'l Bus J 257 (imitation can allow a late-entry follower to be more competitive when the follower acquires sufficient resources).

[75] Pierre Mohnen and Normand Lépine, 'R&D, R&D Spillovers and Payments for Technology: Canadian Evidence' (1991) 2(1) Structural Change and Economic Dynamics 213 (a study of R&D spillovers of patents in Canada); Dolores Añón Higón, 'The Impact of R&D Spillovers on UK Manufacturing TFP: A Dynamic Panel Approach' (2007) 36(7) Res Pol'y 964 (R&D spillover effects benefit the UK industry's productivity performance through R&D investment in the industry itself, as well as in other national industries); Luigi Aldieri and Michele Cincera, 'Geographic and Technological R&D Spillovers within the Triad: Micro

important to developed countries in order to promote the incentive of innovation, but developing countries may lack sufficient potential innovators to benefit from the rewards of patents, so there is less pressure on innovation incentives.[76] Therefore, the utilisation of R&D spillovers by other researchers for further invention is another choice for developing countries. If the licensee had a greater possibility of being granted the right to exploit the patented technology or to exploit it more widely and with fewer restrictions, there would be more opportunity for the positive effects of R&D spillovers to become apparent. Ultimately, R&D spillovers can help improve the basic level of indigenous technology and increase potential innovators. They can even create a fertile basis for a future mechanism of innovation incentives by using patents to the same extent as developed countries.

This mechanism of gaining benefits from facilitating R&D spillovers also applies to China. The development of IPRs protection in China, resulting from both its international responsibility[77] and the demand for encouraging indigenous innovation and improvements in the protection of private rights,[78] contribute to creating a legal regime for the protection of patents to a standard that is as high as developed countries. These encourage investment in R&D and promote technological progress on a self-innovation basis. However, the high standard of patent protection also has a negative impact on innovation,[79] especially follow-on innovation that is a critical

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Evidence from US Patents' (2009) 34(2) J Technol Transf 196 (R&D spillovers of patents have a positive effect on large international R&D companies' productivity growth).

[76] Thomas K Cheng, 'A Developmental Approach to the Patent-Antitrust Interface' (2012) 33 Nw J Int'l L & Bus 1, 8-9.

[77] China is responsible for establishing a legal regime for IPRs protection in order to accede to international organisations and conventions, such as the WTO and TRIPS. For more details see Section 4.2 of Chapter 4 of this thesis.

[78] Realisation and protection of private rights in China not only benefits IPRs system by promoting innovation, but also facilitates more private companies to compete with SOEs. However, private rights in China were not specifically confirmed until 2007 when Property Law came into force. See Property Law of China 2007, arts 64-66.

[79] Jianzhong Zhang and Zhibiao Liu (张建忠，刘志彪), 'IPR Protection and "Catching-up Trap" — Based on the Value of Global Value Chain' (知识产权保护与"赶超陷阱"—基于 GVC 治理者控制的视角 Zhishi Chanquan Baohu Yü "Ganchao Xianjing" — Jiyü GVC Zhili Zhe Kongzhi De Shijiao) (2011) 6 China Industrial Economy (中国工业经济 Zhongguo Gongye Jingji) 58, 59 (economics studies show that a strong protection of IPRs will make the absorption of high-technology from abroad costly, and IPRs have become a tool for right-owners at the top of the Global Value Chain to control the chain and gain profits. China is involved in the chain in original equipment manufacturing at the lower part of the chain, so the

method for developing countries, such as China, where the original development of high-technology is insufficient.[80] Therefore, China should take into account the R&D spillovers effect for the purpose of catching up with advanced technologies. The application of competition law to the protection of patents could, to some extent, accelerate technological innovation, as well as rectify anti-competitive effects.[81]

2.5.2 Application of Competition Law Improves Living Standards of Chinese People

The application of competition law could help developing countries to improve the living standards of their people. Given that people are regarded as the significant element needed to build up society and they are the primary element that sustains the development of society, their needs should be fulfilled to the greatest possible extent. The achievement of economic growth by technological progress does not necessarily ensure relevant benefits to consumers, which is a substantial element of development.[82] Thus, society would be better off if the benefits of innovation could be

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strong IPRs protection will impede China from acquiring high-technology, and also from developing its own high-technology).

[80] Youwei Zhu and Kangning Xu (朱有为，徐康宁), 'The Empirical Research on the R&D Efficiency of Chinese High-Tech Industries' (中国高技术产业研发效率的实证研究 Zhongguo Gao Jishu Chanye Yanfa Xiaolv De Shizheng Yanjiu) (2006) 1 China Industrial Economy (中国工业经济 Zhongguo Gongye Jingji) 38, 45 (an empirical study shows that the efficiency of R&D in China is growing steadily but it is slow, and it proposes to emphasize the functions of the scale of innovators and the market competition by promoting the efficiency); Dieter Ernst, 'Can Chinese IT Firms Develop Innovative Capabilities Within Global Knowledge Networks?' in Rowen HS and others (eds), *Greater China's Quest for Innovation* (Asia-Pacific Research Centre 2008) 197, 215-16 (as a developing country that has weak basic research, limited connections between industries, and difficult extension of industries, China should not merely rely on a national innovation scheme but also acquire external technologies as a catalyst for improving its learning and innovative ability).

[81] Richard J Gilbert and Steven C Sunshine, 'Incorporating Dynamic Efficiency Concerns in Merger Analysis: The Use of Innovation Markets' (1995) 63(2) ALJ 569, 573 (advocating that innovation should not only purport to boost economic growth, but also take responsibility for expanding the domestic economy by providing new products demanded by consumers and reducing the costs of existing products. The reduced costs can increase consumer welfare where lower price and higher output are offered).

[82] There are two main schools of thought on development. One is the Neoliberal school which holds that development refers to achieving economic growth by liberalising policies, including eliminating trade barriers, simplifying the tax system, reducing interference of government, etc. TRIPS follows this view and considers that the integration of a high standard of IPRs will lead to long-term economic growth, at the expense of short-term loss of welfare due to higher prices. The other is the Skeptical school. It advocates that the development does not only refer to high economic growth but also that the benefits of economic growth can be shared by different socio-economic classes. Tayyab Mahmud, 'Postcolonial Imaginaries: Alternative Development or Alternatives to Development?' (1999) 9 Transnat'l L & Contemp

shared broadly among members of society rather than held entirely by innovators.[83] In terms of developing countries, the social welfare scheme, including the medical and educational system, living standards and environment, and per capita income are relatively lower, and the gap between the wealthy and poor is bigger compared with developed countries. Thus, there is a high demand for welfare to be distributed in a more equitable way. Of course, competition law neither controls the distribution of welfare nor determines whether consumers are satisfied,[84] but it can to some extent affect the degree to which poor consumers acquire benefits. For example, competition law could drive down the price of products, especially necessities, so that the poor people in society can afford them;[85] businesses also benefit if the price of the inputs has been affected similarly.[86]

After more than thirty years of development since the Reform and Opening-Up policy[87] was implemented in the 1970s, China has made great progress in improving

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Probs 25, 26; Shawn Meghan Burn, *Women Across Cultures: A Global Perspective* (McGraw-Hill, 2000) 133-57; Margaret Chon, 'Intellectual Property and the Development Divide' (2006) 27 Cardozo L Rev 2821, 2853-68.

[83] William J Baumol, *The Free Market Innovation: Analysing the Growth Miracle of Capitalism* (Princeton University Press 2002) 102.

[84] There is controversy regarding whether competition law should aim to achieve development and redistribution. Some argue that the goals should be left to government and other laws to address specifically. Rober H Bork, *The Antitrust Paradox: A Policy at War with Itself* (Simon & Schuster 1993) 427 (arguing that the goal of competition law is to maximise economic efficiency, and that other laws should be tasked with the distribution of wealth); Kenneth G Elzinga, 'The Economic Goals of Antitrust: Other than Competition and Efficiency, What Else Counts?' (1977) 125(6) U Pa L Rev 1191, 1194-95 (stating that competition law does not need to be concerned with increasing the purchasing power of poor people because this can be tackled indirectly when anti-competitive practices are regulated and efficiency is realised.) Others support this role of competition law in developing countries. Dina I Waked, 'Antitrust Goals in Developing Countries: Policy Alternatives and Normative Choices' (2015) 38 (3) Seattle U L Rev 945, 977 ('developing countries often have benevolent governments that fail to introduce or implement such policies. Taxes are evaded and subsidies are slowly being lifted under the rubric or privatization and liberalization, leaving the masses at a loss…Thus, broadening the scope of antitrust in developing countries to include issues such as poverty eradication seems appealing as policy framework.')

[85] Eleanor M Fox, 'Economic Development, Poverty, and Antitrust: The Other Path' (2007) 13(2) J L & Trade in the Americans 211, 219-22 ('[n]ot only do the poor suffer from prices that are too high, but they suffer from suppressed growth.')

[86] ibid 223-24 ('The marketplace should give firms, including smaller and younger firms, a fair chance to compete on the merits of their product, free from artificial and unnecessary foreclosing restraints by powerful firms. Empowerment to engage in markets free to unnecessary business restraints is the counterpart to de Soto's version of empowerment to engage in markets free from unnecessary government restraints. Undue market restraints, whether public or private, retard efficient development.')

[87] The Reform and Opening-Up policy was an innovative proposal by Xiaoping Deng, who was a highly significant leader in the Chinese central government and was known internationally as an 'architect of reform'. The policy was widely supported, and in 1978 the 3rd Plenary Session of the 11th Central

productivity and economic growth. For example, the Gross Domestic Product (GDP) growth rate of China has been approximately 10% over the past thirty years,[88] and in 2015 the GDP of China was USD 10,866,444 million (GBP 6,791,527.5 million), accounting for about 14.79% of global GDP and ranking it in second place behind the US at USD 17,946,996 million (GBP 11,216,872.5) (see Figure 1).[89] By contrast, China's GDP per capita[90] in 2014 was USD 7593.9 (GBP 4,746.19), far lower than that of developed countries, such as USD 54,629.5 (GBP 34,143.13) of the US, USD 47,627.4 (GBP 29,767.13) of Germany, USD 45,603.3 (GBP 28,502.06) of the UK, and USD 36,194.4 (GBP 22,621.50) of Japan (see Figure 2).[91] China's high GDP and extremely low GDP per capita highlights the requirement for a fairer allocation of social welfare to

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Committee confirmed that it would be implemented. The policy advocated treating the economic development and construction of social modernisation as the central task, rather than the class and political struggle which had previously been the focus. The policy consisted of two main sections. The first concerned domestic reform, involving most aspects of the country, and including business, education, the financial system, tax, property and the medical system, etc. The most outstanding achievements were the introduction of a market-based economic system into the traditional centrally planned economy, which allowed the private economy to enter the market, and the setting up of special economic zones to experiment with applying new policies to stimulate the economy. The second section of the policy was about opening up to the world, and it allowed foreign direct investment to China (initially only in the special economic zones with preferential policies); promoted foreign trade with other countries; and advocated integration with the rest of the world instead of closed borders. The policy mainly focused on economic reforms, but continued the political system of socialism and the single-party Communist dictatorship. The implementation of the policy significantly boosted China's economic development. Peter Harrold, 'China's Reform Experience to Date' (1992) World Bank Discussion Paper, WDPO 180 <http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/1999/10/14/000178830_98101903552078/Rendered/PDF/multi_page.pdf> accessed 1 May 2013 (mainly discussing the economic reform of China from 1978-90 and its achievements); Susan L Shirk, *How China Opens Its Door: The Political Success of the PRC's Foreign Trade and Investment Reforms* (Brookings Institution 1995) (highlighting the improvement in foreign direct investment and trade in China since the 20th century); Wu Qi, 'Changes and Challenges with 30 years of Reform and Opening Up' (*Xinhua News Agency*, 6 October 2008) <http://news.xinhuanet.com/english/2008-10/06/content_10155776.htm> accessed 1 May 2013 (discussing the development of China after the implementation of the Reform and Opening-Up policy, and the challenges that have arisen); Clem Tisdell, 'Economic Reform and Openness in China: China's Development Policies in the Last 30 Years' (2009) 39(2) Econ Anal & Pol'y 271, 285 (discussing the background and implementation of the Reform and Opening-Up policy over the last thirty years).

[88] Sophie Baker, 'Chart of the Day: China's GDP growth' (*Financial News*, 7 April 2012) <http://www.efinancialnews.com/story/2012-04-17/china-gdp-growth-bubble> accessed 6 June 2012.

[89] World Bank, 'Gross Domestic Product 2015' (*World Bank*, 1 July 2016) <http://databank.worldbank.org/data/download/GDP.pdf> accessed 5 July 2016.

[90] 'GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.' World Bank, 'GDP per capita (current US$)' (*World Bank*, no date) <http://data.worldbank.org/indicator/NY.GDP.PCAP.CD> accessed 1 August 2015. The data on GDP per capita for 2015 had not been published by the World Bank at the time of writing this thesis.

[91] ibid.

Chinese people, otherwise many of them are likely to experience increasingly worse financial status if the fortunes are acquired by monopolists. During the period of rapid economic development driven by the implementation of the Reform and Opening-Up policy in the 1970s, the socialist welfare system has been steadily dismantled,[92] and the gap between the wealthy and poor has been getting bigger.[93] This goes against the principles of socialism. Although this might be a necessary cost of economic growth and the transition to a market-oriented economic system,[94] it is now essential to address consumer welfare in China.[95] Therefore, the application of competition law to patents can be helpful, so that the living standards of Chinese people can be improved by sharing more benefits that result from current, global, technological developments with lower costs.

[92] Shawn Shieh and Jonathan Schwartz, 'State and Society Responses to China's Social Welfare Needs: an Introduction to the Debate' in Jonathan Schwartz and Shawn Shieh (eds), *State and Society Responses to Social Welfare Needs in China: Serving the People* (Routledge 2009) 4.

[93] Deborah Davis and Feng Wang, 'Poverty and Wealth in Postsocial China: An Overview' in Deborah Davis and Feng Wang (eds), *Creating Wealth and Poverty in Postsocialist China* (Stanford University Press 2008) 9-15.

[94] Xiaoping Deng said, 'let some of the people and some regions of the country get rich first,' and this would give new impetus to economic growth, and then others could get rich later. Duncan Hewitt, *Getting Rich First: Life in a Changing China* (Random House Books 2012) xvii.

[95] In the European Union (EU), the social vision of the Commission in the 21st century states that 'all Europe's citizens must have access to resources improving their "life chances" and enable them to share in rising prosperity.' Dermot Cahill, 'The Ebb and Flow, the Doldrums and the Raging Tide: Single Market Law's Ebb and Flow over Services of General Economic Interest, the Legal Doldrums over Services of General Interests, and the Raging Tide of Article 106(2) (ex Art 86(2)) over State Aid & Public Procurement' (2010) 21(5) EBLR 629, 629. As a developing country, China should ensure its citizens benefit from its significant economic achievement.

Figure 1: Top 10 Countries by GDP in 2015

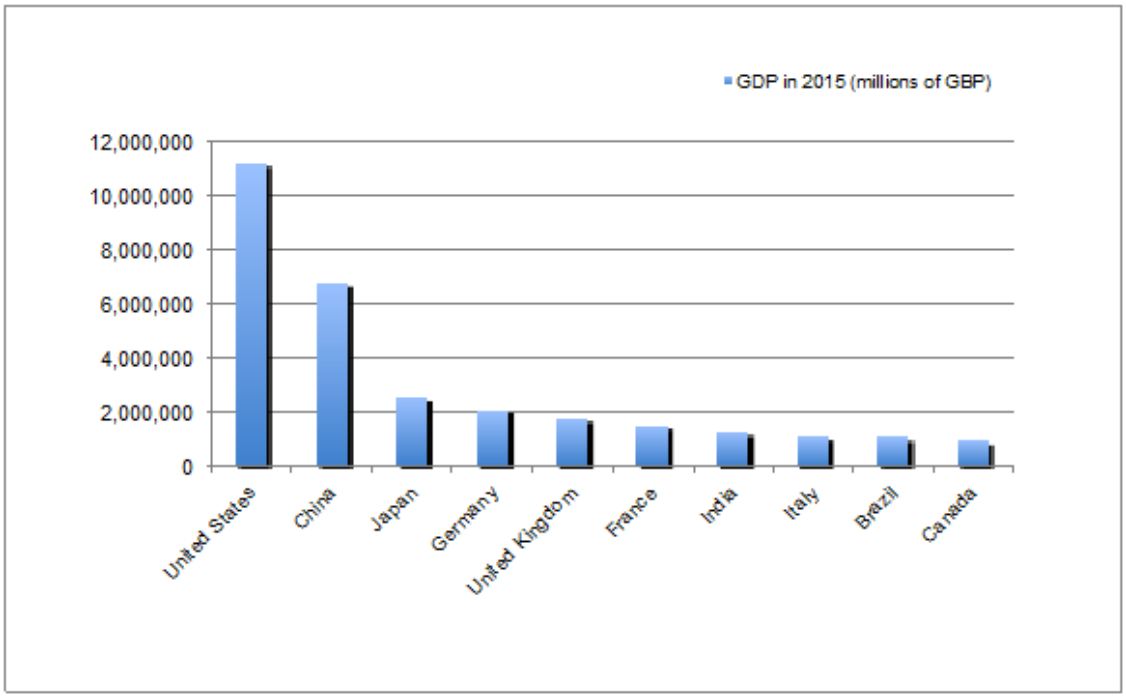

Figure drawn by the author.

Source: World Development Indicators Database, World Bank, 1 July 2015[96]

[96] World Bank, 'Gross Domestic Product 2015' (*World Bank*, 1 July 2016) <http://databank.worldbank.org/data/download/GDP.pdf> accessed 5 July 2016.

Figure 2: Some Countries by GDP in per capita in 2014

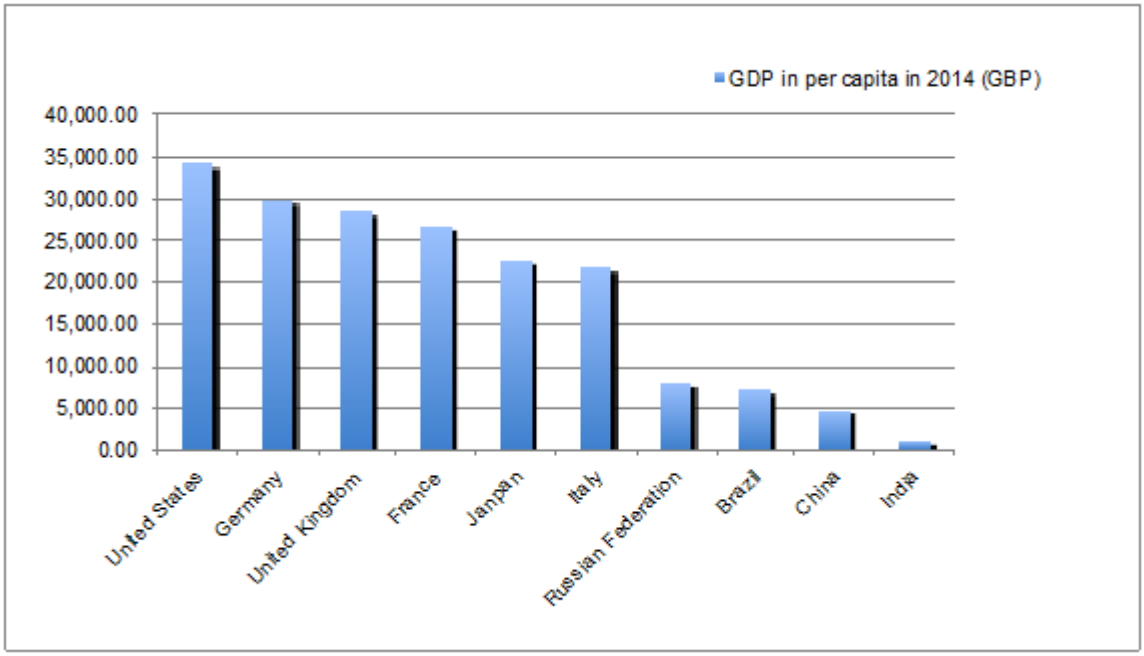

Figure drawn by the author.

Source: World Bank[97]

Where the consumer loss exceeds the economic benefits of a developing country, competition law should play a more important role.[98] More emphasis should be placed on immediate consumer welfare to be an ultimate goal when making and enforcing competition law. China should establish a proper patents system in order to successfully integrate with a world that is dominated by developed countries, as well as to improve the protection of private rights and encourage innovation incentives. China should also make use of competition law to increase consumer welfare, which would maintain the stability of the state by raising the living standards of people and bringing about improved conditions in education, finance, entry to the market for competition, etc. In return, all this will create a better basis for innovation.

[97] World Bank, 'GDP per capita (current US$)' (*World Bank*, no date) <http://data.worldbank.org/indicator/NY.GDP.PCAP.CD> accessed 1 August 2015. The data of GDP per capita of 2015 has not been published by the World Bank by the time of writing this thesis.

[98] Thomas K Cheng, 'A Developmental Approach to the Patent-Antitrust Interface' (2012) 33 Nw J Int'l L & Bus 1, 8-10.

2.6 Conclusion

When discussing the application of competition law to exercise of IPRs in technology transfer in China, it is necessary to consider both the doctrine and principle of the interface between the two legal systems and certain unique characteristics of China. From an economic perspective, both static and dynamic efficiencies provide intermediate and long-term consumer welfare. Technological innovation has been a significant subject for all countries because it promotes dynamic efficiency, economic growth, consumer welfare, and even national competitiveness. An IPRs system achieves primarily dynamic efficiency by granting exclusive rights within a certain period to innovators, protecting them from imitation so that they have a greater opportunity to recoup investment costs and maximise other benefits. The system encourages continuous investment in R&D to develop better or new products, thus increasing the social fortune to benefit consumers. Competition law reaches static efficiency by allocating given resources to places that can make good use of the resources, according to the demands of consumers, and gaining optimal efficiency of production and distribution, which are primarily reflected in lower prices and adequate supplies. Competition law could also function well at promoting investment in R&D and achieving dynamic efficiency by preserving a competitive market, in which actors have to get involved in more innovation in order to secure an initial market share and to keep up with competition.[99]

Based on these mechanisms of pursuing efficiencies, there are some conflicts between the IPRs system and competition law. This is because IPRs easily create market power by creating a monopoly or quasi-monopoly position,[100] thus enabling the creation of

[99] Herbert Hovenkamp, 'Competition for Innovation' (2012) 3 Colum Bus L Rev 799, 811-15 (examining three areas in which competition is likely to promote innovation, comprising the relationship between innovation and market structure, remedies developed by competition, and deficient intellectual property policy that should be dealt with by competition law); Michele Boldrin and others, 'Competition and Innovation' (2011) 1 Cato Papers on Pub Pol'y 109, 135 (showing that increased competition equates to more patents).

[100] Robert D Weaver and Justus Wessler, 'Monopolistic Pricing Power for Transgenic Crops When Technology Adopters Face Irreversible Benefits and Cost' (2004) 11 App Econ Lett 969; Michele Boldrin and David K Levine, *Against Intellectual Monopoly* (Cambridge University Press 2010) 48; David Bainbridge, *Intellectual Property* (Longman 2009).

barriers for other competitors and potentially leading to an inefficient allocation of resources, typically in the form of raising prices and limiting output. However, competition law generally prohibits these effects. On the other hand, the supremacy of static efficiency and dynamic efficiency, which competition law and the IPRs system aspire to create, have an intrinsic contradiction.[101] Competition law pursues immediate benefits to the consumer with the objective of achieving the lowest price and plentiful supply, while IPRs were designed to allow immediate harm to consumers but to create improvements in consumer welfare through accumulating innovation in the long term.[102] A further difficulty is the information asymmetry that results from the difference in timing between granting IPRs *ex ante* and the operation of competition law *ex post*.[103] As a result of this contradictory relationship, conducts involving exercise of IPRs in technology transfer, such as imposition of restrictions or even refusals to transfer, may generate anti-competitive effects and thus fall within the scope of competition law.

In another sense, the relationship between the IPRs system and competition law can be considered as complementary, because both of them pursue consumer welfare[104] and promote technological innovation,[105] and, in particular, the granting of IPRs does

[101] Herbert Hovenkamp, *Federal Antitrust Policy: The Law of Competition and its Practice* (4th edn, West 2011) s 5.2.

[102] Thomas B Leary, 'The Patent-Antitrust Interface' (*Federal Trade Commission*, 3 May 2001) <http://www.ftc.gov/speeches/leary/ipspeech.htm> accessed 17 October 2012; Herbert Hovenkamp, 'Antitrust and the Movement of Technology' (2012) 19(5) Geo Mason L Rev 1119, 1119 ('Antitrust is generally dedicated to incentivizing competitive output and pricing, which are mainly short-run concerns. By contrast, intellectual property policy awards above-cost return in order to provide incentives to innovate, an essentially long-run concern.')

[103] Howard F Change, 'Patent Scope, Antitrust Policy and Cumulative Innovation' (1995) 26 RAND J Econ 34.

[104] Antitrust Guidelines 2017, art 1 ('The intellectual property laws and the antitrust laws share the common purpose of promoting innovation and enhancing consumer welfare.'). Commission Notice — Guidelines on the application of Article 81 of the EC Treaty to technology transfer agreements [2004] OJ C101/2 ('Nor does it imply that there is an inherent conflict between intellectual property rights and the Community competition rules. Indeed, both bodies of law share the same basic objective of promoting consumer welfare and an efficient allocation of resources.').

[105] Ward S Bowman, Jr, *Patent and Antitrust Law: A Legal and Economic Appraisal* (University of Chicago Press 1973) 1-3 (stating that 'both antitrust and patent law have a common central economic goal: to maximise wealth by producing what consumers want at the lowest cost. In serving this common goal, reconciliation between patent and antitrust law involves serious problems of assessing effects, but not conflicting purposes.') Philippe Aghion and others, 'Competition and Innovation: An Inverted-U Relationship' (2005) 120 Q J Econ 701, 701-28; Koki Arai, 'Patents, Competition Policy, and Growth' (2013) 18 J Tech L & Pol'y 83, 84 (asserting that both the IPRs system and competition law can facilitate

not necessarily lead to a monopoly.[106] These complementary features of the two legal systems provide a basis for justifying the intervention of competition law in the exercise of IPRs. More specifically, the intervention would not necessarily run counter to the objectives and expected outcome of the IPRs system; on the contrary, the intervention would make it possible to achieve the same goals and would bring improved and increased consumer welfare.

Next, it needs to be considered how and to what extent to apply competition law to anti-competitive issues resulting from exercise of IPRs. In technology transfer, whether innovation and its dissemination contribute to economic development and consumer welfare 'depends both on sufficient incentives to innovate plus the effective dissemination of innovation through the economy'.[107] Normally, only if IPRs owners are allowed to transfer the technology along with imposing restrictions, which will benefit them, may they be willing to transfer to others; otherwise, they may refuse to do so. However, these transfer restrictions limit the efficiency of technology dissemination, and it is worse when the restrictions are anti-competitive. Thus, an effects-based approach shall be employed to maximise the benefits and minimize the negative effects of applying competition law to IPRs-related anti-competive isssues. If the positive effects of the interference of competition law outweigh the negative effects on factors such as innovation, competition, and consumer welfare,[108] the application of

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innovation in certain market structures; therefore, it is proposed that the innovation/market structure curve is an inverted 'U,' and a market that embodies a certain amount of concentration as well as competition may enhance innovation to a great extent). See also John T Scott and Troy J Scott, 'Innovation Rivalry: Theory and Empirics' (2014) 41 J Indus & Bus Econ 25, 25.Herbert Hovenkamp, 'Antitrust and the Patent System: A Reexamination' (2015) 76(3) Ohio St L J 467, 507 ('Monopolised markets tend not to exhibit a great deal of innovation, but neither do highly competitive markets. Rather, innovation proceeds most quickly in moderately concentrated, product-differentiated markets that have relatively large firms but also sufficient competition that each firm offers an innovation threat to the others.')

[106] OECD, 'Competition Policy and Intellectual Property Rights' (*OECD*, 1997) <http://www.oecd.org/competition/abuse/1920398.pdf> accessed 16 June 2013.

[107] Herbert Hovenkamp, 'Antitrust and the Patent System: A Reexamination' (2015) 76(3) Ohio St LJ 467,508-509.

[108] Stijepko Tokic, 'Intersection between the Patent System and Antitrust Laws: Patents Speeding, Antitrust Yielding, Innovation Bleeding!' (2011) 5(1) Akron Intell Prop J 19, 25 (stating that consumer welfare has become a main goal of the US antitrust law and 'behaviour was not deemed anticompetitive absent consumer harm'). See also Steven C Salop, 'Buyer Power and Antitrust: Anticompetitive Overbuying by Power Buyer' (2005) 72 ALJ 669, 686-87; Barak Orbach, 'How Antitrust Lost its Goal' (2013) 81 Fordham L Rev 2253, 2268-75 (illustrating that 'consumer welfare' emerged in the 1970s in the US to

competition law should be considered justified. Otherwise, competition law should not impede the exercise of IPRs in technology transfer.

In order specifically to solve anti-competive issues in technology transfer in China, as a developing country, it is necessary to consider some unique factors that may not exist in developed countries. For example, both the R&D spillovers that could importantly facilitate indigenous technological innovation, and the demand to improve the living standards of Chinese people, could be vital reasons for applying competition law to the exercise of IPRs in technology transfer in China. There are other factors in China that should be considered by the legislator, and will be discussed further in following chapters, such as the development of the two legal systems, the status of the technology transfer market and relevant anti-competitive issues, and the sufficiency of existing law and regulation. These elements will help in determining whether or not the competition law is adequate for technology transfer in China and will assist with identifying suggestions for improvement.

replace the more ambiguous competition as the main goal of competition law, although controversy still exists.)

CHAPTER 3. SEVERE ANTI-COMPETITIVE ISSUES IN TECHNOLOGY TRANSFERRED FROM ABROAD ALONG WITH A RELATIVELY QUIET DOMESTIC TECHNOLOGY MARKET

3.1 Introduction

The conflicts between competition law and Intellectual Property Rights (IPRs) system indicate that exercises of IPRs in technology transfer may raise anti-competitive issues in some exceptional cases.[1] This chapter will explore the recent anti-competitive issues that exist in the Chinese technology market, and how severely they affect China.

Once China recognised the central role that technological innovation plays in economic growth and international competiveness, it consistently encouraged the promotion of scientific and technological progress. The improvement of the level of technology can be achieved in two ways: transfer from abroad, and indigenous innovation. Since the 1970s, when the Reform and Opening-Up policy[2] was

[1] Whilst, the two legal systems' complementation and harmonisation provide possibility and justification to apply competition law to the issues. For more details, see Chapter 2 of the thesis.

[2] The Reform and Opening-Up policy was an innovative proposal by Xiaoping Deng, who was a highly significant leader in the Chinese central government and was known internationally as an 'architect of reform'. The policy was widely supported, and in 1978 the 3rd Plenary Session of the 11th Central Committee confirmed that it would be implemented. The policy advocated treating the economic development and construction of social modernisation as the central task, rather than the class and political struggle which had previously been the focus. The policy consisted of two main sections. The first concerned domestic reform, involving most aspects of the country, and including business, education, the financial system, tax, property and the medical system, etc. The most outstanding achievements were the introduction of a market-based economic system into the traditional centrally planned economy, which allowed the private economy to enter the market, and the setting up of special economic zones to experiment with applying new policies to stimulate the economy. The second section of the policy was about opening up to the world, and it allowed foreign direct investment to China (initially only in the special economic zones with preferential policies); promoted foreign trade with other countries; and advocated integration with the rest of the world instead of closed borders. The policy mainly focused on economic reforms, but continued the political system of socialism and the single-party Communist dictatorship. The implementation of the policy significantly boosted China's economic development. Peter Harrold, 'China's Reform Experience to Date' (1992) World Bank Discussion Paper, WDPO 180 <http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/1999/10/14/000178830_98101903552078/Rendered/PDF/multi_page.pdf> accessed 1 May 2013 (mainly discussing the economic reform of China from 1978-90 and its achievements); Susan L Shirk, How China Opens Its Door: The Political Success of the PRC's Foreign Trade and Investment Reforms (Brookings Institution 1995) (highlighting the improvement in foreign direct investment and trade in China since the 20th century); Wu Qi, 'Changes

implemented, China opened its doors to involvement in foreign trade and induced foreign direct investment (FDI), of which one objective was importing advanced technologies. The technology level and research ability were low at that time, and so technology transfer would be the most efficient way for China to quickly improve them. This strategy aided with the economic growth and technological improvement of China. After almost two decades of rapid development, China had successfully accumulated capital and improved the technological level of the country. It then shifted its focus to indigenous innovation, deemed as the origin of and a solid foundation for innovation. When indigenous innovation has been improved, it is possible to have more technology transfer among domestic companies.

Technology owners are very likely to either impose restrictions on the transfer or simply refuse to transfer under the exercise of IPRs; some of which may be legitimate, while others, especially those that result in anti-competitive effects, may be unlawful.[3] Anti-competitive conducts may impede innovation as well as competition, and may harm competitors and consumer welfare. Therefore, competition law is required to intervene when necessary, in accordance with an effects-based approach.[4]

3.2 Severe Anti-competitive Issues in Technology Transfer from Abroad

Technology transfer from abroad refers to technology that is transferred from companies based in foreign countries to companies located in China, where the

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and Challenges with 30 years of Reform and Opening Up' (Xinhua News Agency, 6 October 2008) <http://news.xinhuanet.com/english/2008-10/06/content_10155776.htm> accessed 1 May 2013 (discussing the development of China after the implementation of the Reform and Opening-Up policy, and the challenges that have arisen); Clem Tisdell, 'Economic Reform and Openness in China: China's Development Policies in the Last 30 Years' (2009) 39(2) Econ Anal & Pol'y 271, 285 (discussing the background and implementation of the Reform and Opening-Up policy over the last thirty years).

[3] For more details in regard to categories of anti-competitive conducts in technology transfer, see Section 2.4.3 of Chapter 2 of the thesis.

[4] An effects-based approach attempts to assess whether and to what extent competition law can apply to the exercise of IPRs. Considering that both the application of competition law and the exercise of IPRs can have negative as well as positive effects, this approach will assess the effects of such an application on various values, including innovation, dissemination of technology, efficiency, consumer welfare, etc. If the positive effects of such an application outweigh the negative effects, the application should be considered to be justified. This approach is different from a conduct-based approach, which attempts to categorise certain conducts occurring in the exercise of IPRs that fall under competition law. For more details, see Section 2.4.3 of Chapter 2 of this thesis.

transferees can be either indigenous companies or foreign-invested companies. Many indigenous companies do not have well-established research and development (R&D) operations, and so tapping into existing knowledge sources that exist abroad is an efficient way of reducing the technology gap.[5] In view of this, China has created preferential policies to tempt those importing technologies[6] as well as to increase the spending on importing technologies. For example, in 2009, there were 9,964 contracts of technology transfer[7] with a total amount of about USD 21.57 billion (GBP 13.48 billion) being concluded. Approximately USD 18.60 billion (GBP 11.62 billion), accounting for 86%, was for technology transfer and the remainder, around 14%, was for relevant equipment.[8] 95,609 advanced technologies, with a value of USD 220.19 billion (GBP 137.61 billion), were imported into China between 2002 and 2011. In 2011, 12,202 contracts of importing technologies, with a value of USD 32.15 billion (GBP 20.09 billion), were concluded.[9] The imports of high-technology products from abroad

[5] S James Boumil III, 'China's Indigenous Innovation Policies Under the TRIPS and GPA Agreements and Alternatives for Promoting Economic Growth' (2012) Chi J Int'l L 755, 759-60 (outlining three obstacles that impede Chinese innovation. Firstly, Chinese companies lack the capacity to fully understand and improve on Western innovations and must continue importing technology; this amounts to 'importing and lagging behind' with little ownership on core technology. The second is 'brain drain'; seven out of ten students studying abroad would not return to China. Finally, China is not as successful at integrating research institutions into innovation infrastructures as other industrialised countries, such as the US.)

[6] FDI was one of the most important ways of importing technologies. Over the last three decades, lower labour costs and a large Chinese market were the most attractive factors for FDI. Based upon this, the Chinese government provided preferential policies, particularly in taxation, which directly reduced the costs of production, such as lower tax rates compared to domestic funded companies, and tax exemptions for approx. 3-5 years since the year foreign invested companies began earning net profits. Regulations on the Implementation of the Income Tax Law for Enterprise with Foreign Investment and Foreign Enterprises 1991 (repealed 2008). However, since 1 January 2008, the difference in tax for domestic funded companies and foreign invested companies has been removed and is now 25%. Law of China on the Enterprise Income Tax 2008.

[7] According to statistics, the technology contracts contained 4.2% of patent assignments and licences with a value of approx. USD 1.8 million (GBP 1.12 million); approx. 21.6% of know-how assignments and licences with a value of around USD 95.6 million (GBP 59.75 million); 62% of technological consultancy and service with a value of approx. USD 66 million (GBP 41.25 million); 7.4% of computer software with a value of approx. USD 10.9 million (GBP 6.81 million); and others such as trade mark licences, joint ventures, and other relevant equipment for production. National Bureau of Statistics of China (2009), 'Data of Contracts of Importing Foreign Technologies (2009)' (外国技术进口合同统计 Waiguo Jishu Jinkou Hetong Tongji) (*National Bureau of Statistics of China*, 2010) <http://www.stats.gov.cn/tjsj/qtsj/zgkjtjnj/2009/t20110906_402752378.htm> accessed 13 November 2012.

[8] The top three technology export countries are Japan (2243 contracts, accounting for approx. 22.5%); the US (1628 contracts, accounting for approx. 16.9%); and Germany (1216 contracts, accounting for 12.2%). ibid.

[9] Ministry of Commerce of China (MOFCOM), 'Press Conference for the First China (Shanghai) Conference of International Importing and Exporting Technology' (首届中国（上海）国际技术进出口交易会新闻发布 Shoujie Zhongguo (Shanghai) Guoji Jishu Jinchu Kou Jiaoyi Hui Xinwen Fabu Hui)

have been increasing, from USD 247.3 billion (GBP 154.56 billion) in 2006 to USD 558.2 billion (GBP 348.75 billion) in 2013.[10] As a result of a population exceeding 1.3 billion, the rapid economic growth, the established facilities for manufacturing, and the improving legal and political environment, China has been an important market and production base for the world.[11] Too lucrative an opportunity to be ignored, this strongly induces technology transfer from abroad. Foreign companies have established R&D centres in China and increasingly run collaborative projects with Chinese research institutes.[12] This may facilitate the process of transferring technology to China. However, in order to maintain their technological advantages, foreign companies can impose restrictions on the transfer to limit the competitiveness of Chinese recipients. They can also utilise other IPRs strategies. For example, they can register many patents and then receive the large sums of royalties under licensing when the relevant industries develop the technology in question.[13]

3.2.1 Anti-competitive Restrictions Imposed when Foreign Technology Owners Transfer Technology

When importing high technologies from abroad, it is very likely that foreign technology owners will impose various restrictions since they are in a better position, not only because of advances in technology, but also because they have greater

(*Ministry of Commerce of China (OFCOM)*, 6 December 2012) <http://www.mofcom.gov.cn/article/ae/slfw/201212/20121208470425.shtml> accessed 2 November 2013.

[10] Ministry of Science and Technology of China, 'China High-Tech Industry Data Book 2014' (*Science and Technology Statistics*, 2015) <http://www.sts.org.cn/sjkl/gjscy/data2014/data14.pdf> accessed 2 July 2015.

[11] For example, as one of the largest suppliers of wireless communication-related products and services in the world, Qualcomm Inc., based in the US, had a worldwide revenue of USD 26.5 billion (GBP 16.56 billion) in 2014, half of which came from China. It is reported that two-thirds of its profits arise from a technology licensing fee. Qualcomm was fined USD 975 million (GBP 609 million) in 2015 by the Chinese Anti-Monopoly authority for violation of the Anti-Monopoly Law of China (AML). Lei Mei, 'Licensing Intellectual Property in China' (2014-15) 10 E Asia L Rev 37,38-40.

[12] For example, there were more than 1,200 R&D centres in China by 2009, of which more than 400 were launched by the Fortune 500 companies. Jianmin Jin, 'Foreign Companies Accelerating R&D activities in China' (*Fujitsu Research Institute*, 13 May 2010) <http://www.fujitsu.com/jp/group/fri/en/column/message/2010/2010-05-13.html> accessed 18 May 2013.

[13] Muzhu Shen and Weiwei Xie (沈木珠，解薇薇), 'Research on the IPRs-related Anti-Monopoly Legislation in China: Discussing the Crisis of IPRs Faced by Chinese Companies' (中国知识产权领域的反垄断立法思考：从中国企业面临的知识产权危机谈起 Zhongguo Zhishi Chanquan Lingyü De Fan Longduan Lifa Sikao: Cong Zhongguo Qiye Mianlin De Zhishi Chanquan Weiji Tanqi), (2005) 3 Science of Law (法律科学 Falü Kexue) 112.

transfer experience. The most prominent anti-competitive conduct involves abuse of dominant position, and a number of examples will be used to illustrate this. First and foremost, there are the large losses suffered by the DVD industry in China due to excessively high patent fees in patent pools and technology standards. More than 200 Chinese DVD manufacturers have been involved in the production of DVDs, with an annual output of approximately 70 million units in 2004, of which more than 90% were exported. The patent fee was as high as USD 27.45 (GBP 17.15) per unit, almost 20%-30% of the cost, and was charged by the foreign companies that hold the patents for the relevant technologies, including the 3C Alliance (Sony, Philips, and Pioneer), the 6C Alliance (Panasonic, JVC, Hitachi, Toshiba, Mitsubishi Electric, and Time Warner), and 1C (French Thompson), to the Chinese DVD machine makers. This led to numerous manufacturers closing, with others having to alter their production to being outsourced by those foreign patent owners, thus becoming capable only of very small profit margins.[14] Subsequent to this, two Chinese DVD manufacturing companies sued Philips, which was leading the 3C patent group in the United States (US), alleging that they had violated US antitrust law in licensing patented technology, including price fixing, unlawful tying of unessential patents, group boycott, conspiracy to monopolise, and two counts of violations against Californian state competition laws in 2004.[15] However, this was dismissed by a district court in 2006 and was affirmed by the Court of Appeals for the Federal Circuit in 2008.[16] In 2006, five Chinese professors

[14] Yan Yang, 'Patent Fees Drag Down DVD Player Exports' (*China Daily*, 3 August 2004) <http://www.chinadaily.com.cn/english/doc/2004-08/03/content_357029.htm> accessed 13 November 2012; Lei Mei, 'Licensing Intellectual Property in China' (2014-15) 10 E Asia L Rev 37,43-44.

[15] Junko Yoshida, 'Chinese DVD Player Makers Sue Consumer Giants over Royalties' (*EETimes*, 26 January 2005) <http://www.eetimes.com/electronics-news/4051512/Chinese-DVD-player-makers-sue-consumer-giants-over-royalties> accessed 13 November 2012. Stuart Biggs, 'Philips, Sony to counter mainlanders' antitrust action' (*South China Morning Post*, 31 January 2005) <http://www.scmp.com/article/487695/philips-sony-counter-mainlanders-antitrust-action> accessed 13 November 2012.

[16] The District Court rejected the claim that the pool was a conspiracy and unlawful *per se* under antitrust law, and applied the rule of reason to analyse it. Based on the Supreme Court's decision in Broadcast Music, the District Court held that the 3C pool creates a new product in the form of a licence to pooled technology that potentially has substantial benefits. The plaintiff could not prove which patent was non-essential, while it had been previously confirmed that all patents in the pool were valid and essential. The assertion that the price of DVD players was stabilised as a result of fixing the price of the patent pool was also rejected, since the court held that the harm took place in the DVD player market, which is different to the DVD technology market in question. *Wuxi Multimedia v Koninklijke Philips* 2006 WL 6667002 (SD Cal 2006), aff'd, 280 Fed Appx 968 (Fed Cir 2008). See also Stefan M Meisner and Rachael Lewis, 'Patent Pool can Provide Competitive Benefits' (*Law360*, 20 August 2008)

challenged one non-necessary patent in the 4G patent pools of DVDs, and Philips ultimately settled this by agreeing to remove the patent from the pool.[17] After that, the Chinese government and companies paid much greater attention to patent pools and patent standards. One of China's notable achievements was the China Blue High-Definition (CBHD) standard, which was published shortly after the Blu-Ray disc won the international standard competition for high-definition disks. The CBHD is expected to compete with Blu-Ray by relying on China's huge internal market and robust industrial capacity.[18] However, the operation of such a patent standard needs certain strategies and a legal basis. In addition, the Chinese government issued Wireless Local Area Network (WLAN) Authentication and Privacy Infrastructure (WAPI), a new standard for wireless LANs that is safer than the existing international standard. It was planned to adopt it as a mandatory national standard from 1 June 2004, but chip giant Intel refused to accept the new standard.[19] This was one of the reasons for its suspension until 2006, when it was finally adopted as the national standard.[20] In 2009, WAPI was also accepted as an international standard.[21]

Another very common restriction is tying. When technology is imported from abroad, licensors sometimes require Chinese licensees to buy their equipment or raw materials

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<http://www.law360.com/articles/66769/patent-pool-can-provide-competitive-benefits> accessed 11 January 2013.

[17] Li Jing, 'Patent Power' (*China Daily*, 12 March 2007) <http://www.chinadaily.com.cn/bw/2007-03/12/content_824904.htm> accessed 13 November 2012. For more challenges for the invalidity of some patents in the 3C patent pool, see Fei Yang (杨飞), 'Sweep aside the Fog of DVD patents—The query of "3C Patent Licensing"' (拨开 DVD 专利迷雾(一) — 对"3C 专利许可"的质疑 Bokai DVD Zhuanli Miwu (Yi) — 对"3C Zhuanli Xuke"De Zhiyi) (2010) 4 China Integrated Circuit (中国集成电路 Zhongguo Jicheng Dianlu) 86.

[18] It represents a new standard for high-definition discs after the creation of the Blu-ray Disc standards owned by Sony, Philips and 7 other companies. We Xia (夏玮), 'The CBHD Standard and an Analysis on Its Patent Pool' (CBHD 标准及其专利池前景分析 CBHD Biaozhun Ji Qi Zhuanli Chi Qianjing Fenxi) (2009) 2 Standard Science (标准科学 Biaozhun Kexue) 47.

[19] Grant Gross, 'China Agrees to Drop WAPI Standard' (*Computer World*, 22 April 2004) <http://www.computerworld.com/s/article/92590/China_agrees_to_drop_WAPI_standard> accessed 14 September 2012. Lisa Wang, 'Intel resists China's WAPI Standard, Says It Amounts to Unfair Competition' (*Taipei Times*, 6 April 2004) <http://www.taipeitimes.com/News/biz/archives/2004/04/06/2003116900> accessed 14 September 2012.

[20] ibid.

[21] Iris Hong, 'China's WAPI Standard Wins International Support' (*Telecomasia*, 30 June 2009) <http://www.telecomasia.net/content/chinas-wapi-standard-wins-international-support> accessed 14 September 2012.

from themselves or from other third parties designated by them.[22] This limits the right of Chinese licensees to select equipment and raw materials based upon the price and quality. Microsoft was accused of abusing its dominant position by tying in its Windows Media Player and web browser, both in the US[23] and the European Union (EU).[24] These conducts also restricted competition regarding media players and web browsers in China, preventing Chinese consumers from benefitting from lower prices and better quality through insufficient competition. The *TSUM v Sony*[25] case is an example of tying.

Price discrimination is a severe problem that is heavily present in China. Technology owners transfer the same technology to different licensees at various prices, and this can include irrelevant costs that prevent fair competition between licensors. For example, it was reported that Microsoft had charged large personal computer (PC) companies in China approximately RMB 300.00 (GBP 30.00) for licensing preinstalled Windows 98 on each computer they produced, while the same licence cost around RMB 690.00 (GBP 69.00) for small and medium enterprises (SMEs) in China, and even less than RMB 100.00 (GBP 10.00) to IBM.[26] In *Kam Hing v Microsoft,*[27] a company based in Guangdong Province, which was sued by Microsoft for using pirated software, brought a lawsuit against Microsoft for abusing its dominant position by charging

[22] This often happened in the 1990s, but Chinese companies did not note the problem. Muzhu Shen and Weiwei Xie (沈木珠，解薇薇), 'Research on the IPRs-related Anti-Monopoly Legislation in China: Discussing the Crisis of IPRs Faced by Chinese Companies' (中国知识产权领域的反垄断立法思考：从中国企业面临的知识产权危机谈起 Zhongguo Zhishi Chanquan Lingyü De Fan Longduan Lifa Sikao: Cong Zhongguo Qiye Mianlin De Zhishi Chanquan Weiji Tanqi) (2005) 3 Science of Law (法律科学 Falü Kexue) 112.

[23] *United States v Microsoft* 253 F3d 34 (2001).

[24] Case COMP/C-3/37.792 *Microsoft* [2005] 4 CMLR 965, aff'd, Case T-201/04 *Microsoft v Commission* [2007] ECR II-3601.

[25] (2004) Shanghai No 1 Intermediate People's Court No 223/2004 ((2004) 沪一中民五(知)初字第 223 号 (2004) Hu Yi Zhong Min Wu (Zhi) Chu Zi Di 223 Hao). This case involves tying and refusal to license. For a detailed introduction to the case, see Section 3.2.2 of Chapter 3 of this thesis; for a more detailed analysis of tying in this case, see Section 6.5.4.5 of Chapter 6 of the thesis.

[26] Xianlin Wang (王先林), 'The Antitrust Analysis on Abusing of IPRs by Multinationals in China' (在华跨国公司知识产权滥用的反垄断法分析 Zai Hua Kuaguo Gongsi Zhishi Chanquan Lanyong De Fan Longduan Fa Fenxi) (2005)15(6) Intellectual Property (知识产权 Zhishi Chanquan) 24.

[27] *Kam Hing v Microsoft* (2013) Guangzhou Intermediate People's Court No 21/2013 ((2013) 穗中法知民初字第 21 号 Sui Zhong Fa Zhi Min Chu Zi Di 21 Hao). See also Hua Su, 'Microsoft is Facing Excessive Pricing Accusation in China' (*Kluwer Competition Law Blog*, 17 December 2012) <http://kluwercompetitionlawblog.com/2012/12/17/microsoft-is-facing-excessive-pricing-a> accessed 26 May 2013. For more detailed analysis on this case, see Section 6.3.4.4 of Chapter 6 of the thesis.

unfairly high prices in China in 2012. In this case, the software, SQLSvEntCore 2012 and provided by Microsoft, was sold for more than RMB 270,000.00 (GBP 27,000.00) for each set in Mainland China, while two sets of the software only cost around RMB 210,000.00 (GBP 21,000.00) in Hong Kong.[28] In *Huawei v InterDigital*,[29] the licensing fee of InterDigital's standard essential patents (SEPs) regarding 3G wireless communication to Huawei was excessively higher than that licensed to other mobile phone producers, such as Apple, Samsung, LG, etc. As the largest supplier of chips for mobile phones in the world, Qualcomm Incorporated was fined RMB 6.088 billion (GBP 0.609 billion) by the National Development and Reform Commission (NDRC), the largest fine in Chinese history, for conducting anti-competitive practices, including unfair charges and excessively high licensing fees.[30] Some foreign companies charge Chinese companies differing sums of royalties for licensing technology, based on the numbers of licensed technologies.[31] Such anti-competitive conduct may put licensees in a disadvantageous position due to the different costs, so that the competitiveness of those licensees is reduced.

In addition, Chinese transferees have territorial restrictions imposed on them so that they are only allowed to exploit the transferred technology or software bought from abroad in certain territories, and are required to pay additional charges if they wish to exploit it in other territories.[32] Restrictions on using fields or on combining subject

[28] Juan Jiang (蒋隽), 'The first time a Guandong company sues Microsoft over a Monopoly' (广东企业首诉微软垄断 Guangdong Qiye Shou Su Weiruan Longduan) (*Information Times*, 23 November 2012) <http://informationtimes.dayoo.com/html/2012-11/23/content_2028204.htm> accessed 26 September 2013.

[29] (2011) Shenzhen of Guangdong Intermediate People's Court No 858/2011 ((2011) 深中法知民初字第858号 (2011) Shen Zhong Fa Zhi Min Chu Zi Di 858 Hao), aff'd, (2013) Guangdong High People's Court No 306/2013 ((2013) 粤高法民三终字第306号 (2013) Yue Gao Fa Min San Zhong Zi 306 Hao). For a more detailed analysis of this case see Section 6.3.4.5 of Chapter 6 of the thesis.

[30] In addition to the unfairly and excessively high licensing fee, this also involved charging for expired SEPs, requesting free grant-back from the licensee, tying, and the imposition of other unreasonable restrictions. Administrative Penalty Decision by the NDRC — Fa Gai Ban Jia Jian Chu Fa No 1/2015 (国家发展和改革委员会行政处罚决定书—发改办价监督处罚(2015)1号 Guojia Fazhan He Gaige Weiyuan Hui Xingzheng Chufa Jueding Shu—Fa Gai Ban Jia Jian Chu Fa (2015) 1 Hao).

[31] Junhui Yang (杨军辉), 'An Initial Investigation on Competition regarding IPRs in Fujian Province — Strengthening the Regulation on Abuses of IPRs' (对福建省知识产权领域竞争状况的初步调查—兼谈加强规制滥用知识产权行为 Dui Fujian Sheng Zhishi Chanquan Lingyu Jingzheng Zhuangkuang De Chubu Diaocha: Jiantan Jiaqiang Guizhi Lanyong Zhishi Chanquan Xingwei) (2011) 11 Biweekly of Administration for Industry and Commerce (工商行政管理 Gongshang Xingzheng Guanli) 53, 55.

[32] ibid.

matter may also be imposed. In *Intel v Shenzhen Dongjin*[33] Intel filed a lawsuit at Shenzhen Intermediate People's Court in 2005, accusing Shenzhen Dongjin of infringing the copyright of Intel's 'head file', from which Shenzhen Dongjin developed new products that interconnected with Intel's products. Intel sought compensation of RMB 65.78 million (GBP 6.57 million).[34] In 2006 in *Beijing Dongjin v Intel*,[35] Beijing Dongjin, a subsidiary of Shenzhen Dongjin, sued Intel at Beijing No 1 Intermediate People's Court for the void software licence relating to the aforementioned infringement, in which the licensed software required merely to combine with Intel's hardware and this constituted an illegal monopoly.[36] The two cases were eventually settled confidentially, and Intel announced that it 'respects self-innovation of domestic companies in China, including Dongjin'. The parties also agreed to cooperate with each other in new areas to achieve sustainable development for both firms and the industry, based on intellectual property law.[37]

In 2013 and 2014, the offices of Microsoft in China were raided by the State Administration of Industry and Commerce of China (SAIC) due to a suspicion of not fully disclosing interoperability, tying, and verification and validation with regard to the Windows operating system and Office software.[38] If there is no adequate regulation for Anti-Monopoly Enforcement Authorities (AMEAs) and courts, not only will the process of enforcement and judgement be arduous, but the results may also be

[33] (2005) Shenzhen Intermediate People's Court (深圳中级人民法院 Shenzhen Zhongji Renmin Fayuan) (unpublished and settled confidentially).

[34] 'Dongjin Responses to Intel's lawsuit' (*China Tech News*, 31 January 2005) <http://www.chinatechnews.com/2005/01/31/2257-dongjin-responses-to-intels-lawsuit> accessed 18 September 2012.

[35] *Beijing Dongjin v Intel* (2006) Beijing No 1 Intermediate People's Court (北京第一中级人民法院 Beijing Diyi Zhongji Renmin Fayuan) (unpublished and settled confidentially).

[36] 'Intel License Provokes China's "First Competition Law Case"' (*Fs00*, 19 September 2006) <http://www.fs00.com/mobile/Data/ArtView.aspx?id=125> accessed 20 September 2012.

[37] Intel and Dongjin, 'Joint Statement for Settlement of Litigation by Intel and Dongjin' (英特尔与东进发布诉讼和解的联合声明 Yingteer Yu Dongjin Fabu Susong Hejie De Lianhe Shengming) (*Sina*, 14 May 2007) <http://tech.sina.com.cn/it/2007-05-14/14491505821.shtml> accessed 19 September 2012.

[38] State Administration of Industry and Commerce (SAIC), 'A Special Group of SAIC Has Raided Microsoft for Anti-Monopoly' (国家工商总局专案组对微软公司进行反垄断突击检查 Guojia Gongshang Zongju Zhuanan Zu Dui Weiruan Gongsi Jinxing Fan Longduan Tuji Jiancha) (*SAIC*, 29 July 2014) <http://www.saic.gov.cn/ywdt/gsyw/zjyw/xxb/201407/t20140729_147122.html> and (*SAIC*, 06 August 2014) <http://www.saic.gov.cn/ywdt/gsyw/zjyw/xxb/201408/t20140806_147358.html> accessed 1 September 2014.

questioned and doubted.[39] Furthermore, it may reduce the confidence of foreign companies, especially technology-intensive multinationals, relating to the investment and transfer of technologies to China. Finally, it will also affect the development of high technology and consumer welfare.

3.2.2 When Foreign Technology Owners Refuse to Transfer Technology

A refusal by foreign technology owners to transfer technology is another issue for consideration. Foreign technological multinationals that acquire comprehensive market share based on technological advantages may refuse to transfer the technology to potential competitors[40] in order to exclude them from the relevant market and restrict or eliminate competition. The aforementioned example discussed two Chinese companies that made DVD players suing the 4C group for discrimination and refusal to grant a license for a 4C patent standard.[41] Another example is the case, *Cisco v Huawei,*[42] regarding two leading telecommunication suppliers: Cisco, a US company which sued Huawei, a Chinese company, in the US for infringement of a patent in 2003; and Huawei which claimed that the 'private protocol'[43] of Cisco could be deemed

[39] Tim Culpan, Ian King and Dina Bass, 'China Raids Microsoft Offices in Anti-Monopoly Investigation' (*Bloomberg*, 29 July 2014) <http://www.bloomberg.com/news/2014-07-29/microsoft-probed-by-regulators-in-china-amid-u-s-tension.html> accessed 1 September 2014. Paul Carsten, 'China Regulator Announces Anti-Monopoly Probe of Microsoft' (*Reuters*, 29 July 2014) <http://www.reuters.com/article/2014/07/29/us-microsoft-china-idUSKBN0FX0TY20140729> accessed 1 September 2014.

[40] 'Cooperating with foreign multinationals … is usually limited to out-dated or mainstream technologies, because, in order to secure their technological advantage and bargaining power, foreign partners do their best to control the diffusion of their technology.' Donghong Li, 'Innovation & Knowledge Transfer in Chinese Multinationals' in Jean-Paul Larcon (ed), *Chinese Multinationals* (World Scientific Publishing 2009) 158.

[41] *Wuxi Multimedia v Koninklijke Philips* 2006 WL 6667002 (SD Cal 2006), aff'd, 280 Fed Appx 968 (Fed Cir 2008); Li Jing, 'Patent Power' (*China Daily*, 12 March 2007) <http://www.chinadaily.com.cn/bw/2007-03/12/content_824904.htm> accessed 13 November 2012.

[42] US District Court for the Eastern District of Texas, Marshall Division Civil Action No 2:03-CV-027 TJW, January 22, 2003.

[43] Private protocol refers to a situation in which a company sets up a private and perhaps patented standard for a product or a system before a unified national or international standard has been established. In this case, the companies who enter into the market need to ensure that their products satisfy the private standard set up by the previous company. However, the previous company may refuse to license to other competitors to reserve the market for itself, and the competitor may face difficulties, including that it may be costly to establish a new standard, customers may not be willing to switch to a new standard, or that the existing private standard has substantially become a national or international standard. Therefore, the competitor has no choice but to infringe the patent to enter the market. Xianlin Wang (王先林), 'Antimonopoly Law Analysis on Dispute of IPRs between Cisco and Huawei ' (对思科、

as a refusal to license a patent, thus breaching antitrust law.[44] A settlement was eventually agreed on in 2004.[45] Microsoft was also required to disclose interoperability information to competitors, because it was identified that it used its dominant position in the PC operating system market as leverage to the working group system market in the EU.[46] These same anti-competitive effects also affected the market in China.

TSUM v Sony[47] in 2004 was the first IPRs-related anti-monopoly case in China. This case primarily relates to tying[48] and refusal to license. TSUM was a leading battery manufacturer in China, and sued Sony under the Anti-Unfair Competition Law of China[49] (AUCL). Sony used a digital key with InfoLithium technology in its digital camera battery system in order to automatically reject competitors' batteries as incompatible with its cameras. It was alleged that this conduct constituted an abuse of its dominant position as it tied Sony's batteries to its digital cameras, thus excluding competitors.[50] The claimant sought to recover RMB 1 million (GBP 100,000.00) that was spent on deciphering the InfoLithium technology and prohibiting Sony from using the digital key in its batteries.[51] For its part, Sony stated that the exploitation of the digital key to recognise Sony's batteries was due to safety considerations, because the use of other brands of batteries created smoke, explosions, and burning. Further,

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华为知识产权之争中的"私有协议"垄断问题的思考 Dui Sike、Huawei Zhishi Chanquan Zhi Zheng Zhong De "Siyou Xieyi" Longduan Wenti De Sikao) (2003) (9) 4 Journal of Central South University (Social Science) (中南大学学报 (社会科学版) Zhongnan Daxue Xuebao (Shehui Kexue Ban)) 462.

[44] ibid.

[45] John Leyden, 'Cisco Drops Huawei Lawsuit' (*The Register*, 29 July 2004) <http://www.theregister.co.uk/2004/07/29/cisco_huawei_case_ends/> accessed 25 February 2012.

[46] Case COMP/C-3/37.792 Microsoft [2005] 4 CMLR 965, aff'd, Case T-201/04 *Microsoft v Commission* [2007] ECR II-3601.

[47] (2004) Shanghai No 1 Intermediate People's Court No 223/2004 ((2004) 沪一中民五(知)初字第 223 号 (2004) Hu Yi Zhong Min Wu (Zhi) Chu Zi Di 223 Hao).

[48] For a detailed discussion on tying in this case, see Section 6.5.4.5 of Chapter 6 of the thesis.

[49] This came to force on 1 December 1993; an unofficial English version is available at <http://en.chinacourt.org/public/detail.php?id=3306> accessed 5 August 2012.

[50] Susan Ning, Huang Jing and Angle Ng, 'IP rights and Antitrust—Awaiting Guidelines (and the Tsum-Sony Case)' (*China Law Insight*, 18 October 2010) <http://www.chinalawinsight.com/2010/10/articles/corporate/antitrust-competition/ip-rights-and-antitrust-awaiting-guidelines-and-the-tsumsony-case/> accessed 15 September 2012.

[51] Michael Sohn and others, 'Innovation and Monopolisation: Will the New Chinese Antimonopoly Law Follow U.S. and EU Precedents?' (2007) 93 Antitrust L & Trade Reg Rep 574.

Sony stated that the patent for InfoLithium justified its use of the technology.[52] On the 20th December 2007, Shanghai No 1 Intermediate People's Court ruled in favour of Sony and denied TSUM's claim. It affirmed that the digital key was necessary to ensure that the camera and battery were linked and to indicate the degree of battery power. It also stated that there was no adequate evidence to prove that Sony used the digital key to foreclose competition.[53] However, the outcome of this decision may enable Sony to use its dominant position as leverage in the digital camera and video market, excluding competitors by tying its battery to its digital camera and video through a patent. If InfoLithium is not the only way to satisfy safety requirements, the plaintiff could require the removal of such a technical barrier, and if it is necessary for safety reasons then the plaintiff could require the patent to be licensed with reasonable conditions and royalties. However, in order to identify relevant markets, to calculate Sony's market share in relevant markets, and to determine whether InfoLithium constituted a barrier in the battery market, it is necessary to put in place a clear IPRs-related Chinese competition law system. In *Huawei v InterDigital*,[54] a refusal to license the SEPs was one of the claims made by Huawei against InterDigital, although this claim was dismissed.

3.2.3 Conclusion

The transfer of high technology from abroad is a valuable channel for enabling China to catch up with the more advanced technology in the world, and is also fertile ground for Chinese companies to develop follow-up innovations. However, technology multinationals have imposed anti-competitive restrictions on transfers or even refused

[52] Susan Ning, Huang Jing and Angle Ng, 'IP rights and Antitrust — Awaiting Guidelines (and the Tsum-Sony Case)' (*China Law Insight*, 18 October 2010) <http://www.chinalawinsight.com/2010/10/articles/corporate/antitrust-competition/ip-rights-and-antitrust-awaiting-guidelines-and-the-tsumsony-case/> accessed 15 September 2012.

[53] ibid. For more details about this case, see Roger Parloff, 'Sony's China Problem — Will a Lawsuit Against Sony in China Set a Scary Precedent?' (*Fortune*, 22 February 2007) <http://money.cnn.com/magazines/fortune/fortune_archive/2007/03/05/8401275/index.htm> accessed 15 September 2012.

[54] (2011) Shenzhen of Guangdong Intermediate People's Court No 858/2011 ((2011) 深中法知民初字第 858 号 (2011) Shen Zhong Fa Zhi Min Chu Zi Di 858 Hao), aff'd, (2013) Guangdong High People's Court No 306/2013 ((2013) 粤高法民三终字第 306 号 (2013) Yue Gao Fa Min San Zhong Zi 306 Hao). For a more detailed analysis on this case, see Section 6.3.4.5 of Chapter 6 of the thesis.

to transfer, which have had severe anti-competitive effects in the Chinese technology market. The competitiveness of downstream embodiments has also been undermined by the increased technology costs associated with the upstream market. Despite this, these issues have not received much attention. Whilst Chinese companies are not strangers to normal patent infringement wars, indeed winning some of them,[55] they may not be as familiar with anti-competitive conducts in technology transfer because they lack experience and an understanding of the illegality of such conducts. Most assume that the terms and conditions of transferring technologies are subject to the exclusive rights of IPRs as well as the principle of freedom of contract, so they can either accept or decline, or even negotiate the terms of agreement based on the economic benefit of the restrictions imposed, while the effects of the restrictions on competition are almost always neglected. After paying substantial 'tuition fees' to Western technological multinationals and receiving some useful lessons in return, Chinese companies must be careful to avoid anti-competitive intrigues in transfers, and to oppose them in line with the Anti-Monopoly Law of China[56] (AML), and its relevant rules and regulations, wherever necessary. The AMEAs should prevent such issues from negatively impacting on the development of China as well as on competition in the market.

In addition to the above restrictions that foreign technology owners impose on wholly indigenous licensees, the restrictions also exist in FDI amongst foreign nationals setting up subsidiaries in China, and technology can be transferred from the foreign parent company to the host company. The operation of a subsidiary may involve six sources of technology: existing technology embodied in the established multinationals group products, established local Chinese technology, the results of R&D carried out

[55] Chinese battery companies won the suit regarding infringement of relevant patents by Sony in Tokyo District Court. Unitalen Attorneys At Law, 'SONY Lost Lawsuit in Patent Case' (*Unitalen Attorneys At Law*, 15 December 2005) <http://www.unitalenlaw.com/Newsletter/newsletter12/news4.htm> accessed 13 November 2012; Diao Ying, 'Recharged' (*China Daily*, 02 June 2008) <http://www.chinadaily.com.cn/bw/2008-06/02/content_6727179.htm> accessed 13 November 2012.

[56] The Anti-Monopoly Law of China was passed by the Standing Committee of the 10th National People's Congress on 30 August 2007 and came into effect on 1 August 2008. An unofficial English version is provided in Appendix 1.

by the laboratory of the subsidiary, the laboratory of the multinational group,[57] the laboratory of the local Chinese companies, or the laboratory of scientific institutions.[58] It indicates that these technologies can be transferred via licence, assignment, joint venture, or merger. The diversity of means of transfer increases the complexity of anti-competitive issues in technology transfer.

There is a strong requirement for competition law that incorporates clear guidelines with regard to regulating anti-competitive issues in technology transfer. This is needed, as Chinese companies rely on it to safeguard their legal rights of competition, and it is also used as a means of warning technological giants against illegally restricting or eliminating competition in the Chinese market.

3.3 Domestic Technology Transfer and Relevant Anti-competitive Issues

The industrial evolution of China has begun only since the 1970s, so the number of advanced technologies created there has not been large.[59] This is another cause of the restriction of technology transfer among domestic companies. Where companies have invented advanced technologies through in-house R&D or obtained them from abroad, the technologies are valued according to their competitiveness and exclusivity. They may therefore take effective measures to protect them, and due to the need for technological confidentiality, they would not be willing to transfer the technologies to other indigenous companies.[60]

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[57] For example, the Microsoft Research Centre and the Microsoft Asian Technology Centre in Shanghai, the IBM Software Development Centre and the IBM Information Technology Centres in Beijing, Guangzhou and Shanghai and the IBM China Research Centre in Beijing, and the Intel China Research Centre. Donghong Li, 'Innovation & Knowledge Transfer in Chinese Multinationals' in Jean-Paul Larcon (ed), *Chinese Multinationals* (World Scientific Publishing 2009) 158.

[58] Si Zhang and Robert Pearce, *Multinationals in China: Business Strategy, Technology and Economic Development* (Palgrave Macmillan 2012) 75-79.

[59] Chih-Hai Yang and others, 'Intellectual Property Rights and Patenting in China's High-technology Industries: Does Ownership Matter?' (2011) 19(5) China & World Econ 102, 120-22 (the empirical study shows relatively low R&D productivity for China's high-technology industries compared with OECD countries); Kiel Downey, 'Intellectual Property Rights and Energy Technology Transfer in China' (2012) 9 South Carolina J Int'l L & Bus 89, 109-13 (suggesting that the renewable energy industry of China lags behind that of many industrialised countries with respect to patent and market share data).

[60] Yanbing Wu, 'R&D, Technology Transfer and Productivity Growth: Evidence from Chinese Manufacturing Industries' (*Conference Paper in CEA (Europe)*, 2010) <http://www.rcie-cn.org/conferences/2010/papers/wu_yanling.pdf> accessed 14 November 2012.

The number of companies in China has increased continuously, from 11.36 million in 2010 to 18.93 million in 2014. However, the number of technology transfer agreements among companies in China in the five years increased only from 12,377 to 12,499, and the value of these agreements increased from RMB 60.1 billion (GBP 6.1 billion) to RMB 113.76 billion (GBP 11.376 billion) (See Table 1). Whilst the technology transfer agreements are of high value, only around one per thousand companies (on average) were involved in technology transfer, and it is this figure that needs multiplying. Among the different types of technology transfer agreements, assignments of know-how account for the largest proportion, far higher than the licence of patents that has sat in second place over the last five years (See Figure 3). Possibly wary of piracy, Chinese innovators favourite know-how over patents and prefer assignment to licensing, thus limiting the disclosure of technology to the bare minimum.[61]

Table 1: Numbers of Companies and Technology Transfer Agreements (2010-14)

	2010	2011	2012	2013	2014
Number of Companies (millions)	11.36	12.53	13.66	15.28	18.93
Numbers of Technology Transfer Agreements	12,377	11,067	11,858	11,797	12,499
Value of Technology Transfer Agreements (GBP, billions)	6.1	5.23	10.2	10.84	11.376

Table drawn by the author.

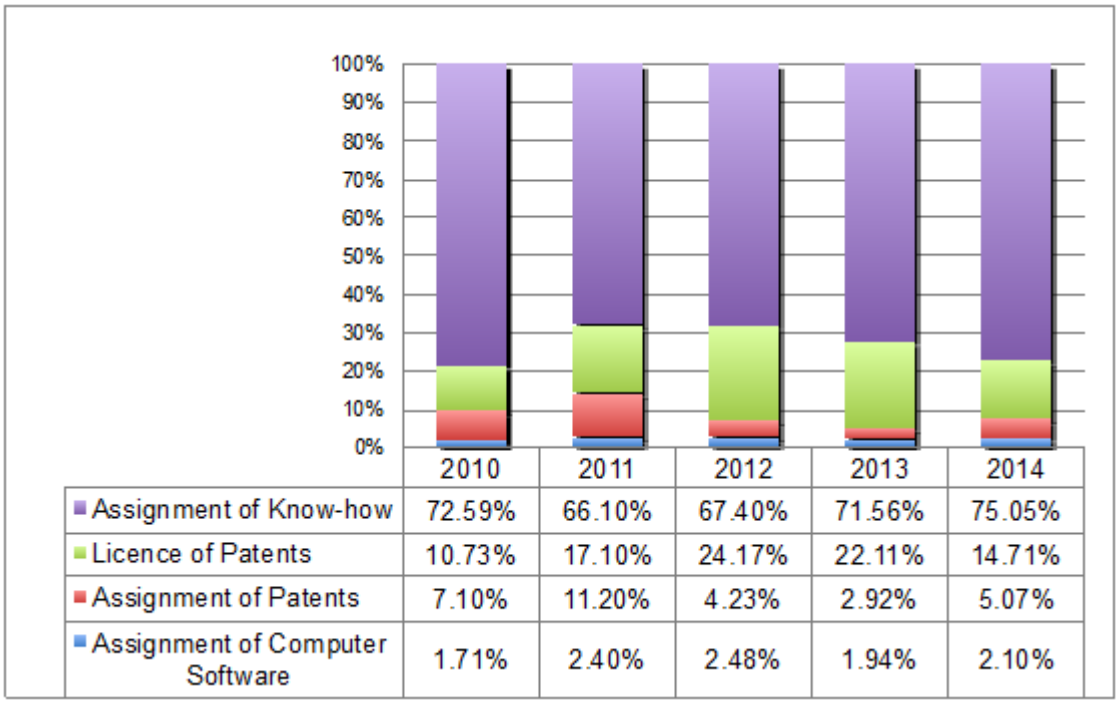
Source: The General Status of Development of Market Actors in China, etc., SAIC[62] & Annual Report on Statistics of China's Technology Market (2010-15), Bureau of Planning

[61] Know-how differs from other types of IPRs in that it is strictly confidential. If know-how were licensed to various licensees, this would increase the risk of its disclosure to non-licensees. Such disclosure would inevitably decrease the value of the know-how, since free-riders could exploit it without the owner's consent and without paying a fee. Thus, know-how differs from other types of IPR in that it does not prevent others who discover it fairly and honestly from using/exploiting it. This is in stark contrast to patent licensing, which legally prevents another inventor from using the technology without permission, no matter how it was discovered. For this reason, it is preferable for know-how to be assigned rather than to license the invention. Fangtao Sun et al., 'Seven Tips for Technology Transfer in China' (2012) 221 Managing Intell Prop 70, 70.

[62] SAIC, 'The General Status of Development of Market Actors in China' (全国市场主体发展总体情况 Quanguo Shichang Zhuti Fazhan Zongti Qingkuang) (*SAIC*, 2013)

and Development in the Ministry of Science and Technology (BPDMST) and Centre for Promoting Management of Technology Market (CPMTM) in China[63]

Figure 3: Percentage of Main Types of Technology Transfer Agreements in China (2010-14)



	2010	2011	2012	2013	2014
Assignment of Know-how	72.59%	66.10%	67.40%	71.56%	75.05%
Licence of Patents	10.73%	17.10%	24.17%	22.11%	14.71%
Assignment of Patents	7.10%	11.20%	4.23%	2.92%	5.07%
Assignment of Computer Software	1.71%	2.40%	2.48%	1.94%	2.10%

Figure Drawn by the Author.

Source: Annual Report on Statistics of China's Technology Market (2010-15), BPDMST and CPMTM in China[64]

Anti-competitive restrictions can be imposed on the assignment of technology as well as through a licence.[65] Indigenous companies may not be aware of the anti-

<http://www.saic.gov.cn/zwgk/tjzl/zxtjzl/xxzx/201301/P020130110600723719125.pdf> accessed 2 February 2014; SAIC, 'Increase of Market Actors in China in 2013' (2013 全国市场主体发展稳中有进 2013 Quanguo Shichang Zhuti Fazhan Wenzhong Youjin) (*SAIC*, 14 January 2014) <http://www.gov.cn/gzdt/2014-01/14/content_2566323.htm> accessed 15 March 2014; Feina Zhu (朱菲娜), 'Let Innovation and Setting up Enterprises Become Everyone's Dream' (让创新创业成为所有人的梦想 Rang Chuangxin Chuangye Chengwei Suoyou Ren De Mengxiang) (*SAIC*, 11 August 2015) <http://www.gov.cn/zhengce/2015-08/11/content_2911154.htm> accessed 15 August 2015.

[63] BPDMST and CPMTM, 'Annual Report on Statistics of China Technology Market' of 2010-15 (*Torch High Technology Industry Development Centre of Ministry of Science and Technology of China*, 4 August 2015) <http://www.innofund.gov.cn/jssc/tjnb/list.shtml> accessed 15 August 2015.

[64] ibid.

[65] Licensing is likely to have anti-competitive restrictions imposed on it because, after such a transfer, there will normally be more than one party to exploit the technology, and the technology owner will have

competitive attribution of conduct in technology transfer, and may accept it in the same way they do normal commercial conducts.[66] The AML was adopted as recently as 2008 and focused initially on common anti-competitive practices, through which AMEAs have been testing the AML and gaining experience in the area, while very little attention has been paid to the more complicated technology-related area of competition. However, a few notable cases exist that are capable of highlighting the potential problems. Universities and research institutions have been provided with financial support by private companies or governments to operate R&D and to then transfer the innovative results.[67] In this area, the anti-competitive issues may be concentrated on the technology transfer between non-competitors.

For example, in *Qihoo v Tencent*[68] Qihoo is a leading antivirus software supplier and Tencent was famous for providing an instant messenger software in China. Both Qihoo 360 and QQ Messenger are free and they are almost the most popular antivirus

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a motive to restrict competition. When a technology is assigned, the technology owner usually charges a lump sum fee and loses the ownership, and so has fewer motives to conduct anti-competitive practices. However, anti-competitive practices can still arise in the case of assignment; for instance, the owner can request for the purchaser to grant-back the development of the technology in question exclusively and free, or request that the purchaser refuse to exploit the competitor's technology or products.

[66] According to an interview with Jie Yang, an official of the Anti-Monopoly and Anti-Unfair Competition Enforcement Bureau, almost none of the anti-monopoly cases they have dealt with involved IPRs. During their investigation and survey of ten provinces and cities in 2010 while drafting relevant guidelines for handling IPRs-related anti-monopoly cases, they did not find any companies that encountered abuse of IPRs. He said that 'this situation is abnormal and the companies may encounter abuse of IPRs but they did not realize the problem rather than they have realized the problem but have no way to solve it.' He thought that this showed the ability of Chinese companies to realise that there remained few problems. Wei Zhang (张维), 'Anti-Monopoly Cases Relating IPRs Are not Available in China by Now' (中国尚无一起知识产权反垄断案 Zhongguo Shangwu Yiqi Zhishi Chanquan Fan Longduan An) (*State Intellectual Property Office of China (SIPO)*, 16 August 2012) <http://www.sipo.gov.cn/mtjj/2012/201208/t20120816_739360.html> accessed 12 September 2012.

[67] Universities applied for more than 30,000 invention patents in 2008 in China, compared to fewer than 2,000 patents in 2000. Wan-Hsin Liu, 'The Role of Proximity to Universities for Corporate Patenting — Provincial Evidence from China' (Working paper of Kiel Institute for the World Economy, No. 1796, 2012) <http://www.ifw-members.ifw-kiel.de/publications/the-role-of-proximity-to-universities-for-corporate-patenting-provincial-evidence-from-china/KWP1796.pdf> accessed 14 November 2012. Technology transfer from universities to companies in China increased from approx. 4000 in 1999 to 5600 in 2002. World Intellectual Property Office (WIPO), 'Technology Transfer, Intellectual Property and Effective University-Industry Partnerships: The Experience of China, India, Japan, Philippines, the Republic of Korea, Singapore and Thailand' (*WIPO*, 2007) <http://www.wipo.int/freepublications/en/intproperty/928/wipo_pub_928.pdf> accessed 14 November 2012.

[68] (2011) Guangdong High People's Court No 2/2011 ((2011) 粤高法民三初字第 2 号 (2011) Yue Gao Fa Min San Chu Zi Di 2 Hao), aff'd, (2013) Supreme People's Court No 4/2013 ((2013) 民三终字第 4 号 (2013) Min San Zhong Zi Di 4 Hao).

software and instant messenger software in China. Tencent offered a newer antivirus software, QQ Manager, with similar antivirus functions to Qihoo 360. Qihoo then announced that the QQ Manager monitored the private information of users of the QQ Messenger and released a new piece of software, called 360 Privacy Protector, that could determine when the private information of users was being monitored by QQ Manager. Tencent sued Qihoo for anti-unfair competition in the courts in Beijing in 2010, and in the end Qihoo lost the lawsuit.[69] Qihoo then brought a lawsuit to Guangdong Higher People's Court against Tencent, where it argued that Tencent had abused its dominant position in the instant messenger software market and other related service markets to exclude competition in the following ways: 1) Tencent issued 'A Letter to QQ Messenger users' on the 3rd of November 2011, requiring users to stop using Qihoo 360 software, otherwise the QQ Messenger service would be terminated; and 2) Tencent tied its antivirus software when QQ Messenger was downloaded.[70] It claimed RMB 150 million (GBP 15 million) for its losses along with an apology, and also asked Tencent to bear reasonable costs amounting to RMB 1 million (GBP 100,000.00) in addition to the lawsuit fee.[71]

Tencent defended itself by stating that, above all, the function of QQ Messenger related to emails, SNS, and microblogs. Therefore, the relevant market should not be limited to an instant messenger service. Even in the instant messenger service market there are in excess of ten other instant messengers, so again Tencent does not hold a

[69] *Tencent v Qihoo* (2010) Chaoyang District of Beijing People's Court No 37626/2010 ((2010) 朝民初字第 37626 号 (2010) Chao Min Chu Zi Di 37626 Hao), aff'd, (2011) Beijing No 2 Intermediate People's Court No 12237/2011 ((2011) 二中民终字第 12237 号 (2011) Er Zhong Min Zhong Zi Di 12237 Hao). After Qihoo brought a lawsuit against Tencent in a court of Guangdong province for breaching the AML by abusing its dominant position, Tencent sued Qihoo in the court of Guangdong province for almost the same reason it was sued in Beijing, namely anti-unfair competition, and claimed compensation of RMB 152 million (GBP 15.2 million). There was no support for financial compensation by the Court in Beijing, even though Tencent won the case. After the decision on the anti-monopoly case had been issued on 28 March 2013, the decision for this case was issued on 3 April 2013, in which Tencent had won the case and financial compensation of RMB 5 million (GPB 0.5 million) was supported by the court. *Tencent v Qihoo* (2011) Guangdong High People's Court No 1/2011 ((2011) 粤高法民三初字第一号 (2011) Yue Gao Fa Min San Chu Zi Di 1 Hao), aff'd, Supreme People's Court No 5/2013 ((2013) 民三终字第 5 号 (2013) Min San Zhong Zi Di 5 Hao).

[70] The tying in this case will be analysed in detail in Section 6.5.4.5 of Chapter 6 of the thesis.

[71] Qihoo, Indictment of Qihoo to Sue Tencent (*IP Lawyer*, 18 April 2012) <http://www.iprlawyers.com/ipr_Html/17_03/2012-4/18/20120418113335931.html> accessed 15 September 2012.

dominant position. Users that have become accustomed to the free service and are sensitive to price can easily switch to other instant messengers. Finally, the tying conduct is a common rule in the industry and Qihoo adopts similar tying conduct.[72] As one of the rare technology-related cases regarding competition law in China, it provides a point of reference for further discussion regarding technology transfer. For example, if QQ Messenger has been identified as dominant in the instant messenger software market, it is worth discussing whether it is legal for Tencent to automatically install QQ Manager for QQ Messenger users when they install or upgrade QQ Messenger; or to prohibit QQ Messenger users from using competitors' safeguard software; or to disclose information about QQ Messenger so that other suppliers could design software, such as email or blogs, that are compatible with QQ Messenger.

A recent case between the two largest Chinese companies in the telecommunications industry, *Huawei v ZTE,*[73] was judged by courts in the EU. This case concerned the identification of conditions under which the injunction and recall conducted by the SEPs holders to the infringer constituted abuse of dominant position. Although it took place in the EU rather than China, there is potential for such a situation to arise in China.

In sum, this indicates that the anti-competitive issues that arose among indigenous companies were not as severe as those that took place in foreign-related technology transfer, but there is potential for such issues to arise in China. In addition to the incremental increase in technology transfer agreements, investment in R&D has been increasing (see Table 2). Both the Gross Domestic Expenditure on R&D (GERD) and its percentage in Gross Domestic Product (GDP) have almost caught up with those of

[72] The court concluded that there were four aspects to the dispute: 1) How to determine relevant market? 2) Does the defendant have a dominant position? 3) Has the plaintiff abused its dominant position to restrict competition? 4) What liability should the defendant have when dominant position and restriction on market competition are established? You Yunting, '360 vs Tencent: The Summary of Anti-Monopoly Court Hearing' (*Bridge IP Law Commentary*, 18 April 2012) <http://www.chinaiplawyer.com/qihoo-360-tencent-summary-market-monopoly-court-hearing/> accessed 15 September 2012. See also Susan Ning and Hazei Yin, 'China: 360 v. QQ: Abuse of Dominance Action Tried at Guangdong Higher Court' (*Mondaq*, 10 May 2012) <http://www.mondaq.com/x/176752/Antitrust+Competition/360+v+QQAbuse+of+Dominance+Action+Tried+at+Guangdong+Higher+Court> accessed 15 September 2012.

[73] C-170/13, European Court of Justice, Judgement of 16 July 2015.

developed countries (see Figure 4).[74] Additionally, the numbers of patent applications filed and granted in China have been rising (Table 3), and the number of invention patent grants ranks with the highest in the world (see Figure 5). These all indicate the great potential of the indigenous ability of innovation. Improvements in IPRs protection[75] will enhance the confidence of innovators to apply for patents and license them. In addition, the incremental acknowledgement of the illegitimacy of anti-competitive practices, and the influence of the appearance and enforcement of the AML, will enable technology transferees to be aware of potential problems that could arise in the transfer process.

Table 2: Gross Domestic Expenditure on R&D in China (2010-14)

	2010	2011	2012	2013	2014
GERD (GBP, billions)	70.626	86.87	102.984	118.466	133.12
GERD as a percentage of GDP (%)	1.73	1.79	1.93	2.01	2.09

Table drawn by the author.

Source: China Science & Technology Statistics Data Book in 2014, Ministry of Science and Technology of China[76] & Statistical Communiqué of People's Republic of China (PRC) on the 2014 National Economic and Social Development, National Bureau of Statistics of China[77]

[74] China has realised that it will be unlikely to ascend to the leading ranks of industrialised nations if it primarily relies on the introduction of high technology from abroad; rather, it must accelerate indigenous innovation. So, for example, China has enacted Indigenous Innovation Polices that create 'incentives in the form of government procurement policies that favour the purchase of products [embodying] technology created or owned by Chinese business entities'. Daniel C K Chow, 'China's Indigenous Innovation Policies and the World Trade Organisation' (2013) 34 Nw J Int'l L & Bus 81, 83.

[75] For more details relating to the improvement of IPRs protection in China, see Section 4.2.3 of Chapter 4 of the thesis. See also Lei Mei, 'Licensing Intellectual Property in China' (2014-15) 10 E Asia L Rev 37, 39-40 (stating that the improvement of the legal and political aspects of IPRs protection is a reason to provide opportunity for technology transfer in China).

[76] Ministry of Science and Technology of China, 'China Science & Technology Statistics Data Book in 2014' (*China Science & Technology Statistics*, 2014) <http://www.sts.org.cn/sjkl/kjtjdt/data2014/科技统计数据 2014.pdf> accessed 5 February 2015.

[77] National Bureau of Statistics of China, 'Statistical Communiqué of the People's Republic of China on the 2014 National Economic and Social Development' (*National Bureau of Statistics of China*, 26 February 2015) <http://www.stats.gov.cn/english/PressRelease/201502/t20150228_687439.html> accessed 6 April 2015.

Figure 4: GERD in Selected Countries in 2013

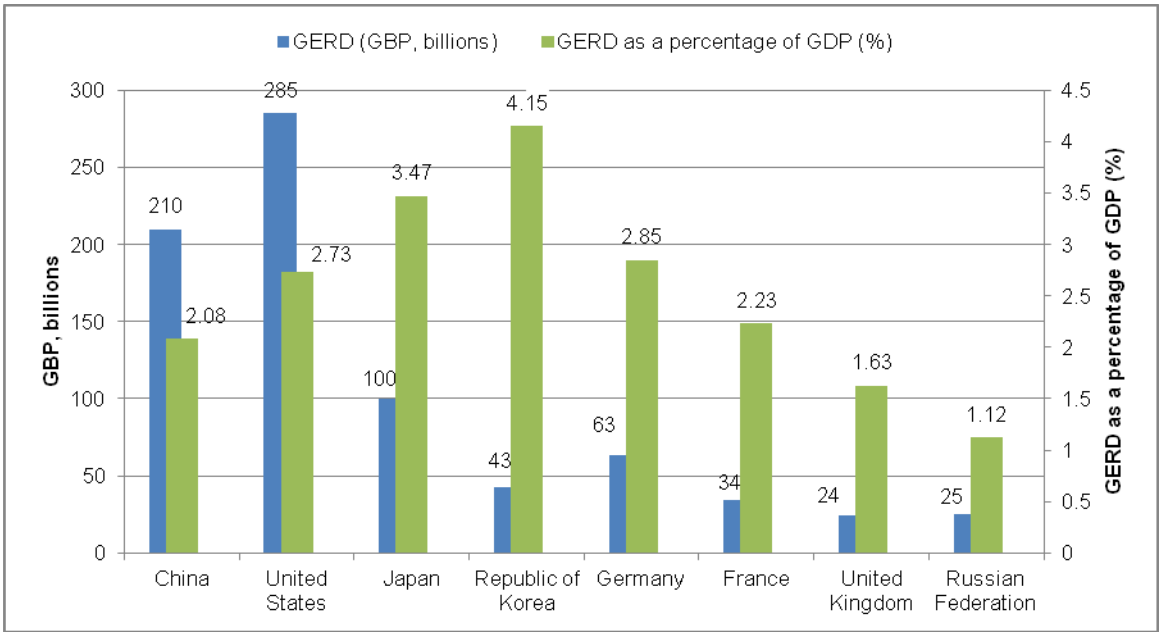

Figure drawn by the author.

Source: Main Science and Technology Indicators, OECD[78]

Table 3: Patent Applications Filed and Patents Granted by SIPO in China (2005-14) (millions)

	2010	2011	2012	2013	2014
Patents Application Filed by Domestic Entities	1.1	1.5	1.91	2.23	2.18
Patents Application in Total	1.22	1.63	2.05	2.37	2.36
Patents Granted to Domestic Entities	0.74	0.88	1.16	1.22	1.19
Patents Granted in Total	0.81	0.96	1.25	1.31	1.30

Figure drawn by the author

[78] Organisation for Economic Co-operation and Development (OECD), 'Main Science and Technology Indicators' (*OECD*, 1 July 2015) <http://stats.oecd.org/Index.aspx?DataSetCode=MSTI_PUB> accessed 25 July 2015.

Source: Annual Report of Statistics on Patents in 2013, SIPO[79] & Statistical Communiqué of PRC on the 2014 National Economic and Social Development, National Bureau of Statistics of China[80]

Figure 5: Invention Patent Grants of Selected Countries in 2013

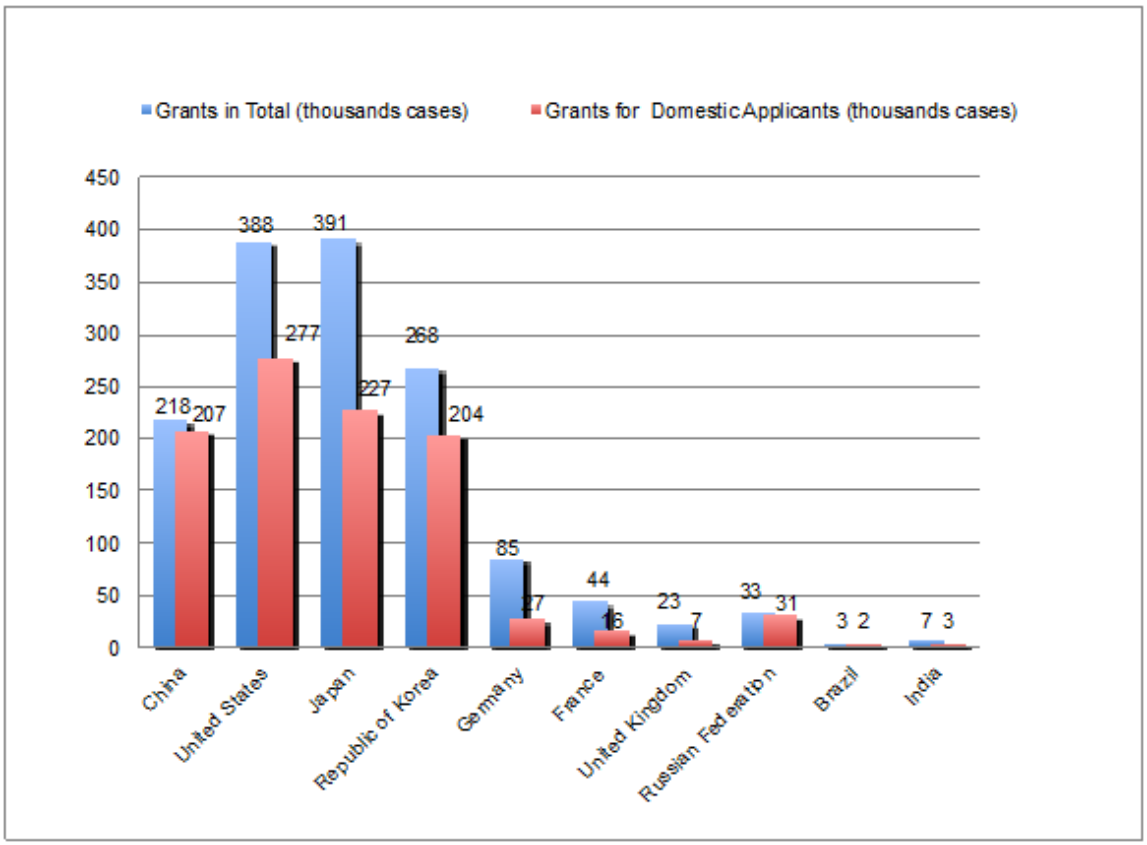

Figure drawn by the author.

Source: IP Statistical Country Profiles,[81] WIPO

3.4 Conclusion

[79] SIPO, 'Annual Report of Statistics on Patents in 2013' (2013 专利统计年报 2013 Zhuanli Tongji Nianbao) (*SIPO*, 2014) <http://www.sipo.gov.cn/ghfzs/zltjjb/jianbao/year2013/b.html> accessed in 2 December 2014.

[80] National Bureau of Statistics of China, 'Statistical Communiqué of the People's Republic of China on the 2014 National Economic and Social Development' (*National Bureau of Statistics of China*, 26 February 2015) <http://www.stats.gov.cn/english/PressRelease/201502/t20150228_687439.html> accessed 6 April 2015.

[81] WIPO, 'IP Statistical Country Profiles' (*WIPO*, no date) <http://www.wipo.int/ipstats/en/statistics/country_profile/> accessed 19 April 2015.

China has been focusing heavily on importing advanced technology from abroad, and foreign multinationals will not give up such a large global market, as well as an efficient factory, by continually transferring technology or exporting products that embody technology to China. Apart from normal business strategy, anti-competitive restrictions are also utilised by foreign transferors to preserve their competitive advantages. Anti-competitive issues arising in technology transfers among indigenous companies are not currently regarded as serious matters.[82] However, the ever increasing R&D expenditure and strengthening of IPRs protection will facilitate the invention of more advanced technologies[83] and enhance confidence in applying more patents and conducting more licences. Thus, there will be more opportunities for anti-competitive issues to appear among indigenous companies.

Existing and potential anti-competitive issues in foreign-related and indigenous technology transfer will not only adversely affected the competition in one market and even in the entire industry of certain fields, but also impede the innovation and diffusion of technology and harm consumer welfare. Especially it goes against China's original intention, the introduction of advanced technologies from abroad to improve China's technology level. Therefore, an adequate and proper competition law is essential and crucial for China to regulate anti-competitive conducts exercised by, in particular, foreign multinationals, that distort or eliminate competition in technology[84] to secure a healthy market. Most importantly, the competition law can

[82] This may be because the ability of Chinese companies to develop high technology is relatively lower than that of developed countries; they do not possess adequate technology and are not willing to license to others. According to the statistics regarding technology transfer in China, know-how is favourable to patents as a form of technology, and assignments are used far more frequently than licensing. This can reduce the appearance of anti-competitive issues in technology transfer, since know-how can normally be assigned rather than licensed, and assignments have less scope for anti-competitive issues to be imposed on them than licences. A technology can be licensed to more than one licensee but can be assigned to only a single assignee. Thus anti-competitive restrictions are more likely to be employed in licensing than in assignment.

[83] Some empirical studies have shown that R&D has a significant impact on productivity in China. Albert GZ Hu, 'Ownership, Government R&D, Private R&D, and Productivity in Chinese Industry' (2001) 29 J Comp Econ 136; Albert GZ Hu and Gary H Jefferson, 'Returns to Research and Development in Chinese Industry: Evidence from State-Owned Enterprise in Beijing' (2004) 15 China Econ Rev 86. Even the contribution of industrial R&D appears to be at least three or four times the returns to fixed production assets in China. Gary H Jefferson and others, 'R&D Performance in Chinese Industry' (2006) 15 Econ Innov N Tech 345.

[84] From the perspective of developing countries, competition law should also function to help domestic companies to gain competitive advantages over foreign competitors. Kim Them Do, 'Competition Law

promote the innovation and technology transfer that are heavily demanded by China's modernisation.

In order to have such a competition law, following chapters will explore whether the existing Chinese competition law is adequate by tracking relevant historical development and observing the current competition legislation. And then if it is inadequate, legislative proposals will be provided.

and Policy and Economic Development in Developing Countries' (2011) 8 Manchester J Int'l Econ L 18, 20 ('Competition regime [...] would instead be considered as a fundamental strategy of government to respond to the challenge in the global-connected market. In pursuing this objective, policy makers should not only facilitate domestic firms to compete with their rivals in the home market, but would help them gain advantages over foreign competitors in an international competition.')

CHAPTER 4. THE TARDY AND UNEQUAL DEVELOPMENT OF IPRS AND COMPETITION LAW IN CHINA HAS DELAYED THE PROGRESS OF INTERFACE BETWEEN THE TWO LEGAL SYSTEMS OCCURRED IN TECHNOLOGY TRANSFER: A HISTORICAL REVIEW

4.1 Introduction

Considering the intersection between the IPRs system and competition law is a frontier for China,[1] and it is now necessary to focus on observing the historical development of the two legal systems involved in the process of China's modernisation,[2] with relative economic, political, and cultural backgrounds taken into consideration. This will be beneficial for enabling identification of the reason for the

[1] The first systematic competition law of China is the Anti-Monopoly Law of China (AML), which includes just a single and very general Article in regard to IPRs, and came into effect as late as 2008. Before that, there were some relevant provisions scattered among laws, regulations, and interpretations of courts, but their functionality was extremely limited because they were too simple to be implemented properly. The latest legislation, the Rules on the Prohibition of Abuse of Intellectual Property Rights for the Purposes of Eliminating or Restricting Competition (Rules), came into force in August 2015. They provide some general guidance, but they, too, are not sufficiently detailed for purpose. For more details about Chinese legislation in the intersection, see Chapter 5 of this thesis. Comparatively, the European Union (EU) has more than 60 years worth of experience of the interaction between the two systems, the legislation and case law of which can be traced back to the conclusion of the Treaty of Rome in 1957. It prohibits all agreements which may affect interstate trade and have an effect on prevention, restriction, or distortion of competition within the Common Market, in order to create a single, fair, and competitive common market. This issue arose in relation to the justification of the exclusive licensing of patents. Treaty of Rome 1957, art 87; Roberto Casati, 'The "Exhaustion" of Industrial Property Rights in the EEC: Exclusive Manufacturing and Sales Provisions in Patent and Know-How Licensing Agreements' (1978) 17 Colum J Transnat'l L 313, 326; John Temple Lang, 'Patent Rights and Licensing in EEC Law' in GO Zacharias Sundstrom (ed), *Contributions To Community Competition Law* (1978) 59-65. The Antitrust Division of the Department of Justice of the United States (US) announced a 'watch list' of nine specified licensing practices that the division viewed as anti-competitive restraints on trade in licensing agreements, named as 'Nine No-No's' – one of the outstanding landmarks of competition policy, as early as the 1970s. Richard Gilbert and Carl Shapiro, 'Antitrust Issues in the Licensing of Intellectual Property: The Nine No-No's Meet the Nineties' [1997] Microecon 283.

[2] The modernisation of China can be traced back to 1978, when Xiaoping Deng launched four modernisation areas: agriculture, industry, science and technology, and defence. In contemporary times, it encompasses political, economic, and cultural progress. The modernisation may be included in 'Chinese Dreams,' raised by the current government of China, that make China rich and strong. Stefan R Landsberger, 'Dreaming the Chinese Dream: How the People's Republic of China Moved from Revolutionary Goals to Global Ambitions' (2014) 2 (3) Int'l J for Hist Cult and Modernity 245, 273-74; Jana S Rošker, 'China's Modernisation: From Daring Reforms to A Modern Confucian Revival of Traditional Values' (2014) 20(2) Anthropological Notebook 89, 91-95.

late appearance of the intersection; establishing another premise for analysing whether the transplantations of the two legal systems, especially in relation to their interface, coincide with the reality in China;[3] and suggesting how it might be improved, with consideration given to China's individual situation.

To a large extent, IPRs in China were created and developed as a result of external pressure and a desire for China to integrate into the international trade system, such as the World Trade Organisation (WTO), because privately-owned IPRs do not easily integrate into Chinese ideologies. Historical Chinese doctrine, especially the Confucianism, advocated respect for and quotation from classical literature, and emphasised diffusion of the fruits of that literature rather than focusing on the right of the author to claim ownership of a quotation.[4] The concentration of political power and the previous centrally planned economy[5] favoured the contribution of the individual to society as a whole.

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[3] Although the current global trend is convergence with Western type laws, which is essential to integrate with the world, if the transplanted law does not coincide with the local situation, not only can it be exploited by the West to capture unjustifiable profits (depending on their experience), but also the expected function of the law may be impeded. Charles-Louis de Secondat Baron de Montesquieu (aut) and Thomas Nugent (trans), *The Spirit of Laws* (Digireads 2010) 30 ('law in general is human reason, inasmuch as it governs all the inhabitants of the earth; the political and civil laws of each nation ought to be only the particular cases in which this human reason is applied [and] [t]hey should be adapted in such a manner to the people for whom they are made, as to render it very unlikely for those of one nation to be proper for another'); Daniel Berkowitz, Katharina Pistor and Jean-Francois Richard, 'The Transplant Effect' (2003) 51(1) Am J Comp L 163, 188 (an empirical study shows that '[t]he functioning of legal institutions and their effectiveness continues to differ substantially' although 'convergence has often been confined to the law on the books').

[4] Jonathan D Spence, *The Search for Modern China* (3rd edn, WW Norton 2005) 8.

[5] A centrally planned economy is defined as an economic system in which economic decisions for allocation of inputs are mainly decided by a central authority, normally a central government in a top-down administrative system, rather than by the interaction between demand of consumers and supply of manufacturers in the market. In this economic system, the government controls the investment, production, distribution, price, quantity, etc. of goods. This system enables a government to exploit resources to serve certain economic goals, and to satisfy consumer demand with a large investment in the industries that require it. Significant development in heavy industry can potentially be achieved in a short space of time, even in an undeveloped economic situation; the rapid construction of heavy industry by the Soviet Union in the 1930s is a good example of this. However, this economic system makes it difficult to acquire accurate information on consumer demand and to allocate inputs to efficient producers, and does not provide strong incentives to producers. Socialist countries, including China, always make use of a centrally planned economic system. Paul Kennedy, *The Rise and Fall of the Great Powers* (Random House 1987) 322-23 (analysing how the advantages of the centrally planned economy were exploited by the Soviet Union to secure achievements in the development of heavy industry in 1930); Ludwig von Mises, 'Economic Calculation in the Socialist Commonwealth' (*Mises Institute*, 1990) <http://mises.org/sites/default/files/Economic%20Calculation%20in%20the%20Socialist%20Commonwealth_Vol_2_3.pdf> accessed 20 April 2013 (criticising the centrally planned economy for its inability to

With the implementation of the Reform and Opening-Up policy[6] in the late 1970s, China, with its centrally planned economy, has gradually begun morphing into a socialist market economy,[7] through which individuals and private enterprises have

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gain accurate information on consumer preferences, shortages and surpluses, meaning that the planner cannot manufacture efficiently. Also refers to this problem as the 'economic calculation problem'); Ollman Bertell, *Market Socialism: The Debate Among Socialists* (Routledge 1997) 12 (stressing that the planner would direct companies and ministries at a lower level on what to produce according to democratically-determined national and social objectives); Robin Hahnel, *The ABCs of Political Economy* (Pluto 2002) 262 (stating that the centrally planned economy lacks economic democracy and self-management, and therefore cannot easily promote innovation and efficiency); Michael Ellman, 'The Rise and Fall of Socialist Planning' in Saul Estrin and others (eds), *Transition and Beyond: Essays in Honour of Mario Nuti* (Palgrave Macmillan 2007) 22 (highlighting the fact that the centrally planned economy lacks popular and democratic oversight of the local market); Steven N Durlauf and Lawrence E Blume (eds), *The New Palgrave: A Dictionary of Economics*, (2nd edn, Palgrave Macmillan 2008) 879-80 (defining 'planned economy' and describing the central order for allocating resources in the centrally planned economy).

[6] The Reform and Opening-Up policy was an innovative proposal by Xiaoping Deng, who was a highly significant leader in the Chinese central government and was known internationally as an 'architect of reform'. The policy was widely supported, and in 1978 the 3rd Plenary Session of the 11th Central Committee confirmed that it would be implemented. The policy advocated treating the economic development and construction of social modernisation as the central task, rather than the class and political struggle which had previously been the focus. The policy consisted of two main sections. The first concerned domestic reform, involving most aspects of the country, and including business, education, the financial system, tax, property and the medical system, etc. The most outstanding achievements were the introduction of a market-based economic system into the traditional centrally planned economy, which allowed the private economy to enter the market, and the setting up of special economic zones to experiment with applying new policies to stimulate the economy. The second section of the policy was about opening up to the world, and it allowed foreign direct investment to China (initially only in the special economic zones with preferential policies); promoted foreign trade with other countries; and advocated integration with the rest of the world instead of closed borders. The policy mainly focused on economic reforms, but continued the political system of socialism and the single-party Communist dictatorship. The implementation of the policy significantly boosted China's economic development. Peter Harrold, 'China's Reform Experience to Date' (1992) World Bank Discussion Paper, WDPO 180 <http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/1999/10/14/000178830_98101903552078/Rendered/PDF/multi_page.pdf> accessed 1 May 2013 (mainly discussing the economic reform of China from 1978-90 and its achievements); Susan L Shirk, *How China Opens Its Door: The Political Success of the PRC's Foreign Trade and Investment Reforms* (Brookings Institution 1995) (highlighting the improvement in foreign direct investment and trade in China since the 20th century); Wu Qi, 'Changes and Challenges with 30 years of Reform and Opening Up' (*Xinhua News Agency*, 6 October 2008) <http://news.xinhuanet.com/english/2008-10/06/content_10155776.htm> accessed 1 May 2013 (discussing the development of China after the implementation of the Reform and Opening-Up policy, and the challenges that have arisen); Clem Tisdell, 'Economic Reform and Openness in China: China's Development Policies in the Last 30 Years' (2009) 39(2) Econ Anal & Pol'y 271, 285 (discussing the background and implementation of the Reform and Opening-Up policy over the last thirty years).

[7] The socialist market economy is a special economic model employed by China, officially defined as an economic system under which the market plays a basic role in the allocation of resources under the macro-economic control of the state. It is different from both the centrally planned economy, in which the central government solely makes direct orders for the allocation of resources, and the classic market economy, in which resources are primarily allocated in accordance with market indications of supply and demand. The socialist market economy was first proposed by Xiaoping Deng, who argued that the

been granted more permission and freedom to get involved in industries that were previously accessed only by central government. Special economic zones were also set up to confer more advantageous economic policies to tempt foreign investments and trade. This was regarded as a new and significant method to boost the economy. In this way, competition law was placed on the agenda in China. Its prime intention was to regulate the administrative monopoly rarely seen in other countries, the anti-competitive conducts from foreign multinationals, and some domestic anti-competitive conducts, in order to improve the competitive market. However, China's highly concentrated political system may be incompatible with the objective of competition law to break up monopolisation, because the Anti-Monopoly Law of China[8] (AML) may exclude some administrative monopolies, such as State-Owned Enterprises (SOE), from regulation.[9]

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market was an instrument that could serve both a capitalist economy and a socialist economy, and that the market economy was not a standard for distinguishing capitalism and socialism in the 20th century. 14th Central Committee of the Communist Party of China (1992), 'Decision of the Central Committee of the Communist Party on Some Issues Concerning the Establishment of a Socialist Market Economic System' (中共中央关于建立社会主义市场经济体制若干问题的决定 Zhonggong Zhongyang Guanyü Jianli Shehui Zhuyi Shichang Jingji Tizhi Ruogan Wenti De Jueding) (*News of Communist Party of China*, 14 November 1993) <http://cpc.people.com.cn/GB/64162/134902/8092314.html> accessed 25 April 2013 (stating that it was the first time that the term 'socialist market economy' was used, together with relevant explanation and a statement of the aim to establish such an economy by the central government of China); Zhongliang Shi, 'Review and Experience of Economic Structure Reform in China' in Mohamed Osman Suliman and Osman Suliman (eds), *China's Transition to a Socialist Market Economy* (Quorum 1998) 3-15 (reviewing the economic reforms in China since the 1970s, including the transition to a socialist market economy, in which some scholars argue that the socialist market economy is a capitalist economy rather than a socialist economy); Global Study Association of Depaul University, 'China: Market Socialism or Capitalism?' (*Loyola University Chicago*, 13 May 2006) <http://www.luc.edu/faculty/dschwei/ChinaCap.GSA.pdf> accessed 25 April 2013 (arguing that the Chinese socialist market economy is not socialism, as the socialism involves production for use rather than profits, and the central government's direct orders rather than self-management and workplace democracy); Julan Du and Chengguang Xu, 'Market Socialism or Capitalism? Evidence from Chinese Financial Market Development' in János Kornai and Yingqi Qian (eds), *Market and Socialism: In the Light of the Experiences of China and Vietnam* (Palgrave Macmillan 2008) 88-109 (considering the current economic system to be a state capitalist system rather a socialist market economy. The financial market, as it currently exists, should not available in the market of socialism, and the state profits are retained by companies, instead of being allocated equitably to people under a social scheme.).

[8] The Anti-Monopoly Law of China was passed by the Standing Committee of the 10th National People's Congress on 30 August 2007 and came into effect on 1 August 2008. An unofficial English version is provided in Appendix 1.

[9] 'With respect to the industries controlled by the State-owned economy and concerning the lifeline of national economy and national security or the industries implementing exclusive operation and sales according to law, the state protects the lawful business operations conducted by the business operators therein. The state also lawfully regulates and controls their business operations and the prices of their commodities and services so as to safeguard the interests of consumers and promote technical progresses.' AML, art 7.

Examining the historical development of the legal systems in China will assist when later comparing their development to that of the Western countries, and also in identifying whether or not the rates of development are parallel. It may reveal the positive and negative factors that influence their development and, more importantly, conclude if it is justifiable to apply competition law to the IPRs system in China, and what influence their development has on the appearance of the intersection of the two legal systems.

4.2 Development of Intellectual Property Rights in China: Mainly Driven by External Pressure

It is acknowledged that intellectual assets and technological advances have increasingly superseded more traditional manufacturing resources and methods to become leading factors for the successful long-term development of economies.[10] The significance of the 'knowledge-economy'[11] and technology innovation demands IPRs protection to secure the exploitation of intellectual properties and to promote further innovation and economic growth. This is consistent with the intention of contemporary China to switch to high-technology industries to boost the economy. However, IPRs in China was created following external pressure and was transplanted from the West. Combining the unique Chinese background with a foreign legal system can result in tensions, so it is essential to be aware of the historical context in which IPRs arose and developed in China. This will help with understanding the factors affecting the development of IPRs and in identifying the stage of improvement reached, which will in turn conclude whether there is likely to be intervention via

[10] The significant role that knowledge and technology played in the development of economies began to be discussed and explored, and had been recognised since the mid-1990s. The fact that consecutive technological innovation results in large quantities of production, economic development, and consumer welfare, and the function of knowledge and technology, have been further proven and confirmed. Robert Solow, 'Technical Change and the Aggregate Production Function' (1957) 39 Rev Econ & Stat 312; Edward F Denison, *Accounting For United States Economic Growth 1929-1969* (Brookings Institution 1974) 128; Frederic M Scherer, 'Inter-Industry Technology Flows and Productivity Growth' (1982) 64 Rev Econ & Stat 627.

[11] The knowledge economy contains activities in three primary areas: 'new science-based industries and their role in social and economic change', 'professional services and other information-rich industries', and the core is 'the centrality of theoretical knowledge as a source of innovation'. This is important in economic growth. Walter W Powell and Kaisa Snellman, 'The Knowledge Economy' (2004) 30 Annu Rev Sociol 199, 200.

competition law. Furthermore, it will also provide a basis for the subsequent discussion on how to create legislation on the interface of the two legal systems.

There are a number of factors that have strongly affected the evolution of IPRs in China. Confucianism[12] is one of the most significant philosophies and has influenced Chinese society for more than 2,500 years,[13] but it makes no mention of the exclusive rights protected by IPRs. Also, the establishment of intellectual property law to protect IPRs in China primarily came about due to external pressure, especially due to the desire to accede to the WTO. Finally, legislation and enforcement of intellectual property law have made great progress in China since it joined the WTO.

4.2.1 The Traditional Attitude towards Creative Works is Opposed to IPRs

The Chinese have long been a diligent and creative society, and are famous for a number of outstanding inventions in ancient times.[14] However, IPRs, in its role of

[12] Confucianism has 'held a predominant role in Chinese culture for millenniums'. One of the best sources is The Analects, also known as Lun Yü, which is 'a record of Confucius' personal teaching, compiled by his original disciples.' 'It is a collection of his sayings and teachings, and is accepted as basically the work of his immediate disciples, although it was probably expanded in later times, perhaps from oral tradition. Almost all that is certain about Confucius' life and teaching comes from the Analects. The greatness of Confucius does not rest upon the attributed authorship or editorship of well-known works, but on his method and his approach to moral problems.' He 'left behind a new understanding of ethics, an ideal of the aristocrat as a man of morality: just, sincere, loyal, benevolent, and owing his high esteem to the possession and practice of these virtues, not to his birth or wealth.' He also advocated that '[m]an must be guided by morality, by virtues, and not just by the knowledge of how to perform rites' and 'maintaining the harmonious functioning of the social order was—or ought to be—the supreme objective of any man's life.' Norman Kotker and Charles P Fitzgerald, *The Horizon History of China* (American Heritage 1969) 10-20. See also Thomas Froncek, *The Horizon Book of the Arts of China* (American Heritage 1969) 39 ('Confucianism, which dominated Chinese thought after the second century BC, is more of a code of ethics than a religion. Its followers do without priests, images or deities – although Confucius himself is sometimes worshipped as a sage'); Jonathan D Spence, *The Search for Modern China* (3rd edn, WW Norton 2005) 8-10 (Confucianism are the thoughts of Confucius who lived in China between 551 and 479 BC).

[13] Nowadays, Confucianism is 'ingrained in the Chinese way of life and affects Chinese people's perceptions of what is important and what is not'. It will continue to be 'a dominant and enduring influence on cultural values in China despite the economic and political upheavals in the last two centuries.' George Lan and others, 'A Comparison of Personal Values of Chinese Accounting Practitioners and Students' (2009) 88 J Bus Ethics 59, 62.

[14] The most well-known four inventions of ancient China include the compass, gunpowder, paper, and printing. Yinke Deng, *Ancient Chinese Inventions* (Cambridge University Press 2011) 1 ('China led the world throughout much of the history of human civilisation with its ancient science and technology, and until the middle of nineteenth century its economy was the largest in the world.')

protecting creators from imitation without consent, did not exist in ancient China until the West attempted to introduce them in the 20th century.[15]

During the ancient period in China, traditional culture had a strong influence on the lack of IPRs.[16] In traditional Chinese literary practice, borrowing from other literary works was a common and recognised behaviour. Reorganising material was recognised as the creation of an ethical new work rather than plagiarism. The Comprehensive Mirror for Aid in Government,[17] written by Guang Sima (1019-1086), is one of the most outstanding Chinese literary works relating to history. However, it is not completely original and primarily comprises unattributed verbatim quotations from other works.[18] Rather than being seen as a plagiarist, the author is regarded as one of the most eminent historians[19] in China. This differs from the copyright requirement for a work to be fully composed by an author. The ancient Chinese placed more value on the collaborative nature of the whole project. After all, a long history with a substantial content needed a large amount of labour, time, money, and intellectual effort, and this was beyond the scope and ability of most people.[20] This example reflects the differing attitudes and focus of the ancient Chinese compared to those espousing modern copyright.

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[15] William P Alford, *To Steal A Book is An Elegant Offense: Intellectual Property Law in Chinese Civilisation* (Stanford University Press 1995) 2.

[16] Ancient China put far more weight on arts than science. Yinke Deng, *Ancient Chinese Inventions* (Cambridge University Press 2011) 8 ('Ancient Chinese learning included only literature, philosophy, history, and language. Science and technology, which were needed in production and daily life, were regarded as something trivial and vulgar. Intellectuals in ancient China had a very poor understanding of the natural sciences [...] Students of the whole nation devoted their efforts to the study of classics and stereotyped writings. All the schools were for the arts and there were hardly any institutions for the training of scientific personnel.')

[17] 资治通鉴 Zizhi Tongjian.

[18] Guang Sima 'formed a new historical record from older texts, providing only transitions and occasional commentaries in their own words ... rather than to make an imaginative reconstruction of past events.' Robert André LaFleur, 'Literary Borrowing and Historical Compilation in Medieval China' in Lise Buranen and Alice M Roy (eds), *Perspectives on Plagiarism and Intellectual Property in a Postmodern World* (SUNY 1999) 143. See also William P Alford, *To Steal A Book Is An Elegant Offense: Intellectual Property Law in Chinese Civilisation* (Stanford University Press 1995) 27.

[19] ibid LaFleur 141-44.

[20] '[T]raditional Chinese culture does not call for verbatim reproduction. Rather, it calls for transformative use of pre-existing works that is tailored to the user's needs and conditions.' Peter K Yu, 'Piracy, Prejudice, and Perspectives: An Attempt to Use Shakespeare to Reconfigure the U.S.-China Intellectual Property Debate' (2001) 19 B U Int'l LJ 1, 77.

The ancient Chinese had no reservations about quoting well-known text. The principle behind this is literary work-oriented rather than author-oriented. Namely, the significance of classical literary works and wisdom has been emphasised through diffusion and copying to maximise their value, rather than allowing authors to continually gain financial reward from their work. The enduring reverence for classical works stemmed from the profound influence of a long-term feudal system in which the crucial regime of 'top-down', which was maintained by governors, required absolute respect and obedience in the hierarchy.[21] The principle of submission was considered extremely important in classical ideology, including Confucianism. Successive governments approved of this and advocated its popularisation. Governments benefited from it as it enabled them to control the beliefs and ideas of the population, preserve conformity and socio-political stability, as well as maintain the accuracy and orthodoxy of the works that were important to the moral, social, and legal structures of China.[22] For the Chinese, quotation from previous classical works was not regarded as plagiarism but as an important element for any new work to be considered valuable and of good quality. Imitation of the classics was considered to be of greater value than originality.[23] Accordingly, the educational system also taught respect for these classical works. Confucius was a great champion of this. He was famous as not only a humanist but also as an outstanding educator.[24] He established an educational system that continues to profoundly affect education in China. In the educational system, the reverence for the classics requires students to learn a large number of classical texts by rote even before understanding, quoting, or analysing

[21] Wei Shi, 'Culture Perplexity in Intellectual Property: Is Stealing a Book an Elegant Offense?' (2006) 32 N C J Int'l L & Com Reg 1, 44.

[22] ibid 44; William P Alford, *To Steal A Book is an Elegant Offense: Intellectual Property Law in Chinese Civilisation* (Stanford University Press 1995) 19-20.

[23] Peter K Yu, 'Piracy, Prejudice, and Perspectives: An Attempt to Use Shakespeare to Reconfigure the U.S.-China Intellectual Property Debate' (2001) 19 B U Int'l L J 1, 19; Wei Shi, 'Culture Perplexity in Intellectual Property: Is Stealing a Book an Elegant Offense?' (2006) 32 N C J Int'l L & Com Reg 1, 48.

[24] It is recorded that Confucius had more than 3000 students in his lifetime, and Lun Yü, which contains the behaviours and conversations between Confucius and his students, is one of most remarkable books in the history of China. Chichung Huang, *The Analects of Confucius (Lun Yü)* (Oxford University Press 1997).

them.[25] Thus, copying, in the form of quoting, has been used to disseminate knowledge.

The dominance of Confucianism emphasised the doctrine that individual contributions to society, rather than personal gain, was the primary aim of personal development,[26] a principle which does not encourage creators to pursue financial reward for their creations. This was the reason for not only the lack of emergence of IPRs, but also the absence of a concept of individual rights.[27] In addition, the traditional dominant ideology focused on ethics, while practical issues were, to some extent, held in disdain. This led the nation to lose interest in technology.[28] The society was very inward-looking, and historically there was very little involvement in international trade and economic relations with foreign countries, so Chinese society became very insular and was hardly affected at all by the development of technology and related IPRs in the West.

4.2.2 The Emergence and Reform of Intellectual Property Law in China: Heavily Influenced by US Threats and WTO Obligations

[25] Students were taught to read classical texts after memorising around 2000 Chinese characters. When students started preparing for the imperial civil service examinations, they needed to begin the process of memorising verbatim a corpus of classic texts that contained between 500,000 and 600,000 characters. The students would be taught how to write an essay only after the completion of the memorisation. Benjamin A Elman, *A Cultural History of Civil Examinations in Late Imperial China* (California University Press 2000) 260-65. See also John King Fairbank, *The Great Chinese Revolution: 1800-1895* (Harper Perennial 1987).

[26] Wei Shi, 'Culture Perplexity in Intellectual Property: Is Stealing a Book an Elegant Offense?' (2006) 32 N C J Int'l L & Com Reg 1, 44. See also Brian Barron, 'Chinese Patent Legislation in Culture and Historical Perspective' (1991) 6 IPJ 313, 316-20; William P Alford, *To Steal A Book is An Elegant Offense: Intellectual Property Law in Chinese Civilisation* (Stanford University Press 1995) 10.

[27] In terms of IPRs in ancient China, '[t]he subject of individual property rights was not simply foreign to their mode of thinking, but was essentially beyond the scope of their mental picture of the world'. John R Allison and Lianlian Lin, 'The Evolution of Chinese Attitudes Toward Property Rights in Invention and Discovery' (1999) 20 U Pa J Int'l Econ L 735, 774. Although there were some rules regarding criminalisation of certain books, banning production of books with certain contents, such as pornography or anti-government sentiment, they could not deemed as copyright law in the modern law sense due to the fact that the rules did not purport to protect the rights of authors and promote innovation, but were simply a tool to correct thoughts in society to preserve governance. William P Alford, *To Steal A Book is An Elegant Offense: Intellectual Property Law in Chinese Civilisation* (Stanford University Press 1995) 9-13.

[28] Rudi Volti, *Technology, Politics and Society In China* (Westview Press 1982) 21-22.

Over time, the Chinese empire became weaker, and from the middle of the 18th century its policy of insularity became more difficult to sustain, particularly as a number of countries with imperial and colonial ambitions began to 'explore' and 'open-up' China, by force if necessary.[29] Consequently, a number of unfair 'treaties' were imposed on the Chinese empire, forcing it to grant trade concessions to foreign powers.[30] This facilitated the emergence of requirements to protect IPRs-related products exported to China.[31] The first dispute in regard to IPRs concerned the use of British trade marks in fashion by Chinese merchants, and this was regarded as an infringement by the United Kingdom (UK), although the Chinese merchants were allegedly not aware of that.[32] In 1903, a treaty with the US required China to grant a limited term of patent protection for US patents and reciprocal protection for copyrights between the two countries.[33]

After the last imperial dynasty fell in 1911, the new republican government enacted a patent law to protect Chinese inventions in 1912, and this protection was extended to US patents in 1923.[34] Later, a copyright law, a trade mark law, and a patent law were adopted respectively in 1928, 1930, and 1932 by the government controlled by Guoming Dang.[35]

Patent regulations were issued in 1950, following the formation of the People's Republic of China by the Communist Party in 1949. Under the influence of

[29] For example, the well-known one was the infamous Opium War between 1839 and 1842. Arthur Waley, *The Opium War Through Chinese Eyes* (Routledge 2005).

[30] William Beaumont, 'The New Patent Law of the People's Republic of China (PRC): Evidence of a Second Chinese "Renaissance"' (1986) 27 IDEA 39, 43.

[31] William P Alford, *To Steal A Book is An Elegant Offense: Intellectual Property Law in Chinese Civilisation* (Stanford University Press 1995) 32-34.

[32] Susan Tiefenbrun, 'Piracy of Intellectual Property in China and the Former Soviet Union and its Effects Upon International Trade: A Comparison' (1998) 46 Buff L Rev 1, 37.

[33] William P Alford, *To Steal A Book is An Elegant Offense: Intellectual Property Law in Chinese Civilisation* (Stanford University Press 1995) 38; Chris Devonshire-Ellis and others, *Intellectual Property Rights in China* (2011 Springer-Verlag) 2.

[34] However, fewer than 1000 patents were granted to Chinese people, and the American patents proved to not have been protected substantially by an American diplomat in China due to lack of implementation measures. William P Alford, *To Steal A Book is An Elegant Offense: Intellectual Property Law in Chinese Civilisation* (Stanford University Press 1995) 41-42.

[35] The intellectual property laws were almost ineffectual and were also affected by the War of Resistance against Japan from 1937 to 1945. William P Alford, *To Steal A Book is An Elegant Offense: Intellectual Property Law in Chinese Civilisation* (Stanford University Press 1995) 50-54.

Confucianism and the Soviet Union, patent regulations were considered necessary to rebuild the country internally, rather than as a result of any particular concern for personal interest.[36] During the political development in the 1950s and 1960s, scientists and inventors were deemed to be subversives and their protection was not in the interests of communist socialism.[37] This weakened support further for an IPRs system, and for scientific and innovative activities in China.[38]

In the late 1970s, the Chinese government adopted greater foresight and pragmatism in relation to economic growth, and scientific and technological developments were regarded as crucial methods for driving forward a modern economy. Further, the pursuit of greater personal achievements and rewards was generally recognised as not undermining the fundamental tenets of socialism.[39] Political, cultural, and social control would remain dominated by the Communist Party, but a more 'free-market' type economy was gradually allowed to develop and, over a period of some decades, the Chinese economy began to resemble equivalent economic systems in Western countries – although the state continues to maintain a strong background role.

Since the 1980s, China has joined almost all primary international IPRs-related conventions.[40] This was the first step in establishing an effective IPRs system. In order to fulfil obligations to adhere to the conventions, the reform of domestic intellectual property laws proceeded accordingly. A trade mark law in 1983, a patent law in 1985,

[36] ibid 58. See also David Ben Kay, 'The Patent Law of the People's Republic of China in Perspective' (1985) 33 UCLA L Rev 331, 340-56.
[37] ibid Alford.
[38] ibid.
[39] Mark Sidel, 'Copyright, Trademark and Patent Law in the People's Republic of China' (1986) 21 Tex Int'l LJ 259, 281.
[40] China joined the WIPO in 1980, the Paris Convention for the Protection of Industrial Property in 1984, the Berne Convention for the Protection of Literary and Artistic Works and the Universal Copyright Convention in 1992, the Convention for the Protection of Producers of Phonograms Against Unauthorized Duplication of Their Phonograms in 1993, and the Protocol Relating to the Madrid Agreement Concerning the International Registration of Marks in 1994. Keith E Maskus, Shaun M Dougherty and Andrew Mertha, 'Intellectual Property Rights and Economic Development in China' in Carsten Fink and Keith E Maskus (eds), *Intellectual Property and Development: Lessons from Recent Economic Research* (World Bank and Oxford University Press 2005) 296.

and a copyright law in 1991 were implemented according to the Constitution of 1982.[41] During this period, the government realised the importance of developing technology and economy.[42] More emphasis was placed on foreign direct investment (FDI) and foreign trade, through which the necessary requirements for production, such as capital and advanced technologies,[43] could enter China and combine with local cheaper labour, preferential tax rates, and other advantages to get the greatest profit margins.[44] These new perspectives of China encourage the reform of intellectual property laws.[45] Pressure exerted from abroad strongly pushes the improvement of intellectual property laws. The Agreement on Trade Relations[46] in 1979 and the first bilateral trade-related intellectual property agreement — the Memorandum of Understanding on the Protection of Intellectual Property between the US and China,[47] required China to reform intellectual property laws to satisfy certain standards of IPRs protection. Furthermore, the US launched investigations under Special 301

[41] The recognition of the rights of citizens and legal persons to hold IPRs as private rights in the General Principles of the Civil Law of China in 1986 has provided a further legal foundation for the justification of IPRs.

[42] The reform of intellectual property law constituted part of a socialist legal system which was a 'source of legitimacy for the government's reform policies'. Scott J Palmer, 'An Identity Crisis: Regime Legitimacy and Politics of Intellectual Property Rights in China' (2000) 8 Ind J Global Legal Studies 449.

[43] Schiappacasse M, 'Intellectual Property Rights In China: Technology Transfers and Economic Development' (2004) 2 Buff Intell Prop LJ 164

[44] Karl P Sauvant, 'China: Inward and Outward Foreign Direct Investment' (2011) 3 Transn'l Corp Rev 24.

[45] As some studies show, effective protection of patents can promote dissemination of technology by disclosure of inventions, and accelerate technology transfer and assignments. It was argued that it would be difficult to foster attitudes of creativity, invention, and risk-taking in an environment of weak IPRs protection. Keith E Maskus, 'Intellectual Property Rights and Economic Development' (2000) 32 Case W Res J Int'l L 471. See also Klaus Liebig, *Geistige Eigentumsrechte: Motor oder Bremse wirtschaftlicher Entwicklung? Entwicklungsländer und das TRIPS - Abkommen* (Deutsches Institut fur Entwicklungspolitik 2001) cited in Andrea Wechsler, 'Intellectual Property Law in the P.R. China: A Powerful Economic Tool for Innovation and Development' (2011) Max Planck Institute for Intellectual Property, Competition & Tax Law Research Paper No 09-02 <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1354546> accessed 18 May 2013.

[46] Agreement on Trade Relations between the US and China (7 July 1979) US-PRC 31 UST 4651 (requiring both countries to provide equivalent treatment of copyright, patent, and trade mark protection for each other). See also Leo Wise, 'Trading With China' (2001) 38 Harv J on Legis 567.

[47] (1995) US-PRC 34 ILM 676. It required China to revise its patent law to accede to the Berne Convention and the Geneva Convention, as well as to enact a law against unfair competition consistent with the Paris Convention. China finally enacted an amendment to the Patent Law and the Implementing International Copyright Treaties Provisions in 1992, and Unfair Competition Law in 1993, to fully satisfy the requirements of the Memorandum of Understanding. Naigen Zhang, 'Intellectual Property Law Enforcement in China: Trade Issues; Policies and Practices' (1997) 8 Fordham Intell Prop Media & Ent LJ 62, 74.

provisions[48] of the US trade law that threatened to impose a 100% duty on Chinese imports in 1994 and 1996. This was settled by two intellectual property-related agreements in 1995[49] and 1996.[50]

International agreements and organisations also played an important role in promoting the reform of intellectual property laws in China since the late 1990s; for example, the requirement to become a WTO member, as this would create a better environment for foreign trade with China,[51] and the prerequisite to adopt the Agreement on Trade-Related Aspects of Intellectual Property Rights[52] (TRIPS), which imposed numerous obligations of minimum protection for IPRs on WTO members.[53] With the reform of its intellectual property law, China finally joined the WTO in 2001. However, the reform also led to some tensions. For example, the Chinese government

[48] The provisions, including Special 301 of the Trade Act 1974 (Pub L No 98-681, 19 USC §§182) and Omnibus Trade and Competitiveness Act 1988 (Pub L No 100-418, 19 USC §§1303 (b), codified as amended at 19 USCA §2242), require the United States Trade Representative to notify Congress of priority foreign countries that fail to adequately protect US IPRs and to undertake all required remedial measures within a mandated period.

[49] Agreement regarding Intellectual Property Rights between the US and China (1995) US-PRC 34 ILM.

[50] The Agreement in 1996, including a Report on Chinese Enforcement Actions and an Annex on Intellectual Property Rights Enforcement and Market Access Accord. Yiqiang Li, 'Evaluation of the Sino-American Intellectual Property Agreements: A Judicial Approach to Solving the Local Protectionism Problems' (1996) 10 Colum J Asian L 391, 424.

[51] The occasional threats and sanctions from the US and the West seriously affected manufacturing and exports, and these were highly significant industries to boost the economy at the outset stage of China's implementation of Reform and Opening Up policy. The accession to the WTO could achieve a relatively regular, stable, and foreseeable international surrounding for the important industries of China. The benefits include '[t]he opportunity to disable trade sanctions and the annual renewals of most-favoured-nation status as US policy levers, the gradual reduction of country quotas on textiles, the prospect of secure markets, and the appropriate political leverage for the Chinese government to continue its reform and privatization program.' Andrea Wechsler, 'Intellectual Property Law in the P.R. China: A Powerful Economic Tool for Innovation and Development' (2011) Max Planck Institute for Intellectual Property, Competition & Tax Law Research Paper No 09-02 <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1354546> accessed 18 May 2013.

[52] Agreement on Trade-Related Aspects of Intellectual Property Rights, Annex 1C of the Marrakesh Agreement Establishing the World Trade Organisation (signed 1994, took effect 1995). The TRIPs was discussed at the final stage of the Uruguay Round of trade negotiations that took place between 1986 and 1994. It set out minimum standards for various forms of intellectual property regulation, and permitted member countries to decide on their own internal policies and implementation procedures. Demaret describes it as 'the largest and most ambitious attempt to harmonize intellectual property rights on a world scale.' Paul Demaret, 'The Metamorphoses of the GATT: From the Havana Charter to the World Trade Organisation' (1995) 34 Colum J Transnat'l L 123, 162.

[53] The previous intellectual property law in China did not include the protection of computer software and trade secrets that were required by TRIPS, and the implementing provisions for protecting IPRs, such as procedures for remedying acts of infringement, written decisions and evidence, damages and injunctive relief were not compatible with TRIPS. Derek Dessler, 'China's Intellectual Property Protection: Prospects for Achieving International Standards' (1995) 19 Fordham Int'l LJ 181, 186, 233.

deemed that piracy was an issue of disseminating knowledge and benefits rather than an ideological problem.[54] This was a common issue for many developing countries. Before the end of the 19th century, even the US failed to recognise foreign copyrights in order to allow the publication and diffusion of cheap books to its citizens.[55] The ineffective implementation of statute law to piracy in China also caused tension.[56] However, the reform has had some successes, and to some extent these have enabled China and the US to move from conflict to cooperation over IPRs.[57]

4.2.3 Achievements of IPRs Protection in Contemporary China

As an exotic importation into China, IPRs lack fertile ground to develop; instead they are beset by factors that oppose them, although they have been improving. The tortuous development of IPRs has witnessed of the progress of China's modernisation and internationalisation. Since becoming a member of the WTO, even though the profound belief in Confucianism and Socialism still exist, economic growth[58] and

[54] Sumner La Croix and Denise Eby Konan, 'Intellectual Property Rights in China: The Changing Political Economy of Chinese-American Interests' (2002) 25(6) World Econ 759.

[55] '[A]s Charles Dickens, Anthony Trollope, and many others learned the hard way, the United States did not grant even formal protection for foreign copyrighted materials until 1891—by which time had passed through what arguably might be termed a period as a developing country'. William P Alford, To Steal A Book is An Elegant Offense: Intellectual Property Law in Chinese Civilization (Stanford University Press 1995) 5. See also Thomas Bender and David Sampliner, 'Poets, Pirates, and the Creation of American Literature' (1997) 29 NYU J Int'l L & Pol 255 (arguing that the US did not afford intellectual property legislation for non-US citizens until it became a major industrial power).

[56] Robert S Ross, 'Enter the Dragon' (1996) 104 Foreign Pol'y 18, 18-19; Jennifer A Crane, 'Riding the Tiger: A Comparison of Intellectual Property Rights in the United States and the People's Republic of China' (2008) 5 Chi-Kent J Intell Prop 95, 95-97.

[57] Sumner La Croix and Denise Eby Konan, 'Intellectual Property Rights in China: The Changing Political Economy of Chinese-American Interests' (2002) 25(6) World Econ 759.

[58] The average GDP growth rate of China over the past thirty-three years has been approximately 10%, and faster growing periods have historically coincided with periods of strong economic reform. Although the Chinese premier Wen Jiabao announced that the nation's long-standing 8% growth target had been cut to 7.5% for 2012, World Bank's latest projections for China are GDP growth of 8.2% in 2012, rising to 8.6% in 2013, according to its China Quarterly Update. Sophie Baker, 'Chart of the Day: China's GDP growth' (*Financial News*, 7 April 2012) <http://www.efinancialnews.com/story/2012-04-17/china-gdp-growth-bubble> accessed 6 June 2012. It is not easy to confirm the reform of intellectual property law directly in favour of the growth of GDP, but better IPRs protection benefits the maintenance of a stable environment for foreign trade and accession to the WTO, which may heavily promote GDP growth due to foreign trade making a large contribution to national economy. For example, the reliance on foreign trade, which measures an economy's dependence on international markets, is the ratio of the total trade value in the country's GDP. According to the General Administration of Customs, China's reliance on foreign trade stood at 38.5% in 2001, then rose to 51.9% in 2003, and peaked at 67% in 2006. China's foreign trade totalled RMB 23.63 trillion (GBP 2.36 trillion) in 2011, while its GDP stood at RMB 47.16 trillion (GBP 4.72

reform of intellectual property law have moved forward. Given the trend of globalisation, China realises the significance of using IPRs policy to facilitate technological innovation and maintain a healthy economy. After achieving a great economic growth, primarily dependent on its manufacturing industry with large numbers of low-cost labourers over three decades, China expects to upgrade from being the 'world's factory' to building high technology industries.[59] To achieve this, it needs a proper intellectual property law system for inducing domestic innovation and the transfer of high technology from abroad.[60]

Fortunately it has successfully established a comprehensive IPRs legislation system. This system consists of three parts. The first part consists of laws on IPRs protection, including the Constitution[61] and other laws, such as Patent Law,[62] Copyright Law,[63] Trade Mark Law,[64] General Principles of the Civil Law,[65] Tort Liability Law,[66] and Criminal Law,[67] etc. The second part is a different level of administrative regulations or rules on the implementation of IPRs Laws.[68] Judicial interpretations, guidance

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trillion). Xinhua, 'China's Dependence on Foreign Trade Drops to 50.1 PCT' (*People's Daily*, 16 February 2012) <http://english.peopledaily.com.cn/90778/7731384.html> accessed 10 June 2012.

[59] This is not only a change of industrial policy and developmental model by the government in order to gain greater successful economic growth, but also the desire for higher wages and better living standards for labourers that translates into a dramatic increase in labour costs, resulting in China losing some advantage in terms of labour-costs. Wages for migrant workers rose by 30% to 40% in 2010, and will likely continue to rise 20% to 30% every year for the next three to five years. Alex Frew McMillan, 'China's Role as 'World's Factory' Coming to an End' (*Consumer News and Business Channel of CNBC*, 6 February 2011) <http://www.cnbc.com/id/41035650/China_s_Role_as_World_s_Factory_Coming_to_an_End> accessed 11 September 2012.

[60] For example, China plans to invest in recruiting experts to hire more foreign professionals to aid with innovation and scientific research. Chen Xin, 'It's Now Time to Re-tool "World's Factory"' (*China Daily*, 12 September 2012) <http://english.peopledaily.com.cn/90778/7946135.html> accessed 25 September 2012.

[61] Constitution of China 2004, arts 6,11,13 (protecting public and private properties); arts 9, 21 (protecting natural resources and improving health, which relate to new varieties of plans, gene patents, and traditional Chinese medicine); arts 20, 22, 47 (encouraging scientific innovation, and literary and artistic creation).

[62] Patent Law of China 1985 (amended 1993, 2001, 2009).

[63] Copyright Law of China 1991 (amended 2001, 2011).

[64] Trade Mark Law of China 1983 (amended 1993, 2001, 2014)

[65] General Principles of the Civil Law of China 1986, arts 94-97 (indicating that patent rights, trade marks, and copyrights are protected).

[66] Tort Liability Law of China 2009 (regulating the infringement of civil rights, including patent rights, trade marks, and copyrights).

[67] Criminal Law of China 2011, arts 213-20 (regulating crime regarding IPRs).

[68] As the highest administrative organ of China, the State Council made many regulations that are first level regulations and their legal effects prevail over other administrative rules, ordinances, or orders, including Regulations on the Implementation of the Patent Law 2001 (amended 2003, 2010); Regulations on the Implementation of the Copyright Law 2002 (amended 2002, 2013); Regulations on the

documents issued by judicial organs, such as the Supreme People's Court or the Supreme People's Procuratorate, the Ministry of Public Security, and the Ministry of Justice are the third part (Figure 6). Administrative IPRs-related policies made by governments of different levels also play a vital role for IPRs protection, such as the Annual Action Plans on IPRs Protection;[69] the Protection of China on IPRs;[70] and the National IPRs Strategy.[71] A survey showed that 78% of major Chinese companies received subsidies for patent filing,[72] including some lower-quality patents and their application. These laws and policies could benefit Chinese companies by helping them to progress from being imitators to being creators, at the very least enhancing their absorptive capacity.[73]

Implementation of the Trade Mark Law 2002 (amended 2014); Regulations on the Protection of Computer Software 2002 (amended 2013); Regulations on the Protection of New Varieties of Plants 1997 (amended 2013); Regulations on the Protection of Layout Designs of Integrated of Circuits 2001, Regulations on the Protection of Intellectual Property Rights by the Customs 2004 (amended 2010), Law of China on the Science and Technology Progress 1993 (amended 2008), etc. There are massive rules and ordinances made by the ministries or commissions of the State Council, especially the State Intellectual Property Office, the National Copyright Administration, the State Administration for Industry and Commerce, and the Ministry of Science and Technology. There are numerous third level administrative regulations or rules and they are made by many local people's congress or governments, and enforced within relevant local regions.

[69] Andrea Wechsler, 'Volksrepublik China — Verabschiedung des, Aktionsplans 2007 zum Schutz geistigen Eigentums' (2007) 6 GRUR Int 554, cited in Andrea Wechsler, 'Intellectual Property Law in the P.R. China: A Powerful Economic Tool for Innovation and Development' (2011) Max Planck Institute for Intellectual Property, Competition & Tax Law Research Paper No 09-02 <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1354546> accessed 18 May 2013.

[70] State Intellectual Property Office (SIPO), 'The Protection of China on Intellectual Property Rights in 2014 (二 O 一四中国知识产权保护 Erling Yisi Zhongguo Zhishi Chanquan Baohu)' (*SIPO*, 2015) <http://www.sipo.gov.cn/gk/zscqbps/201506/P020150605529407832392.pdf/> accessed 5 July 2015.

[71] Notice of National IPRs Strategy of China 17/2008, 12-18.

[72] Peter Ollier and Janice Qu, 'China's Global IP Plans Revealed' (*Managing Intellectual Property*, 1 November 2010) <http://www.managingip.com/Article/2706178/Chinas-global-IP-plans-revealed.html> accessed 6 June 2013.

[73] Xie Wei and Steven White, 'From Imitation to Creation: The Critical Yet Uncertain Paradigm Shift for Chinese Firms' (2004) INSEAD Working Paper No 2004/07/ABCM <http://www.insead.edu/facultyresearch/research/doc.cfm?did=1329> accessed 5 June 2013.

Figure 6: IPRs Legislation System of China

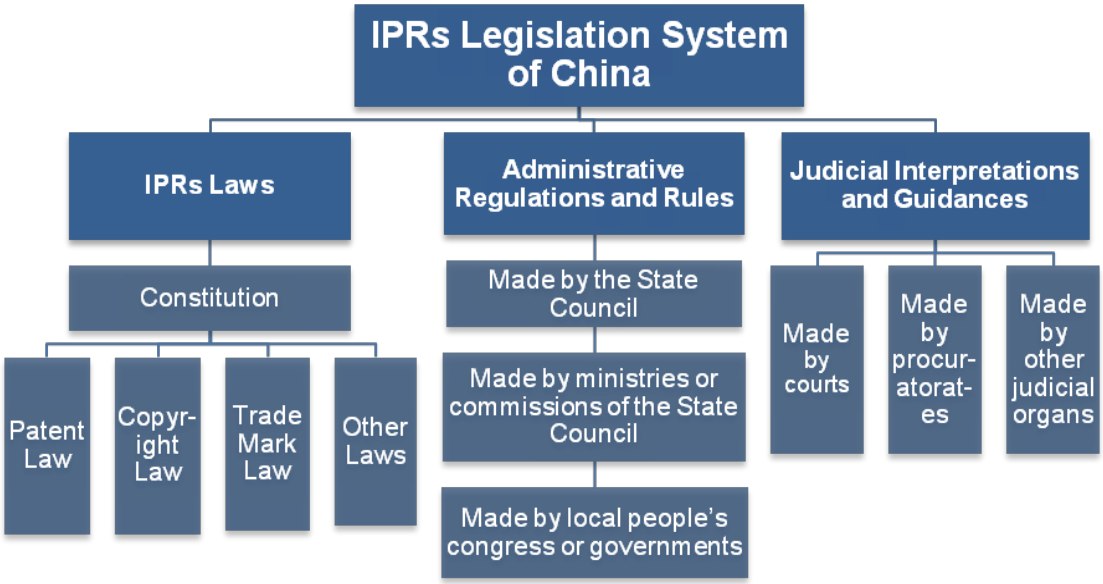

Figure drawn by the author.

Although China has been described as a centre of pirated goods[74] due to the lack of respect for IPRs and the absence of a strong enforcement mechanism,[75] the latest data shows that the accomplishment of IPRs protection has been strengthened a great deal.[76] In terms of the registration of IPRs, for example, patents, China has the largest patent office for utility-model patents. It is also the case that predominantly Chinese people own the three types of patents.[77] Both administrative authorities and judicial

[74] Andrew C Mertha, *The Politics Of Piracy: Intellectual Property in Contemporary China* (Cornell University Press 2005); Robert Marquand, 'US Targets Chinese Piracy of US Goods' (*The Christian Science Monitor*, 30 March 2006) <http://www.csmonitor.com/2006/0330/p07s02-usec.html> accessed 10 September 2012; Gordon CK Cheung, *Intellectual Property Rights in China: Politics of Piracy, Trade and Protection* (Routledge 2009); Martin Dimitrov, *Piracy and the State: The Politics of Intellectual Property Rights in China* (Cambridge University Press 2009).

[75] Donald C Clarke, 'Economic Development and the Rights Hypothesis: The China Problem' (2003) 51 Am J Comp L 89, 89-108; Warren Newberry, 'Copyright Reform in China: A "TRIPS" Much Shorter and Less Strange than Imagined?' (2003) 35 Conn L Rev 1425; Jennifer L Donatuti, 'Can China Protect the Olympics, or Should the Olympics? Be Protected From China?' (2007) 15 J Intell Prop 203, 213-16; Donald P Harris, 'The Honeymoon is Over: Evaluating the U.S.-China WTO Intellectual Property Complaint' (2008) 32 Fordham Int'l L J 96, 96-97.

[76] Xuan-Thao Nguyen, 'The China We Hardly Know: Revealing The New China's Intellectual Property Regime' (2011) 55 St Louis U LJ 773; Mark Cohen, Hope Shimabuku and Xuan-Thao Nguyen, 'Selected Materials For 2011 China IP: Now! Symposium: China's Current Intellectual Property Plan, Policies & Practices' (2011) 15 SMU Sci & Tech L Rev 17.

[77] Between May 1985 and December 2010, 99.4% of utility model patents, 97.1% of design patents, and 61.5% of invention patents were owned by Chinese applicants. State Intellectual Property Office of China, 'Total Applications for Three Kinds of Patents Received from Home and Abroad' (*SIPO*, 25 January 2011) <http://english.sipo.gov.cn/statistics/szslzljb/201101/t20110125_570591.html> accessed 12 September 2012.

organs have enforced IPRs laws and regulations to protect right owners from severe infringement (See Table 4 & 5). For example, litigation has been used extensively for claiming IPRs, and in 2010 the number of IPRs-related cases in China was higher than in the US.[78] The new framework has even provided domestic companies with the ability to take international companies to Chinese courts to claim their legitimate rights.[79] It is worth pointing out that similar processes have taken place in the past under different political and economic systems, such as in the US and Japan. A country can move from being a net-importer of IPRs to a net-exporter; the post-1945 development of the Japanese economy is perhaps the most recent example of this.[80] Similar developments to those taking place in China are also taking place in India.[81]

Table 4: Enforcement of IPRs Law and Initial Trial of Courts on IPRs Infringements in China (2010-14)

	2010	2011	2012	2013	2014
Investigated and Settled by Administrative Authorities	N/A	156,000	325,271	262,000	178,000
Uncovered by Public Security Departments	2,049	43,550	43,773	55,000	28,280
Prosecuted by Prosecuting Agencies	2,207	5,690	16,143	14,000	18,789
Criminal Cases Concluded by Courts	1,254	5,504	14,662	12,000	18,020
Administrative Cases Concluded by Courts	2,391	2,470	2,899	2,901	4,887

[78] In 2010, China had approx. 25,000 copyright cases, 9000 trade mark cases, and 6000 patent cases. Supreme People's Court of China, White Paper of Intellectual Property Protection by Chinese Courts in 2010 (*China Patent Agent (HK) LTD*, 19 April 2011) <www.cpahkltd.com/UploadFiles/20110509082512655.pdf> accessed 4 April 2011. In contrast, in the US there were approx. 2500 copyright cases, 3000 trade mark cases, and 2000 patent cases in 2010. Mark Cohen, Hope Shimabuku and Xuan-Thao Nguyen, 'Selected Materials For 2011 China IP: Now! Symposium: China's Current Intellectual Property Plan, Policies & Practices' (2011) 15 SMU Sci & Tech L Rev 17.

[79] Lisa Lerer, 'Going Once?' 2005 (10) Intell Prop L & Bus 45.

[80] Marian Beise, 'The Domestic Shaping of Japanese Innovations' in Cornelius Herstatt and others (eds), *Management of technology and innovation in Japan* (Springer 2006) 114.

[81] Jerome H Reichman, 'Securing compliance with the TRIPS agreement after US v India' (1998) 1(4) J Int'l Econ L 585, 588-95.

Civil Cases Conclude by Courts	41,718	58,201	83,850	88,286	94,501

Table drawn by the author.

Source: Protection of China on Intellectual Property Rights in 2010, 2011, 2012, 2013, 2014.[82]

Table 5: Categories of Initial Trial of IPRs-related Civil Cases by Courts (2010-14)

	2010	2011	2012	2013	2014
Patents Cases	5,785	7,819	9,680	9,195	9,648
Trade Mark Cases	8,460	12,991	19,815	23,272	21,362
Copyright Cases	24,719	35,185	53,848	51,351	59,493
Technology Contracts Cases	670	557	746	949	1071
Other Cases	1,966	2,193	2,207	2,514	2,526

Table drawn by the author.

Source: Protection of China on Intellectual Property Rights in 2010, 2011, 2012, 2013, 2014.[83]

4.2.4 Conclusion

The development of IPRs protection in China is complex and has been significantly affected by internal and external factors, especially the latter. Traditional doctrine, especially Confucianism, emphasises learning and quoting from pre-existing classics as an important means of diffusing knowledge. The result of this is that indigenous culture justifies imitation, rather than advocating ownership of intellectual work. Confucianism asserts that the authorities should also be obeyed. As such, successive governments have supported the doctrine. In addition, communist socialism

[82] SIPO, 'The Protection of China on Intellectual Property Rights (中国知识产权保护 Zhongguo Zhishi Chanquan Baohu)' of 2010, 2011, 2012, 2013 (*SIPO*, 2014) <http://www.sipo.gov.cn/zwgs/zscqbps/> accessed 5 July 2015. SIPO, 'The Protection of China on Intellectual Property Rights in 2014 (二 O 一四中国知识产权保护 Erling Yisi Zhongguo Zhishi Chanquan Baohu)' (*SIPO*, 2015) <http://www.sipo.gov.cn/gk/zscqbps/201506/P020150605529407832392.pdf/> accessed 5 July 2015.

[83] ibid.

advocates that personal contributions should be made for the benefit of other people and society, rather than as a means of making profit. Thus, the Chinese cultural background and political orientation mainly focus on the use and allocation of intellectual work, but neglect the incentives for creating them. The coercive policy imposed by the West, in particular by the US, and the intention to be a member of WTO encouraged China to establish and improve its intellectual property legal regime.

The socialist market economy has been regarded as a fundamental economic system and was incorporated into China's constitution in 1993.[84] The number of private companies has increased sharply and expects more protection from law on private rights.[85] This has accelerated the amendments and removed out-dated provisions of intellectual property law, so that they are consistent with the new economic structure and they provide support for the private sector.[86] The large number of internet users and the widespread use of communication technologies and computers in China[87] in

[84] 'The state has put into practice a socialist market economy. The state strengthens formulating economic laws, improves macro adjustment and control and forbids according to law and any units or individuals from interfering with the social economic orders.' Constitution of China 1993, art 15. This was unaltered in the 1999 and 2004 amendments.

[85] Emily Gische, 'Repercussions of China's High-Tech Rise: Protection and Enforcement of Intellectual Property Rights in China' (2012) 63 Hastings LJ 1393, 1409-12 (stating that the increase in IPRs-related litigation in China is not due to pressure from Western countries, but stems from claims by domestic companies or individuals); Xuan-Thao Nguyen, 'The China We Hardly Know: Revealing the New China's Intellectual Property Regime' (2011) 55 Louis U LJ 773, 774 (stating that Chinese IPRs owners are more actively enforcing IPRs laws against infringers than they had been in the past.)

[86] The amendment of Patent Law in 2001 has eliminated the ambiguity of the ownership of patents for an employee's invention. 'In respect of an invention-creation made by a person using the material and technical means of an entity to which he belongs, where the entity and the inventor or creator have entered into a contract in which the right to apply for and own a patent is provided for, such a provision shall apply.' Patent Law of China 2001, 2009, art 6. '[S]ignificant social and economic changes have taken place in China since the enactment of the 1990 Copyright Law. The fundamental economic structure of the country has been further transformed from a central planning system ("command economy") into a socialist market economy. Based on predominant Chinese legal theory, law in general, and copyright law in particular, is part of a "superstructure" the content of which must reflect the ordering of its underlying economic base. From such perspective, law must be adjusted commensurate to its changing socio-economic context. Since the 1990 Copyright Law was enacted at a stage during which the influence of the 'command' tradition was still sizeable, it unavoidably bears the hallmark of a command economy and therefore needs to be reconfigured to suit socialist market paradigms.' Xiaoqing Feng and Frank Xianfeng Huang, 'International Standards and Local Elements: New Developments of Copyright Law in China' (2002) 49 J Copyright Soc'y U S A 917.

[87] China had 591 million internet users at the end of June 2013. China has already surpassed the US as the world's largest market for smartphones, and smartphone shipments to the country could reach 240 million units by the end of 2013, which is almost twice that of the US market. Michael Kan, 'China's Internet Users Grow to 591 Million' (*PCWorld*, 17 July 2013)

the information age requires IPRs protection, such as software copyright and internet copyright protection.[88]

Most importantly, the Chinese government has changed its attitude towards IPRs protection from a passive one, due to scepticism,[89] to a more positive involvement in the matters, based on the realisation of the importance of IPRs protection to innovation and development, and the pursuit of integrating with the world. China also actively enacted relevant rules after becoming a member of international organisations in order to secure its interests,[90] as well as to fulfil its obligations.[91] Even thought it started relatively late, compared to the West, and piracy is still highlighted,[92] with the

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<http://www.pcworld.com/article/2044521/chinas-internet-users-grow-to-591-million.html> accessed 2 August 2013.

[88] The Regulations on the Protection of Computer Software took effect on the 4th June 1991, and were replaced in 2002 by new set of regulations bearing the same title. China also joined the WIPO Copyright Treaty 1996 and the WIPO Performances and Phonograms Treaty — known as 'Internet treaties,' in June 2007. WIPO, 'China Extends Application of "Internet Treaties" to Hong Kong SAR' (*WIPO*, 26 September 2008) <http://www.wipo.int/pressroom/en/articles/2008/article_0046.html> accessed 16 March 2012.

[89] The scepticism of Chinese officials can be traced back to the defeat of China in the Opium War during the 19th century. Even now, some worry that IPRs will be a tool to sustain or strengthen the dominant position of the West, and to restrain the use of advanced technologies by China in order to slow the development of its economy. The scepticism relates to both central and local governments. To a large extent, central government has recognised the importance of IPRs for promoting China's economy, but some local governments still focus on the short-term interests and carry out local protectionism that impedes the enforcement of IP law. Peter K Yu, 'Piracy, Prejudice, and Perspectives: An Attempt to Use Shakespeare to Reconfigure the U.S.-China Intellectual Property Debate' (2001) 19 B U Int'l LJ 1. David M Lampton, 'A Growing China in a Shrinking World: Beijing and the Global Order' in Ezra F Vogel (ed), *Living with China: US-China Relations in the Twenty-First Century* (American Assembly 1997) 121. See also Tara Kalagher Giunta and Lily H Shang, 'Ownership of Information in a Global Economy' (1993) 27 Geo Wash J Int'l L & Econ 327, 331 ('Developing countries tend to have scarce government resources. As a result, they resist spending on the enforcement of foreign intellectual property rights. As with the importance of capital, developing countries often view the importation of intellectual property as a means of dominating and exploiting the economic potential of the importing country. Paying for imports or royalties is thus seen as an economic burden fostering a negative balance of trade.').

[90] Yash Ghai, *Hong Kong's New Constitutional Order: the Resumption of Chinese Sovereignty and the Basic Law* (Hong Kong University Press 1999) 435 (stating that China 'has played an active role in conferences formulating new rules of international law in areas such as the law of the sea and the protection of the environment').

[91] James V Feinerman, 'Chinese Participation in International Legal Order: Rogue Elephant or Team Player' in Stanley Lubman (ed), *China's Legal Reforms* (Oxford University Press 1996) 201 ('WTO is by no means a panacea to China's economic problems, but both China and the world trading community will be better served if China is a member'); Mark A Groombridge and Claude E Brafield, *Tiger by the Tail: China and the World Trade Organisation* (AEI Press 2001) 41.

[92] Other factors contributing to the piracy problem include 'the Confucian beliefs ingrained in the Chinese culture, the country's socialist economic system, the leaders' skepticism toward Western institutions, the xenophobic and nationalist sentiments of the populace, the government's censorship and information control policy, and the significantly different Chinese legal culture and judicial system.' Glenn R Butterton, 'Pirates, Dragons and US Intellectual Property Rights in China: Problems and

progress of the modernisation of China, an excellent framework for IPRs protection has been established and its enforcement has made achievements.

4.3 Evolution of Competition Law: Wade Across the Stream by Feeling the Way

Similar to intellectual property law, competition law is a foreign concept that has no roots in China. It emerged due to the improvement of the economy and political reform, and allows China to access and benefit from globalisation.[93] The formulation of the AML took a long time and can be traced back to 1978, to the outset of the Reform and Opening-Up policy; then through to 1992 when the socialist market economy was declared and established; and up to the present day, especially in 2008 when the AML came into force. However, the AML has only one article that deals with IPRs,[94] and even this article is not clear. In sum, the development of competition law has followed the requirements of the progress of modernisation, especially the transformation to a market-oriented economy.

4.3.1 Embryonic Stage (1978—92): Appearance of Concept of Competition with the Abandonment of the Centrally Planned Economy

Before the 1970s, the Chinese government centrally planned the economy.[95] During this period, the State-Owned Enterprises (SOEs) dominated almost all aspects of the

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Prospects of Chinese Enforcement' (1996) 38 Ariz L Rev 1081; Peter K Yu, 'From Pirates to Partners: Protecting Intellectual Property in China in the Twenty-First Century' (2000) 50 Am U L Rev 131, 165.

[93] It is 'necessary and crucial not only to carefully examine the words of the AML, but to read them in the context and light of Chinese history, culture, and traditions.' Thomas Horton and Jenny Xiaojin Huang, 'Analyzing Information Exchanges Between Competitors under the Anti-Monopoly Law' in Adrian Emch and David Stallibrass (eds), *China's Anti-Monopoly Law: The First Five Years* (Kluwer Law 2013) 98.

[94] 'The law does not govern the conduct of business operators in the exercise of their IPRs under intellectual property laws and relevant administrative regulations; however, business operators' conduct to eliminate or restrict market competition by abusing their IPRs shall be governed by this law.' AML, art 55.

[95] A traditional small-scale peasant economy was dominant in China up until the late 1940s when the agricultural cooperation movement was launched. An advanced commodity economy was not operating and most people were self-sufficient rather than engaged in large-scale trading. As such, there was no basis for competition to exist. Then, the Chinese Communist Party (CCP) government in 1949 established a new China. Its centrally planned economic model excluded competition and instead the central

economy in China and manufactured products according to the plan made by the central government. They had no need to consider the price, output, profits, or demands of consumers.[96] Under this regime, competition was considered a negative ideology and a product of damaging capitalism that was not compatible with a socialist planning mechanism.[97] As such, it was not allowed to exist.

With the adoption of the Reform and Opening-Up policy in the 1970s, the economic system was changed to an open market with limited competition,[98] allowing the private sector to become more involved in the market. For example, farmers could own and sell agricultural products. As a result, by the middle of the 1980s thousands of private companies emerged.[99] Also, a series of special economic zones, with preferential policies in coastal cities regarding issues such as tax, foreign exchange, and permits in certain industries, were created to encourage foreign investments and trade. Consequently, the number of foreign-related companies operating in China rose dramatically in the 1990s.[100] However, the continuous, more favourable strategies and

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government's 'plan' was the main mechanism for allocating resources. Hong Yung Lee, *Revolutionary Cadres to Party Technocrats in Socialist China* (California University Press 1990) 53-54 (stating that the CCP launched an agricultural cooperation movement in the 1950s to organise individual peasant families into groups to improve productive efficiency); Tony Saich and Benjamin Wang, *The Rise to Power of the Chinese Communist Party: Documents and Analysis* (Sharpe 1995) 445 (stating that in a small-scale peasant economy, peasants mainly produce agricultural products for their own consumption due to limited production skills, in contrast to the large-scale production used for trading).

[96] Salil K Mehra and Yanbei Meng, 'Against Antitrust Functionalism: Reconsidering China's Antimonopoly Law' (2009) 49 Va J Int'l L 379, 386.

[97] ibid.

[98] This is also called 'planned commodity economy.' 12th Central Committee of the Communist Party of China, Decision of the Central Committee of the Communist Party of China on Reform of the Economic Structure (中共中央关于经济体制改革的决定 Zhonggong Zhongyang Guanyu Jingji Tizhi Gaige De Jueding) (*People Daily*, 20 October 1984) <http://30.people.com.cn/GB/122382/8093039.html> accessed 25 May 2012. See also R Hewitt Pate, 'What I Heard in the Great Hall of the People—Realistic Expectations of Chinese Antitrust' (2008) 75 ALJ 195, 197; Suinan Liu and Qungan Wu, *China's Socialist Economy: An Outline History* (1949-1984) (Beijing Review 1986) 680-83.

[99] Mark Williams, 'Foreign Investment in China: Will the Anti-Monopoly Law be a Barrier or a Facilitator' (2010) 45 Texas Int'l LJ 127, 128.

[100] ibid. FDI was prohibited in China before 1979, and after that FDI has been restricted to special economic zones and equity joint ventures. The annual FDI inflows were less than USD 2 billion (GBP 1.25 billion) in 1985, and then it increased sharply to USD 11 billion (GBP 6.88 billion) in 1992, and to USD 28 billion (GBP 17.5 billion) in 1993. John Whalley and Xian Xin, 'China's FDI and Non-FDI Economies and the Sustainability of Future High Chinese Growth' (2010) 21(1) China Econ Rev 123.

subsidies, both explicit and hidden, for SOEs were opposed to this new and competitive-demand economic system.[101]

The reform of the economic system led to discussions within the Chinese Communist Party[102] (CCP), especially over the need for a competition policy and law. The Interim Provisions on the Promotion and Protection of Competition in the Socialist Economy that was issued by the State Council on the 17th October 1980 was the first normative document for the protection of competition and regulation of government monopolies in China.[103] It stipulates that 'in economic activities, with the exception of products exclusively operated by departments and organisations designated by the state, other monopolisation and exclusive dealing is prohibited'.[104] In 1987, the Regulation on the Administration of Advertising was enacted and stated that 'monopolies and unfair competition in advertising activities are prohibited'.[105] In the same year, the Regulation on the Administration of Prices was promulgated, which prohibited companies and industrial organisations from negotiating and monopolising prices.

It is important to recognise that during this period only a small step in the direction of a market economy was made, and it was still an early experiment with cautious movements.[106] However, having been allowed to enter the market, private companies demanded a competition law to protect their rights, especially equal opportunities to compete with the SOEs. In such an environment, their anti-monopoly concerns were primarily reflected in some terms and provisions of regulations promulgated by

[101] Youngjin Jung and Hao Qian, 'The New Economic Constitution in China' (2003) 24 NW J Int'l L & Bus 107, 111.

[102] H Stephen Harris, 'The Making of an Antitrust Law: The Pending Anti-Monopoly Law of the People's Republic of China (2006) 7 Chi J Int'l L 169, 174.

[103] Based on the Interim Provisions, some competition rules were promulgated in various provinces, autonomous regions, and municipalities during the 1980s, such as the Provisional Rule of Wuhan City against Unfair Competition 1985 (repealed 1998) and the Interim Rule of Shanghai Municipality against Unfair Competition 1988 (repealed 1997). Xiaoye Wang, 'The Prospect of Antimonopoly Legislation in China' (2002) Wash U Global Stud Rev 201, 216-17.

[104] Interim Provisions on the Promotion and Protection of Competition in the Socialist Economy 1980 (repealed 2001).

[105] Ming Shang, 'Antitrust in China — A Constantly Evolving Subject' (2009) 5 CLI 4.

[106] There were even some government officials who vehemently opposed economic reform and resisted attempts to introduce new legislation. Youngjin Jung and Qian Hao, 'The New Economic Constitution in China' (2003) 24 NW J Int'l L & Bus 107, 112.

central government or of some local rules against unfair competition. However, the authorities did not place much importance on these.

4.3.2 Rudimentary Stage (1992—2008): Formulation of Anti-Monopoly Law with the Process of Establishing a Socialist Market Economy

The objective of economic reform through a socialist market economy was announced in the 14th National Congress of the CCP in 1992,[107] and was also confirmed in a new amendment to the Constitution.[108] With the acceleration of economic reform, competition policies and laws were formulated to meet the demands of the market and to introduce fairer and freer competition.

The Anti-Unfair Competition Law (AUCL) was enacted in 1993 and was mainly aimed at unfair competition practices, such as false advertising, forgery, and defamation, but due to the absence of special rules for anti-competitive conducts, it also covered some monopolistic behaviours, such as predatory pricing, bid-rigging, abuses of dominant market position by public enterprises, and tying.[109] The AUCL was regarded as the first major step towards establishing a competition law in China.[110] This was followed by a number of other laws. The Price Law was adopted in 1999 to regulate cartels, predatory pricing, and price discrimination. The Bidding Law adopted in 2000 prohibits bid-rigging. The Regulations on Telecommunications concerned the 'breaking up of monopolies, encouraging competition, and promoting development,

[107] Zemin Jiang, Report of the 14th National Congress of the Communist Party of China (*Xinhua News Agency*, 12 October 1992) <http://news.xinhuanet.com/ziliao/2003-01/20/content_697148.htm> accessed 5 August 2012.

[108] The provision that 'the state implements socialist market economy' was added to the amendments of the Constitution of China 1982 in 1993.

[109] The AUCL has been described as a combination of consumer law and intellectual property law, rather than being genuine competition legislation. Yvonne Chua and Grace Wong, 'New Judicial Interpretation of PRC Anti-Unfair Competition LAW Issued' (2007) 2(7) J Intell Prop L & Pr 443, 444.

[110] The AUCL is not adequate for regulating all anti-competitive conducts. Xiaoye Wang, The Prospect of Antimonopoly Legislation in China (2002) Wash U Global Stud Rev 201. See also Youngjin Jung and Qian Hao, 'The New Economic Constitution in China' (2003) 24 NW J Int'l L & Bus 107, 129. Because the AUCL is restricted to a particular scope and its enforcement regulations have little authority, anti-monopoly provisions have appeared in legislation that are beyond the reach of the AUCL. It failed to address other anti-competitive activity, including the formation of monopolies. Thomas Brook, 'China's Anti-Monopoly Law: History, Application, and Enforcement' (2011) 16 Appeal 31, 33.

openness, fairness and impartiality'[111] and it stipulated that 'the dominant operator in telecommunications service shall not refuse requests of the interconnection by other operators and the special-purpose net operators'.[112] The Regulations on Mergers and Acquisitions of A Domestic Enterprise by Foreign Inventors of China, adopted in 2006, created a general regulatory framework for mergers and acquisitions in regard to foreign investors, and contained a requirement for an anti-monopoly review on mergers and acquisitions.[113]

The competition-related provisions prior to the AML were scattered across various types and levels of legislation that were predominately administrative regulations and rules, rather than a unified anti-monopoly code and system. They involved only some aspects of competition law and focused on specific features of individual industries, thus being too simplistic to form a foundation for a comprehensive competition law.[114] The sanctions and remedies were often incapable of adequately punishing offenders or compensating victims to the same extent that a unified competition law could. They also lacked a centralised and independent authority to implement competition laws effectively.[115]

The formulation of the AML can be traced back to 1987, when the State Administration of Industry and Commerce (SAIC) and five other authorities collectively set up a drafting group to establish a competition law system that includes

[111] Regulations on the Telecommunications of China 2000, art 4.

[112] ibid art 17.

[113] Chapter 5 of the provisions enacted in 2006 focused on an anti-monopoly review. After the AML was adopted in 2008, the provisions were amended in 2009, and Chapter 5 was deleted and replaced with a new provision — 'According to the provisions of the Anti-monopoly Law, where M&A of a domestic enterprise by a foreign investor meets the thresholds for declaration of the Provisions of the State Council on Thresholds for Declaration of Concentrations of Undertakings, the foreign investor shall make a declaration with the MOFCOM and shall not carry out the deal without declaration.' Regulations on the Mergers and Acquisitions of A Domestic Enterprise by Foreign Inventors 2006, art 51.

[114] Bruce Owen, Su Sun and Wentong Zheng, 'China's Competition Policy Reforms: the Anti-monopoly Law and Beyond' (2009) 75 ALJ 233, 247-52.

[115] There are some primary issues regarding competition legislation in this period. First, there is no unified and complete anti-monopoly law and system. Second, the content of the existing rules is relatively general and impractical. Third, the actual impact of the existing rules is likely to be relatively low, and at this point the rules are not perceived as authoritative. Fourth, there are insufficient penalties and other consequences for violations. Zhenguo Wu, 'Perspectives on the Chinese Anti-monopoly Law' (2009) 75 ALJ 73, 76.

an anti-monopoly law and an unfair competition law.[116] In addition to the AUCL, which came into force in 1993, the first draft of the AML was finalised in 1999.[117] The accession to the WTO in 2001 accelerated the draft of the AML[118] that came out in 2002.[119] Based on consultations with different industry sectors and foreign legal institutions, scholars, and others,[120] and even with some factions in the State Council that mainly represented SOEs that strongly resisted them,[121] a series of drafts were drawn up in the following years. The AML was finally adopted on the 30th August 2007 and came into force on the 1st August 2008.[122]

4.3.3 An Overview of Anti-Monopoly Law, Relevant Enforcement Authorities, and Results of Enforcement

The AML comprises eight chapters and fifty-seven provisions. Chapter 1 contains general provisions, including the legal objectives[123] and the scope of application, and

[116] Jijian Yang, 'Market Power in China: Manifestations, Effects and Legislation' (2002) 21 Rev Ind Org 167, 180.

[117] Mark Williams, *Competition Policy and Law in China, Hong Kong and Taiwan* (Cambridge University Press 2005) 177-91.

[118] After being a member of the WTO, China needs a competition law to provide a free and competitive market to foreign companies, as well as to protect against anti-competitive practices conducted by multinationals. H Stephen Harris, 'The Making of an Antitrust Law: The Pending Anti-Monopoly Law of the People's Republic of China' (2006) 7 Chi J Int'l L 169, 176-83.

[119] Xiaoye Wang, 'The Prospect of Antimonopoly Legislation in China' (2002) Wash U Global Stud Rev 201, 210-12.

[120] Although the drafting process was not public and transparent, the legislators called for and considered comments from some international competition law experts, as well as from US and EU competition enforcement agencies and the US Bar Association. Bruce Owen, Su Sun and Wentong Zheng, 'China's Competition Policy Reforms: the Anti-monopoly Law and Beyond' (2009) 75 ALJ 233, 237.

[121] Jingyu Yang, a member of the National People's Congress and the Chief Secretary of the Law Committee, rejected the administrative monopoly provision contained within the AML. The opposition reflects the political influence imposed upon SOEs in China. Also, the tensions between traditional dominance acquired by SOEs, and the increasing and new demand by the private sector and consumer welfare, form the unique character of the AML. Zhengxin Huo, 'A Tiger Without Teeth: The Antitrust Law of the People's Republic of China' (2008) 10 Asian-Pacific L & Pol'y J 32, 38.

[122] 10th National People's Congress, '10th National People's Congress Law-Making Planning' (十届全国人大常委会立法规划 Shijie Quanguo Renda Changwei Hui Lifa Guihua) (*Xinhua News Agency*, 9 January 2004) <http://news.xinhuanet.com/zhengfu/2004-01/09/content_1268128.htm> accessed 10 August 2012; H Stephen Harris, 'The Making of an Antitrust Law: The Pending Anti-Monopoly Law of the People's Republic of China' (2006) 7 Chi J Int'l L 169, 172-83.

[123] The legislative objectives consist of prohibiting monopolistic conduct, safeguarding fair market competition, improving economic efficiency, and protecting the interests of the consumers. They also preserve public interests and promote the healthy development of the socialist market economy, although the advice by the Federal Trade Commission and the US Department of Justice is not to use 'competition law to achieve other social and economic objectives'. Deirdre Shanahan, 'Real World Issues

also defines the terminology. Chapter 2 deals with two types of monopoly agreements: horizontal agreements between competitors,[124] and vertical agreements between non-competitors,[125] as well as any exemptions.[126] Chapter 3 is about the abuse of dominant market position, providing six types of non-exhaustive abuse conducts,[127] and two routes to identify a dominant market position.[128] Chapter 4 relates to concentration, namely mergers and acquisitions. It stipulates the threshold that requires declaration and the mechanism by which AMEAs make decisions. Chapter 5 is relevant to administrative monopoly, an issue unique to China, and rarely presents within competition law in other countries. Chapter 6 provides an investigational procedure on suspected monopoly activities by AMEAs. Chapter 7 addresses the legal liabilities of anti-competitive conduct. Chapter 8, the final chapter, offers three supplementary provisions including: anti-competition with IPRs, exemption of collusion and concerted actions on agricultural products conducted by agricultural producers and rural economic organisations, and the effectiveness of the AML. It has been stated that '[t]he core provisions of the AML were modelled on EU competition law, and to a lesser extent, on the laws of the United States, Germany, Japan, and other countries'.[129]

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and Strategies for Success: The Development of Antitrust in China, Korea and Japan' (Conference on International Competition Law: Real World Issues and Strategies for Success, Montreal, 16-17 June 2005) <http://www.ftc.gov/bc/international/docs/shanahanmontreal.pdf> accessed 12 August 2012. In addition, the AML aims to perfect macro control, the significant state-owned economy and certain exclusive operations, and emphasise the legal concentration to enlarge scale of business to improve competitiveness. AML, arts 4, 7.

[124] It comprises: 1) fixing or setting minimums for product prices; 2) restricting the output or sales volumes of products; 3) allocating markets; 4) restricting the purchase of new technology or new facilities or the development of new technology or new products; 5) jointly boycotting transactions; and 6) other monopoly agreements determined by AMEAs of State Council. AML, art 13.

[125] It comprises: 1) fixing resale prices; 2) restricting minimum resale prices; and 3) other monopoly agreements determined by AMEAs of State Council. ibid, art 14.

[126] The exemptions generally relate to the gain of advantage or benefit, such improving technologies, facilitating productive efficiency, enhancing competitiveness of SMEs, achieving public interests, solving business risk under economic recession, safeguarding interests in foreign related matters, etc. The agreements should not seriously restrict competition in the relevant market, and benefits derived from such agreements should be shared by consumers. ibid, art 15.

[127] It includes selling or purchasing commodities with unfairly high or low prices, predatory pricing, refusal to deal, exclusive dealing, tying and discriminatory dealing. ibid, art 17.

[128] One route relates to relevant factors, such as the competition situation in the relevant market, the ability to control the market, and the degree of difficulty to enter a relevant market, whilst the other route is the threshold of market share. ibid, arts 18, 19.

[129] H Stephen Harris and others, *Anti-Monopoly Law and Practice in China* (Oxford University Press 2011) 2-3. See also Xiaoye Wang, 'Highlights of China's New Anti-monopoly Law' (2008) 75 Antitrust LJ 133, 134 ('it is no surprise that many good provisions from other well-established antitrust laws have been incorporated in the Chinese AML').

The framework of AMEAs is based on a '3+1' structure,[130] dominated by four authorities of the State Council: the Ministry of Commerce (MOFCOM) is responsible for anti-monopoly review on concentrations; the National Development and Reform Commission (NDRC) is in charge of investigating and sanctioning price-related anti-competitive conducts; the SAIC deals with other non-price-related anti-competitive conducts in monopoly agreements, and abuse of dominant market position and administrative monopoly;[131] and finally the Anti-Monopoly Commission (AMC) organises, coordinates, and guides the anti-monopoly work[132] (See Figure 7). Regulations and rules to implement the AML have been enacted by these AMEAs in their relevant fields respectively. The State Council promulgated the Provisions of the State Council on Thresholds for Prior Notification of Concentrations of Undertakings in 2008, and this provided a new regulation compatible with AML for MOFCOM to examine concentrations of undertakings.[133] The AMC adopted the Guidelines on Relevant Market Definition in 2009 to identify relevant markets. The SAIC formulated three regulations for monopoly agreements,[134] abuse of dominant positions,[135] and administrative monopoly.[136] The NDRC promulgated the Regulation of Anti-monopoly of Price in 2011. In addition, the Supreme Court issued regulations[137] regarding aspects

[130] The reason for establishing such a structure of AMEAs is because they, especially MOFCOM, NDRC, and SAIC, have already worked on concentration, pricing, and non-pricing matters respectively, and gained relevant experience prior to the formulation of the AML. The situation results from power fragmentation and factional politics. Angela Huyue Zhang, 'Bureaucratic Politics and China's Anti-Monopoly Law' (2014) 47 Cornell Int'l L J 671, 693-94. This structure of AMEAs has been doubted because it is very likely to be inefficient and to 'cause conflict and friction' and lead to 'fragmented, incoherent or even inconsistent decision making'. Angela Huyue Zhang, 'Enforcement of Anti-Monopoly Law in China: An Institutional Design Perspective' (2011) 56(3) Antitrust Bull 631, 639-45. See also Xiaoye Wang, 'Highlights of China's New Anti-Monopoly Law' (2008) 75 ALJ 133, 144-46; Nathan Bush, 'Constraints on Convergence in Chinese Antitrust' (2009) 54 Antitrust Bull 87, 104-05.

[131] Ming Shang, 'Antitrust in China — A Constantly Evolving Subject' (2009) 5 CLI 4, 10-11.

[132] AML, art 9.

[133] Before the adoption of AML, certain mergers and acquisitions of domestic companies by foreign companies had to have an anti-monopoly examination by the MOFCOM. See Regulations on the Mergers and Acquisitions of A Domestic Enterprise by Foreign Inventors 2006 (amended 2009). However, the AML stipulates the criterion of concentration for undertakings, regardless of whether they are foreign or domestic, and so new provisions were enacted after the adaptation of the AML.

[134] Regulations on the Administration for Industry and Commerce concerning Prevention of Monopoly Agreements 2011.

[135] Regulations on the Administration for Industry and Commerce concerning Prohibition of Abuse of Dominant Market Position 2011.

[136] Regulations on the Administration for Industry and Commerce concerning Prohibition of Abuse of Administrative Power to Eliminate or Restrict Competition 2011.

[137] Regulations of the Supreme People's Court on Issues of Application of Law to the Trial of Cases of Civil Disputes resulting from Monopoly Conducts 2012.

such as jurisdiction of courts and burden of proof, to provide a civil channel for dealing with monopoly conducts and claiming compensation for loss.

Figure 7: AMEAs Structure

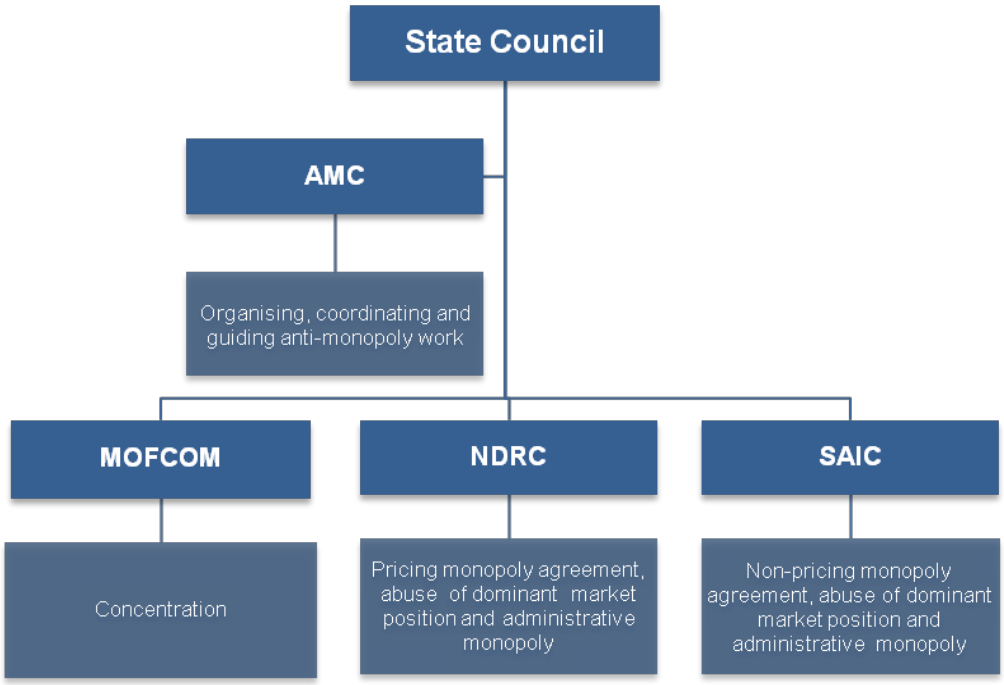

Figure drawn by the author.

The AML is a landmark piece of legislation relating to the transformation of the economy, and the first law that offers a comprehensive competition law regime in China. The provisions of the AML are strongly influenced by EU competition law.[138] It contains Chinese-specific sections and points, such as Chapter 5 on administrative monopolies. It also stresses and confirms the importance and legality of SOEs in certain industries.[139] This is consistent with the unique character of the Chinese

[138] Grace Li and Angus Young, 'Competition Laws and Policies in China and Hong Kong: A Tale of Two Regulatory Journeys' (2008) 7(2) J Int'l Trade L & Pol'y 186. The main reasons: first, as China operates a civil law system, it is difficult to adopt a court-based antitrust system from the US; second, the general quantity and professionalism of judges in China is not adequate to overcome complicated competition law issues in the same way as the US model; third, the degree of economic development and social conditions do not allow China to place economic efficiency as the top objective of competition law, as in the US. Youngjin Jung and Hao Qian, 'The New Economic Constitution in China' (2003) 24 NW J Int'l L & Bus 107, 129.

[139] The title of Chapter 5 of the AML is 'Abuse of Administrative Powers to Eliminate or Restrict Competition'. It stipulates that 'the administrative authorities and organisations authorised by laws or regulations with the functions to handle public affairs shall not abuse their administrative powers to restrict in disguised form that entities or individuals should trade, purchase or use the Commodities

socialist market economy. As a new legislation, it inevitably has some weaknesses. The most significant issue is the uncertainty and non-foreseeability which affects the operation of businesses, and the market which results from provisions that are heavy on principle with grandiose intentions and vague definitions but offer limited supplementary terms and provisions.[140] This may result from an absence of relevant legislative experience and a sensitivity of regulation on certain SOEs. The intention may be to allow plenty of scope for AMEAs and courts to clarify future applications in individual cases and safeguard substantive justice.[141] However, it ignores the essential purpose of the law, which is to bring certainty and insight to actors in the market. It may hinder the efficiency of the economy by reducing transactions due to a fear of scrutiny by the AML or of unanticipated outcomes. In particular, it may not promote the involvement of SMEs in competition because they have a lack of knowledge and awareness of competition law, or are unable to afford the high costs associated with consulting lawyers and other experts. This may especially mystify FDI and foreign-related trade because of concern over involvement in illegal activities. While large companies or SOEs may be relatively profitable due to their resources, analysing the legality of their actions and providing proof of it is extremely difficult in competition law related cases. The triangular mechanism of AMEAs may exacerbate the complexity and uncertainty[142] because it can lead to overlapping of enforcements by the AMEAs, thus potentially generating a risk of scramble or evasive enforcement of the AML. Therefore, better-detailed and clarified provisions, along with a unified enforcement authority are expected in the future.

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supplied by the designated undertakings.' AML, art 32. These authorities and organisations should not abuse administrative power to impede the free movement of commodities across the regions by implementing conducts for commodities from other regions, including establishment of discriminatory items, standards of charges or prices, establishment of different technology requirements, inspection standards, or special requirement of administrative licences. AML, art 33. See also AML, arts 34-37.

[140] Considering the current adopted implementation of rules and regulations focusing on some of the most crucial issues, there is a long way to go before the vagueness of the AML is clarified.

[141] Competition law with strong economic characteristics requires a higher level of legal and economic knowledge, technique, and consciousness. This causes difficulty for staff in AMEAs and judges in court to properly apply the AML, and also makes it difficult to achieve substantive justice in individual cases.

[142] Grace Li, 'Can the PRC'S New Anti-monopoly Law Stop Monopolistic Activities: Let the PRC'S Telecommunications Industry Tell You the Answer' (2009) 33 Telecom Pol'y 360, 365.

The AML has been enforced by AMEAs as a useful instrument to deal with anti-competitive conducts, and has also been a route for individuals and companies to file lawsuits to claim civil damages resulting from anti-competitive behaviour.[143] From the 1st August 2008, when the AML was adopted, to the end of 2014, the MOFCOM accepted more than 800 applications relating to concentration, in which 23 applications were conditionally approved,[144] only 2 applications were refused, and the others were approved unconditionally.[145] In the same period, the SAIC and local branches investigated 43 cases relating to violation of AML, of which 19 cases were concluded and one case suspended.[146] From August 2008 to the summer of 2014, the NDRC and local branches investigated 339 entities, 33 of which were foreign-related companies whilst the remaining were SOE, private domestic companies, and industry associations.[147] Notable investigations of the NDRC included Chinese TeleCom and Chinese Unicom in 2011, which were the first anti-monopoly investigations on SOEs in China,[148] InterDigital in 2013,[149] and Qualcomm in 2015.[150] The scope of NDRCs enforcement then extended to more industries, including liquid-crystal-display panels, alcohol, infant formula, gold, crystal, travel agents, automobile spare parts, insurance,

[143] Regulations of the Supreme People's Court on Issues of Application of Law to the Trial of Cases of Civil Disputes resulting from Monopoly Conducts 2012.

[144] Lipeng Mei, 'IP-Related Anti-Monopoly and Anti-Unfair Competition Enforcement in China' (2014) 10 E Asia L Rev 47, 55.

[145] The application of Coca Cola's acquisition of Huyuan. Frederik Balfour, 'Huyuan Juice: China Says Coca Isn't It' (*Bloomberg Business*, 18 March 2009) <http://www.businessweek.com/globalbiz/content/mar2009/gb20090318_570130.htm> accessed 25 August 2012. The second prohibition made by MOFCOM on the 17th June 2014 is the 'P3' vessel-sharing alliance between AP Moller-Maersk of Denmark and CMA CGM of France (shipping companies), although US and European authorities approved the deal. ibid.

[146] ibid, Lipeng Mei 56.

[147] ibid 59.

[148] Wei Zhang (张维), 'The Promise of NDRC to Disclose Anti-Monopoly Cases Gradually' 发改委承诺逐步公开反垄断调查案件 Fagaiwei Chengnuo Zhubu Gongkai Fan Longduan Diaocha Anjian) (*Legal Daily*, 14 August 2012) <http://www.legaldaily.com.cn/bm/content/2012-08/14/content_3767868.htm?node=20734> accessed 10 September 2012.

[149] InterDigital undertook to rectify its monopolistic conducts and eliminate the anti-competitive effects, and so the investigation was suspended. Lipeng Mei, IP-Related Anti-Monopoly and Anti-Unfair Competition Enforcement in China (2014) 10 E Asia L Rev 47, 60.

[150] As the largest supplier of chips for mobile phones, Qualcomm was fined RMB 6.088 billion (GBP 0.6088 billion), the highest fine issued by the AMEAs of China so far, and promised to license its 3G and 4G essential patents to licensees separately rather than tying. ibid.

etc., and nearly RMB 3 billion (GBP 300 million) worth of fines has been imposed in total between 2013 and September 2014.[151]

Since 2013, the AMEAs have increased the implementation of the AML, and a number of intensive investigations into foreign-related companies have drawn much attention from foreign investors and their commercial associations. For example, a recent investigation into the pricing of spare parts for automobiles involved many famous international brands, including Toyota, Honda, Nissan, BMW, Mercedes-Benz, and Audi, but the procedure of the investigation and the subsequent enforcement have been criticised for targeting foreign companies exclusively and lacking transparency.[152] AMEAs insist that both domestic and foreign companies have been treated equally. According to the statistics, only 33 foreign companies, accounting for 10% of 335 companies or industrial associations dealt with by the NDRC, have been targeted in relation to anti-competition practices; only a further two cases have involved foreign companies – Microsoft and Tetra Pak – accounting for 5% of all cases handled by the SAIC up to September 2014.[153] However, if proper substantive and procedural regulations for assessing anti-competitive conduct were available for the AMEAs to

[151] Shilin Wei and Qinggui Zhen (魏士廪，甄庆贵), 'Report on Anti-monopoly in China in 2013' (2013 年度中国反垄断报告 2013 Niandu Zhongguo Fan Longduan Baogao) (*LexisNexis*, 25 May 2014) <http://hk.lexiscnweb.com/clr/view_article.php?clr_id=88&clr_article_id=1071> accessed 10 August 2014; Yuan Ze (择远), 'Anti-monopoly Enforcement Applies to Both Large and Small Companies as Well as Both Domestic and Foreign Companies' (反垄断没有内外大小之分 Fan Longduan Meiyou Neiwai Daxiao Zhifen) (*China Capital & Stock*, 19 September 2014) <http://www.ccstock.cn/review/hongguanshiping/2014-09-19/A1411060592840.html> accessed 10 August 2014.

[152] European Chamber Of Commerce In China, 'European Chamber Releases Statement on China AML-Related Investigations' (*European Chamber*, 14 August 2014) <http://www.europeanchamber.com.cn/en/national-news/2133/european_chamber_issued_a_statement_on_anti_monopoly_law_aml_related_investigations_in_china> accessed 1 September 2014; Tim Worstall, 'China's Auto Anti-Monopoly Crackdown is Just Catching Up with The European Union' (*Forbes*, 8 October 2014) <http://www.forbes.com/sites/timworstall/2014/08/10/chinas-auto-anti-monopoly-crackdown-is-just-catching-up-with-the-european-union/> accessed 1 September 2014; Wang Lan, Samuel Shen and Fayen Wong, 'China Says to Punish Audi, Chrysler for Monopoly Behavior' (*Reuters*, 6 August 2014) <http://www.reuters.com/article/2014/08/06/us-china-autos-antitrust-investigation-idUSKBN0G604J20140806> accessed 1 September 2014.

[153] SAIC, 'The Three AMEAs Present the Enforcement of AML: Equally, Not Selectively' (三部门介绍反垄断执法情况：一视同仁不存在选择性 San Bumen Jieshao Fan Longduan Zhifa Qingkuang: Yishi Tongren Bu Cunzai Xuanze Xing) (*SAIC*, 14 September 2014) <http://www.saic.gov.cn/ywdt/gsyw/zjyw/xxb/201409/t20140915_148354.html> accessed 15 October 2014.

rely upon when dealing with enforcement of the AML, this would considerably reduce external criticism and negative comments.

From 2010 to 2014, civil anti-monopoly cases concluded by courts at first instance have been increasing (see Figure 8), and they cover a range of industries in areas such as transportation, pharmaceuticals, food, home electrical appliances, and the internet, concerning monopoly agreements as well as abuse of dominant market positions.[154] In this period, token claims of small sums of compensation decreased, while claims for large amounts of compensation[155] increased. The largest claim was for more than RMB 200 billion (GBP 20 billion).[156] Most of the claims brought by plaintiffs failed due to their lack of adequate anti-monopoly knowledge and the difficulties in providing proof of anti-monopoly conduct and effects.[157]

[154] Xianming Zhang (张先明), 'An Interpretation Concerning the Trail of Anti-Monopoly Cases Adopted by the Supreme People's Court' (最高法院出台审理反垄断案件司法解释 Zuigao Fayuan Chutai Shenli Fan Longduan Anjian Sifa Jieshi) (*Law-Library*, 9 May 2012) <http://www.law-lib.com/fzdt/newshtml/yjdt/20120509085944.htm> accessed 11 September 2012.

[155] Sometimes, when the loss in a case is difficult to calculate or the loss is little, the plaintiff will still file the case to the court and only require a small amount of compensation, such as one pound, in order to execute his right, protect his honour, or prevent the defendant from pursuing the same conducts in question.

[156] Xianming Zhang (张先明), 'An Interpretation Concerning the Trail of Anti-Monopoly Cases Adopted by the Supreme People's Court' (最高法院出台审理反垄断案件司法解释 Zuigao Fayuan Chutai Shenli Fan Longduan Anjian Sifa Jieshi) (*Law-Library*, 9 May 2012) <http://www.law-lib.com/fzdt/newshtml/yjdt/20120509085944.htm> accessed 11 September 2012.

[157] ibid.

Figure 8: The Initial Trial of Anti-Monopoly Civil Cases concluded by Courts

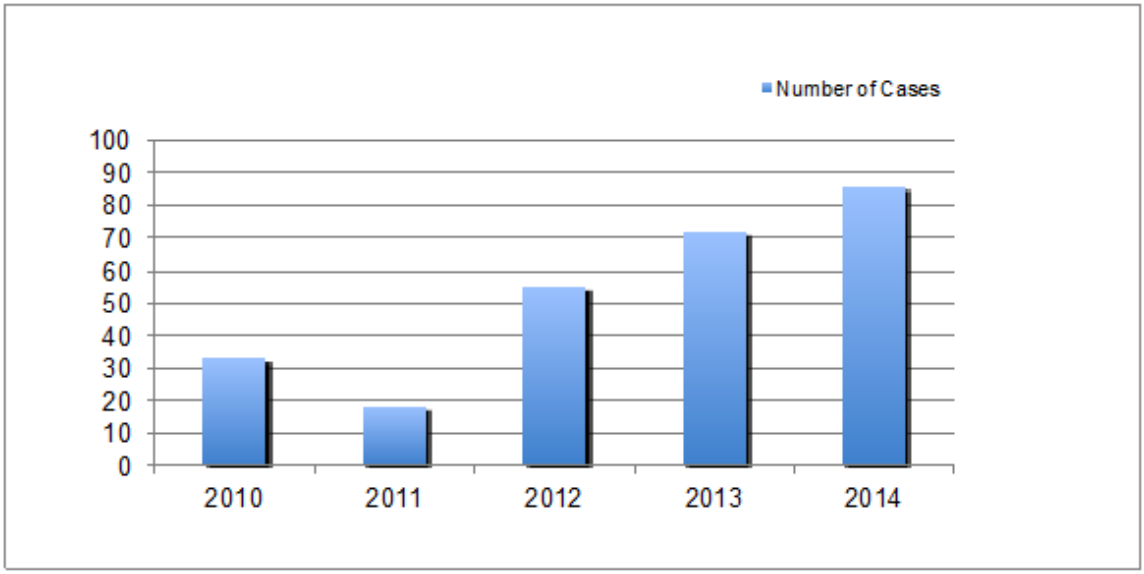

Figure drawn by the author.

Source: Protection of China on Intellectual Property Rights in 2010, 2011, 2012, 2013, 2014[158]

4.3.4 Conclusion

The emergence of competition law is promoted by the transformation from centrally planned economy to socialist market economy. After the socialist market economy was confirmed in the 1990s, and the function of the market, which placed an emphasis on the development of the economy, was recognised, numerous private companies entered the market and they increasingly demanded a fair and competitive market to

[158] There are four levels of court in China, and they are the Basic People's Court, the Intermediate People's Court, the High People's Court, and the Supreme People's Court. Considering the demand for more knowledge on IPRs-related cases, the court for initial trial is the Intermediate People's Court, rather than the Basic People's Court, and special IPRs courts have been established in Beijing, Shanghai, and Guangzhou. Similarly, anti-monopoly cases are also complex, so the court for its initial trial is the Intermediate People's Court or, in special cases, the Basic People's Court approved by the Supreme People's Court. Normally, it is the IPRs Tribunal of Courts that is responsible for the trial of anti-monopoly cases as there is no tribunal specialising in anti-monopoly cases. Therefore, the statistics for trials of IPRs cases by courts normally also contain those for anti-monopoly cases. State Intellectual Property Office of China (SIPO), 'The Protection of China on Intellectual Property Rights (中国知识产权保护 Zhongguo Zhishi Chanquan Baohu)' of 2010, 2011, 2012, 2013 (*SIPO*, 2014) <http://www.sipo.gov.cn/zwgs/zscqbps/> accessed 5 July 2015. SIPO, 'The Protection of China on Intellectual Property Rights in 2014 (二 O 一四中国知识产权保护 Erling Yisi Zhongguo Zhishi Chanquan Baohu)' (*SIPO*, 2015) <http://www.sipo.gov.cn/gk/zscqbps/201506/P020150605529407832392.pdf/> accessed 5 July 2015.

prevent anti-competitive practices. As a member of the WTO, China is required to provide a competitive market for foreign competitors.[159] As the first comprehensive competition law in China, the AML consolidates scattered competition-related rules and regulations, and provides a general and unified regime to solve all anti-competitive practices. There are four AMEAs, including MOFCOM, SAIC, NDRC, and AMC, in charge of different types of anti-monopoly practices. The anti-monopoly enforcement over the last few years has made great achievements, and the anti-competitive practices of both domestic and foreign companies, even SOEs,[160] have been regulated. Also, the number of trials of anti-monopoly civil cases by courts has been increasing steadily. However, there are a few problems that need to be solved, such as a lack of adequately detailed explanations and comprehensive implementation of the AML; a lack of experience by AMEAs and courts; and a difficulty for private sectors to compete in the market when they encounter an administrative monopoly.

4.4 Conclusion

It can be concluded that the evolution of the two legal systems, in terms of both their emergence and development (either active or passive), is in alignment with the progress of China's modernisation. Throughout this process, there are factors that negatively as well as positively influence the two legal systems, resulting in the tardy development of them and their intersection. However, following the history of their development, the extension of competition law to the scope of IPRs is inevitable. The fact that the development of the two legal systems is unequal also strengthens the demand for the advancement of competition law, including the application of competition law to IPRs to achieve balance, and of an adaptation to the rapid economic growth.

[159] China committed to provide a market-oriented economy, which is an impetus to enact the AML. H Stephen Harris, 'The Making of an Antitrust Law: The Pending Anti-Monopoly Law of the People's Republic of China (2006) 7 Chi J Int'l L 169, 176-77.

[160] The SOEs were expected to be impediments in the enforcement of the AML, but their anti-competitive practices are regulated by the AMEAs. Kim Them Do, 'Competition Law and Policy and Economic Development in Developing Countries' (2011) 8(1) Manchester J Int'l Econ L 18, 31 (stating that the enforcement of competition law in China faces restraints including 'dominant role of the state enterprise, a heavy government intervention in trade policy and lack of political support for competition culture').

4.4.1 Tardy Development of the Two Legal Systems Has Delayed the Emergence and Progress of Legislation on their Intersection

IPRs and competition law were imported from abroad rather than founded from the traditional and domestic laws of China, and a number of positive factors contributed to their emergence and development. Above all, the transformation from a centrally planned economy to a socialist market economy has had an impetus on the development,[161] in which the function of the market, instead of the function of government, is regarded as a primary instrument for allocating resources. The private sector is then better able to be involved in commercial activities, and desires more private rights for the purpose of protecting intellectual property and the chance to compete in the market. The modernisation of China is not only reflected in the internal reform of the economic system, but is also evident in the relationship between China and the rest of the world. China began to move closer to the rest of the world[162] in the 1970s, when the Reform and Opening-Up policy was launched. In

[161] 'The Chinese economy is a unique hybrid of market and non-market principles and may present a new model for economic systems to developing countries of the world.' Mitsuo Matsushita, 'Matsushita on China's Anti-Monopoly Law: The First Five Years' (*Law Professor Blogs Network*, 12 August 2013) <http://lawprofessors.typepad.com/antitrustprof_blog/2013/08/matsushita-on-.html> accessed 15 August 2014.

[162] It includes conducting foreign-related trade, inducing foreign investment and, more importantly, being a member of international organisations, such as WIPO and WTO.

return, China has a responsibility to provide a high-level protection of IPRs[163] and to guarantee a competitive market.[164]

However, there are also impediments within the process, and these are the reasons for the tardy development of the two legal systems when compared with developed countries.[165] Traditional doctrine advocates free and broad use of quotation and imitation.[166] It only focuses on the dissemination and ignores the rewards to the creator to encourage further innovation, so it is utterly contrary to the idea of exclusive rights acquired by IPRs. Under such a circumstance, both the government and the citizens lack an understanding and respect of IPRs. They are only concerned with how to use intellectual property, but neglect the function of an IPRs system and its long-term benefits. This has been one of the greatest obstacles to making and enforcing intellectual property law in China. The traditional culture, such as Confucianism, admires rigid hierarchy, requiring people in a subordinate position to absolutely obey and respect their superiors and strictly abide by the hierarchical

[163] As a technology-disseminating, rather than a technology-innovating country, piracy helped China to improve its level of technology and increase the welfare of its citizens with low cost IPRs-protected products. However, this led to the reluctance of the West to do business with and transfer technologies to China, in order to safeguard their IPRs and preserve their technological superiority. Thus the improvement of IPRs protection has been an important precondition for the integration of China with the rest of the world. Heated debates took place over whether or not China needed a patent law before the first patent law in China came into force in April 1985. Some argued that the patent law would prevent China from catching up with the West by 'technology borrowing and knowledge diffusion' as there was a large gap between China and the West. Others held that catching-up and technology diffusion would not be achieved without patent protection in a market economic system, and FDI and foreign trade would be heavily affected. Xiaoping Deng finally decided to adopt a patent law. Zheng Liang and Lan Xue, 'The Evolution of China's IPRs System and its Impact on the Innovative Performance of MNCs and Local Firms in China' in David Kennedy and Joseph E Stiglitz (eds), *Law and Economics with Chinese Characteristics: Institutions for Promoting Development in the Twenty-First Century* (Oxford University Press 2013) 281-82.

[164] When foreign companies enter the Chinese market, especially after the entry of China to the WTO, they demand a free and competitive market without influence by governments and other administrative powers.

[165] Law normally serves economic growth, so the degree of the economy's development can heavily influence the progression of law. Therefore, in addition to the inherent negative factors of traditional doctrine and the political system, the late development of China's economy is an important factor that lead to the tardy progress of the two legal systems. Robin Paul Malloy, *Law and Market Economy: Reinterpreting the Value of Law and Economics* (Cambridge University Press 2000) 1-3.

[166] According to an investigation in 2008, 33% of Chinese people agreed that they should pay for MP3 music. Of those willing to pay for the music, 14% of the votes were based on the recognition of copyright, and almost half intended to get better quality music or to support their idols. Music 2.0, Report of Investigation of Music on the Internet in 2008 (2008 互联网音乐调查报告 2008 Hulianwang Yinyue Diaocha Baogao) (*Entgroup*, 2008) <http://www.entgroup.cn/uploads/reports/20100423.pdf> accessed 22 September 2012.

order.[167] Thus the monopoly held by the government in all industries has been taken for granted; no one had considered or claimed to be in competition with the government. This does not provide a proper basis for competition law. In addition, the political system of communist socialism requires that individuals be subordinate to the community, and advocates the personal contribution to other people and society; thus, private interest has been overlooked or underestimated. Inventors can be granted the futile honour only, and IPRs are not conferred so that inventors can exercise the invention to gain physical reward. In such a power-centralised system,[168] the government controlled almost all aspects of the society,[169] and private sectors could only follow rather than challenge it. As such, the government acquired the most profitable industries and the private sector was not able to compete since the government could impose its administrative power on the business. The government was reluctant to enact a competition law which would prevent it from using its administrative power in commercial activities.[170]

As a result of such barriers, the development of the two legal systems is tardy when compared with that of developed countries. The intersection between them is a very complex area and the progress of relevant research and legislation in this area would normally lag behind the development of the legal systems themselves. Thus, the

[167] Hong Lian, 'The Outline of Traditional Chinese Concept of Etiquette and Its Modern Effects' (2011) 7(8) Asia Soc Sci 256, 257.

[168] The '"socialist" rule of law still implies the guiding role of a single, or preeminent, party over the political and legal system, as well as the prevalence of common interest over individual ones, and other fundamental values.' Ignazio Castelluci, 'Rule of Law with Chinese Characteristics' (2007) 13 Ann Surv Int'l & Comp L 35, 64.

[169] Kenneth Lieberthal and Michel Oksenberg, *Policy Making in China: Leaders, Structures, and Processes* (Princeton University Press 1990) 8 (stating that the Chinese Communist Party has a monopoly on the power of government, including the enforcement of law); Wentong Zheng,'Transplanting Antitrust in China: Economic Transition, Market Structure, and State Control' (2010) 32 U Pa J Int'l L 643, 652-69 (arguing that pervasive state control in economy, as well as current transitional stage and market structure, are three economic forces that constitute the competition law of China); Angela Huyue Zhang, 'Bureaucratic Politics and China's Anti-Monopoly Law' (2014) 47 Cornell Int'l LJ 671, 705 (outlining that the enforcement of the AML in China involves not merely economic phenomena, but political phenomena that is seldom experienced in other countries due to the idea that the enforcement 'is in fact a highly pluralistic process involving officials from various central government ministries and local government agencies').

[170] Even now, it is difficult to apply the AML to administrative monopoly-related SOEs under the current centralised political system. In particular, the provisions in Chapter 5 of the AML regarding administrative monopoly lacking specific prescriptive conditions and enforcement procedures are more like political propaganda.

appearance and improvement of legislation relating to the intersection between them has been delayed, which is very likely to amount to the inadequacy of the relevant legislation in contemporary China.

4.4.2 Applying Competition Law to IPRs is Consistent With the Development of Two Legal Systems in the Modernisation of China

After examining the historical development of IPRs and competition law, it is valuable to anticipate the future orientation of their improvement. China is in a period of transformation towards modernisation, suggesting that it will pay a good deal of attention to advanced science and technology in order to gain competitive global advantages. It is also likely that China intends to dispense with its position as the 'world's factory' which places it at the bottom of the industrial chain, given that simple, large-scale production and cheap labour brings little real profit. Thus, in order to upgrade, China needs to encourage technology transfer and indigenous innovation, both of which can be strengthened by IPRs protection. A centralised political system can provide a large amount of government support and this could create adequate resources in the country, including financial and intellectual, in order to target innovative projects that need heavy R&D investment.[171] To some extent, this unique plan-related approach could relax the demand for an incentive of innovation through IPRs from a macro perspective. In addition, both technology transfer and indigenous innovation can also be pursued through adequate levels of competition, so that competitors have to upgrade their technologies through innovation themselves in order to acquire first-lead advantages in the market, or attempt to transfer new technologies from someone in order to enhance their competitiveness. The more that technology is transferred, the more likely it is that competition will increase in the market. In turn, this will create more innovation and yet more technology transfer. However, this does not negate the likelihood that the protection of IPRs could, to

[171] Innovation currently is not simply the creative idea of an intellectual; instead it needs a great amount of resources. The socialist political system is relatively good at collecting sufficient resources, and allocates these resources to a certain place for a certain project by the government.

some extent, encourage technology transfer to China when China is a high-technology importer rather than an inventor, and can benefit from technology spillovers.[172]

The Chinese government previously placed economic growth as a priority. For example, during the period of adopting the Reform and Opening-Up policy, the Chinese government stated that, 'it is good to allow some people to get rich first and then this will stimulate others to do so',[173] and, 'it does not matter whether a cat is black or white, as long as it catches mice'.[174] However, after experiencing nearly thirty years of economic growth, the government has started to address consumer welfare and standards of living.[175] The transition to a market-based economy over the last two decades may conflict with Confucianism, which has been influencing Chinese society for the past two thousand years.[176] Therefore, the Chinese government launched a national campaign in 2005 to promote a 'harmonious society,' emphasising traditional values such as fairness, justice, benevolence, and balance, all of which are embraced in Confucianism.[177] This demands that more consumer welfare be allocated to Chinese people, on a short-term basis, by enhancing competition, rather than a longer-term perspective, such as via an IPRs system. The legal system should serve 'both to further economic development and to address the rights and grievances of those left behind by such development [and] ensuring social stability requires that the legal system

[172] For more details relating to technology spillovers, see Section 2.4.2 of Chapter 2 of this thesis.

[173] Martin King Whyte, 'China's Post-Socialist Inequality' [2012] Current Hist 229, 231.

[174] This is the famous 'cat theory' of Xiaoping Deng. Ciqi Mei and Zhilin Liu, 'Experiment-Based Policy Making or Conscious Policy Design? The Case of Urban Housing Reform in China' (2014) 47(3) Pol'y Sci 322.

[175] This was the first time that 'people's livelihoods and welfare' were included in a Five-Year Plan, the 12th Plan (2011-15) of the Chinese government. The Five-Year Plan has been utilized by the Chinese government to clarify and direct the main task and orientation of development over the next five years since 1953. Gregory C Chow, 'Economic Planning in China' (2011) Centre for European Policy Studies Working Paper No 219 <http://www.princeton.edu/gceps/workingpapers/219chow.pdf> accessed 5 September 2014. The younger generation are unwilling to work in factories with very low salaries that only just keep them alive, as did their parents. Rather, they wish to pursue better opportunities in the world with larger salaries. This reduces the competitiveness of China as the 'world's factory', and indeed many factories now do not have enough labour. The current policy of urbanisation will greatly change the living environment of people in the countryside, so there may not be as many labourers coming from the countryside to work in eastern China's coastal cities where factories are concentrated, as happened previously.

[176] Many Chinese are worried 'that the transition to a market-based economy has been characterised by behaviour that is less than ethical and socially irresponsible.' William E Shafer, Kyoko Fukukawa and Grace Meina Lee, 'Values and the Perceived Importance of Ethics and Social Responsibility: The U.S. Versus China' (2007) 70 J Bus Ethics 268.

[177] John King Fairbank and Merle Goldman, *China: A New History* (Howard University Press 2006) 468.

accomplish both tasks'.[178] Applying competition law to IPRs in some exceptions can place greater emphasis on static efficiency rather than dynamic efficiency, taking the profits of the minority and distributing to the majority of consumers.[179]

The development of the two systems of law is unequal, because the legislation of IPRs protection commenced sooner than competition law, and the authorities and courts have more experience on IPRs-related cases. The high level of protection afforded by IPRs has been embodied in legislation under international obligation, although its enforcement is still a concern. Comparatively, the formulation of competition law and regulations is still at an initial stage. Considering the earlier discussion on the justification of applying competition law to IPRs, it is the inherent desire of competition law to improve its legislation in the interface area.

To sum up, legal transplant must be tailored to be consistent with the local traditional culture, economic environment, and political system.[180] The interface of the two legal systems in China is an inevitable outcome of their development. IPRs should be recognised for their role in promoting foreign direct investment and technology transfer, fulfilling international obligations, and promoting indigenous innovation. However, in some exceptional circumstances competition law can be applied to restrict exploitation of IPRs in order to strengthen the competition mechanism in the market and facilitate innovation. This would enable China to catch up with Western technological advantages and increase consumer welfare, so as to continue with its process to modernisation.

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[178] Benjamin Liebman, 'Assessing China's Legal Reforms' (2009) 23 Colum J Asian L 17, 31.

[179] This also reflects that China is 'currently seeking a path that leads away from dogmatically conservative and liberal views in favour of something more pragmatic and moderate'. Kim Them Do, 'Competition Law and Policy and Economic Development in Developing Countries' (2011) 8(1) Manchester J Int'l Econ L 18, 31. See also Mark Furse, *Antitrust Law in China, Korea and Vietnam* (Oxford University Press 2009).

[180] '[D]espite strong influences from EU, U.S., and other competition laws, and though it is likely that China will continue to draw upon the experiences of other jurisdictions in interpreting and applying the AML, it must be borne in mind that China's law is a unique piece of legislation directed to China's unique economic and political circumstances, and not borrowed wholesale from the European Union, United States, or any other system.' H Stephen Harris and others, *Anti-Monopoly Law and Practice in China* (Oxford University Press 2011) 3.

CHAPTER 5. THE INADEQUACY OF CURRENT COMPETITION LEGISLATION FOR ANTI-COMPETITIVE ISSUES IN TECHNOLOGY TRANSFER IN CHINA

5.1 Introduction

The severe anti-competitive issues that arise in technology transfer in China call for adequate competition law.[1] However, the historical review indicates that the development of competition law with regard to technology transfer in China has been slow.[2] This historical factor may have resulted in an immature competition law with regard to technology transfer. This chapter will examine the current legislation and whether it is adequate for solving the existing and potential anti-competitive issues in technology transfer in China.

Above all, it is necessary to clarify whether Intellectual Property Rights (IPRs) are within the scope of competition law in China. Article 55[3] of the Anti-Monopoly Law of China[4] (AML) is near enough the first and only article that addresses this point. However, the Article is simplistic and the term 'abusing IPRs' leads to confusion and ambiguity regarding the basic conditions for the application of AML to anti-competitive conducts in the exercise of IPRs. This principle should be clarified initially, otherwise further regulations or guidelines may be misleading. In terms of specific anti-competitive restrictions, relevant legislation is scattered throughout different laws and regulations, and is very limited. Whilst some anti-monopoly provisions exist

[1] For more details, see Chapter 3 of this thesis.

[2] For more details, see Chapter 4 of this thesis.

[3] 'This law is not applicable to undertakings who exercise their intellectual property rights in accordance with the laws and administrative regulations on intellectual property rights; however, this law shall be applicable to the undertakings who eliminate or restrict market competition by abusing their intellectual property rights.' AML, art 55.

[4] The Anti-Monopoly Law of China was passed by the Standing Committee of the 10th National People's Congress on 30 August 2007 and came into effect on 1 August 2008. An unofficial English version is provided in Appendix 1.

within laws and regulations relating to foreign trade and foreign investment,[5] their main purpose is as a filter to restrict foreign technology owners' anti-competitive conducts when introducing advanced technologies into China. Under contract law and regulations,[6] anti-competitive conducts in technology transfer have been noted and relevant provisions provided, but these are of a general nature and lack sufficient detail. Additionally, judicial interpretations by courts[7] offer a few specific explanations for the general provisions, but they are far from being comprehensive enough to provide guidance for regulating anti-competitive issues in technology transfer. The judicial interpretations lack a competition law context, and so the provisions are easily misinterpreted. Regarding refusals to transfer, the most significant provision is the new article in Patent Law of China,[8] under which it can be mandatory to licence patents if a refusal amounts to anti-monopoly, but detailed conditions for application do not exist.

The Rules on the Prohibition of Abuse of Intellectual Property Rights for the Purposes of Eliminating or Restricting Competition[9] (Rules) are the most recent, and first relatively systematic, regulations that specialise in the application of competition law to IPRs in China. They provide general approaches, including five steps to identify

[5] Foreign Trade Law of China 2004, art 30 (non-challenge, tying and exclusive grant-back); Regulations on the Administration of Technology Imports and Exports of China 2002, art 29 (restrictions on transferee of technologies); Regulations for the Implementation of the Law of China on Chinese-Foreign Equity Joint Ventures 2011, art 43 (fair licensing fee; restrictions on price, quantity, and territory; exploitation of a technology after expiry of the agreement; grant-back).

[6] Technology Contract Law of China 1987 (repealed 1999) and Regulations on the Implementation of the Technology Contract Law 1989 (repealed 1999) (monopolisation of technologies, impediment to technology progress); Regulations on the Administration of Technology Import Contracts 1985 (repealed 2002), art 4 and Detailed Rules for the Implementation of the Regulations on Administration of Technology Import Contract 1988 (repealed 2002), art 12 (tying, selection of other suppliers to provide raw materials, restrictions on R&D, grant-back, etc.); Contract Law of China 1999, art 329 (any technology contract that illegally monopolises technologies, impedes technological progress, or infringes upon the technological fruits of others is null and void).

[7] Interpretation of the Supreme People's Court concerning Some Issues on the Application of Laws for the Trial of Cases on Disputes regarding Technology Contracts No 20/2004 (restrictions on R&D, non-compete, field of use, tying, restrictions on the technology-related objects, and non-challenge).

[8] Patent Law of China 2001, art 48 (compulsory licensing).

[9] 关于禁止滥用知识产权排除、限制竞争行为的规定 Guanyu Jingzhi Lanyong Zhishi Chanquan Paichu、Xianzhi Jingzheng Xingwei De Guiding. The Rules were promulgated on 7th April 2015 by the State Administration of Industry and Commerce (SAIC) and came into force on 1st August 2015. The Rules are grounds for the SAIC to enforce the AML in the area of IPRs. An unofficial English version of the Rules is provided in Appendix 2.

anti-competitive practice,[10] and factors for consideration when assessing the effect that exercising IPRs has on competition.[11] However, they do not provide guidance pertaining to the manner in which the approaches should be adopted for analysing specific issues. The Rules also contain very limited guidance regarding assessing refusals to license,[12] non-compete,[13] tying,[14] some other unreasonable restrictions,[15] discriminatory treatment,[16] patent pool,[17] and standardisation.[18] The guidelines are too simplistic to be of any real use. Whilst the adoption of the Rules indicates that China is making progress with legislation in this complex area, they are far from being suitably fit for their purpose. The provisions of specific issues within the Rules will be discussed in Chapters 6 and 7, which propose detailed guidelines; they will not be considered further in this Chapter.

5.2 A Fundamental Point: the Extent to which Competition Law Can be Applied to the Exercise of IPRs in China

5.2.1 Confusion in Article 55 of the AML

As the only provision relating to IPRs in the AML, it could be expected that Article 55 would be a clear and principle for further, detailed regulations. Indeed, the article seems to have the intention of clarifying a fundamental point – the extent to which

[10] '(1) to determine the nature and form of the exercise of intellectual property rights by the undertakings; (2) to determine the nature of the inter-relationship among the undertakings exercising the intellectual property rights; (3) to define the relevant market involved in the exercise of intellectual property rights; (4) to determine the market position of the undertakings exercising the intellectual property rights; (5) to analyse the impact of the exercise of intellectual property rights by the undertakings on the competition in relevant market.' Rules, art 15.

[11] '(1) market positions of the undertaking and its counterparts; (2) concentration level of the relevant market; (3) difficulty to enter into the relevant market; (4) industry practice and development stage of the industry; (5) time of restriction in terms of output, geography, consumers, etc. as well as the scope of effectiveness; (6) impact on innovation promotion and technology popularization; (7) the innovation ability of the undertaking and the speed of technology evolution; (8) other factors relevant to the determination of the impact on competition of the exercise of intellectual property rights.' ibid art 16.

[12] ibid art 7.

[13] ibid art 8.

[14] ibid art 9.

[15] ibid art 10.

[16] ibid art 11.

[17] ibid art 12.

[18] ibid art 13.

competition law can be applied to IPRs. However, it is argued that Article 55 is an overly general and confusing provision,[19] and its application may therefore be uncertain and unpredictable. Article 55 states that:

> This law is not applicable to undertakings who exercise their intellectual property rights in accordance with the laws and administrative regulations on intellectual property rights; however, this law shall be applicable to the undertakings who eliminate or restrict market competition by abusing their intellectual property rights.[20]

This article consists of two main parts: the first part asserts the exemption of application of the AML where IPRs are exercised in accordance with intellectual property laws and regulations; the second part clarifies that the AML applies to conduct that abuses IPRs, and eliminates or restricts competition. The following discussion will be divided into two sections accordingly. In terms of the first part, it appears compatible with the previous analysis that IPRs achieve dynamic efficiency in the long run by promoting incentive to innovate, and competition law pursues innovation as well as immediate static efficiency.[21] Thus, the Article 55 highlights the respect that competition law has for IPRs by recognising the *ex ante* value,[22] placing IPRs and competition law on an even footing and reflecting China's efforts to address global concerns.[23] It also reflects China's attitude that the AML will not be employed to restrict IPRs unreasonably or too heavily. In other words, it will not weaken the protection of IPRs in China, a possibility that deeply concerns the West.[24]

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[19] D Daniel Sokol and Wentong Zheng, 'FRAND in China' (2013) 22 Tex Intell Prop 71, 77 (stating it is unclear 'how Article 55 may be applied to distinguish between legitimate uses of intellectual property and abuses of intellectual property').

[20] AML, art 55.

[21] For more details, see Sections 2.2 and 2.3 of Chapter 2 of the thesis.

[22] Mary J Hanzlik, 'The Implications of China's Anti-Monopoly Law for Investors: Problematic Protection of Intellectual Property' (2008) 3 Entrepreneurial Bus LJ 75, 89 (stating that it clearly empowers the intellectual property laws already in place, and confirms the major premise of legitimation of exploitation of intellectual property in light of intellectual property law).

[23] Yijun Tian, 'The Impacts of the Chinese Anti-Monopoly Law on IP Commercialisation in China & General Strategies for Technology-Driven Companies and Future Regulations' (2010) 9 Duke L & Tech Rev i, v. See also Daniel S Sarvin, 'China's Anti-Monopoly Will Have A Broad Impact Beyond Merger Notification' (*Martindale*, 29 August 2008) <http://www.martindale.com/business-law/article_Bingham-McCutchen-LLP_493958.htm> accessed 9 September 2012.

[24] Andrew C Mertha, *The Politics Of Piracy: Intellectual Property in Contemporary China* (Cornell University Press 2005); Robert Marquand, 'US Targets Chinese Piracy of US Goods' (*The Christian Science*

However, the first part of Article 55 – 'this law is not applicable to undertakings who exercise their intellectual property rights in accordance with the laws and administrative regulations on intellectual property rights'[25] – may be incorrect. The facts demonstrate that some exercise of IPRs under intellectual property law still restrict or eliminate competition, so they fall within the scope of competition law (see Figure 9). A typical example is refusal to transfer. Relevant cases include *Magill*,[26] *IMS*,[27] and *Microsoft*,[28] where the defendants were required to license IPRs or disclose information in accordance with competition law, even though their refusals were very basic rights in the IPRs that they owned. In China, it was not until 2009 that Article 48 (2) of the amended patent law stipulated that if the exercise of IPRs was regarded as a monopoly, then the IPRs could be licensed compulsorily.[29] According to this, if compulsory licensing is executed under such circumstances, it indicates that the refusal to license is illegitimate in the context of patent law. However, patent law does not provide even a clue to identify a monopolistic conduct, so it must resort to competition law.[30] In other words, competition law identifies a monopolistic refusal to license, and patent law will then deem it illegal and rectify it with a compulsory licensing[31] (see Figure 10). This conflict with the logic of Article 55 is that inconsistency

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Monitor, 30 March 2006) <http://www.csmonitor.com/2006/0330/p07s02-usec.html> accessed 10 September 2012; Gordon CK Cheung, *Intellectual Property Rights in China: Politics of Piracy, Trade and Protection* (Routledge 2009); Martin Dimitrov, *Piracy and the State: The Politics of Intellectual Property Rights in China* (Cambridge University Press 2009).

[25] AML, art 55.

[26] Joined Cases C-241 and 242/91P *RTE v Commission* [1995] ECR I-743 on appeal from Joined Cases T-69, 70 and 76/89 *RTE v Commission* [1991] ECR II-845, on appeal from *Magill TV Guide* [1989] OJ L78/43, [1989] 4 CMLR 757.

[27] Case C-418/01 *IMS Health v NDC Health* [2004] ECR I-5039, [2004] 4 CMLR 1453.

[28] Case COMP/C-3/37.792 *Microsoft* [2005] 4 CMLR 965, aff'd, Case T-201/04 *Microsoft v Commission* [2007] ECR II-3601.

[29] If 'the exercise of patent by a patentee was deemed as a monopoly conduct according to law, in order to eliminate or reduce the adverse effects of such a conduct', compulsory licensing can be executed by authorities upon the application of organisation or individual. Patent Law of China 2009, 48 (2). For more details on compulsory transfer, see Section 5.4 of this chapter of the thesis.

[30] In this case, it is very likely to impose the compulsory licensing under competition law in an earlier stage, rather than wait for the rectification of patent law later.

[31] Article 329 of the Contract Law of China 1999 stipulates that 'the technology contract will be invalid if it constitutes illegitimate monopoly, impedes technological progress or infringes other parties' technological achievements.' The Supreme People's Court issues a judicial interpretation for explaining under what conditions Article 329 will be applied. Technologically, patent law could also find identification of the monopoly from contract law and judicial interpretation. But the article of contract law is general and the judicial interpretation contains merely provisions that are very improper in the

with intellectual property law is a precondition for applying competition law. (see Figure 11). Article 48 (2) was adopted after the AML came into force, and intends to provide coherence and to show the same respect for competition law as Article 55 demonstrates to IPRs. However, it is a contradiction.

Figure 9: Relationship Between the Exercise of IPRs and Conducts that Restrict or Eliminate Competition

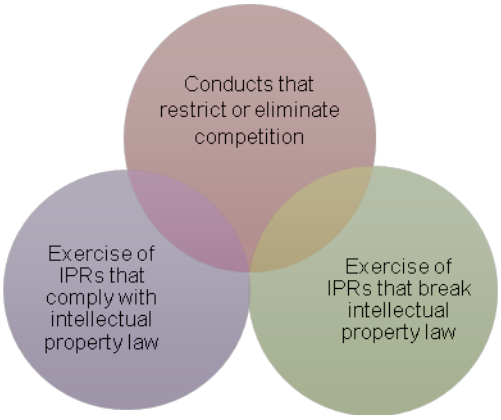

Figure drawn by the author.

Figure 10: The Logic Embodied in Article 48(2) of the Patent Law of China to Execute Compulsory Licensing

Figure drawn by the author.

context of competition law. Therefore, the AML is the best law for patent law to resort to. For more details of contract law and judicial interpretation, see Section 5.3.2.2 of this chapter of the thesis.

Figure 11: The Logic of Article 55 of the AML to Assess Whether the AML Shall Apply to the Exercise of IPRs

Figure drawn by the author.

Most other anti-competitive restrictions can be imposed under IPRs, but when they restrict or eliminate competition then competition law may intervene. For instance, the royalties from licensing IPRs are a fundamental legal right for a licensor to charge and negotiate with a licensee but, in certain cases, competition law can regulate the royalty-related conduct that is not prohibited by intellectual property law.[32] Thus, the first part of Article 55 is illogical.

The second part introduces a term, 'abusing[33] IPRs', which makes things less clear. It is noteworthy that such a term is not found elsewhere in Chinese Intellectual Property legislation, including in intellectual property law or even in decisions by courts, let alone in an explicit interpretation.[34] Abusing IPRs could be understood, in a narrower sense, as the exercise of IPRs that are explicitly prohibited by law or judicial interpretation.[35] For example, as previously discussed, conducts in the exercise of

[32] When cross-licensing imposes running royalties that are clearly disproportionate to the market value of the licence, or when the royalties have a significant impact on the prices of products, it may then be regulated by competition law. Communication from the Commission — Guidelines on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements [2014] OJ C89/3 (Guidelines of TTBER 316/2014), para 185.

[33] In Chinese, this term is '滥用 Lanyong', which can be translated as 'abuse' or 'misuse'.

[34] Yin Zhou, China's Anti-Monopoly Law: Insights from US and EU Precedents on Abuse of Dominance and IP Exemption Provisions (2009) 32 Hastings Int'l & Comp L Rev 713, 718-22 (stating that the AML does not define what constitutes the 'abuse of IPRs' so that common conducts to protect IPRs may be found to be unlawful.)

[35] 3rd Research Group in Training Class of Professional Enforcement Regarding Anti-Monopoly and Anti-Unfair Competition (反垄断与反不正当竞争执法专家型人才培训班第三课题组 Fan Longduan Yu Fan Bu Zhengdang Jingzheng Zhifa Zhuanjia Xing Rencai Peixun Ban Disan Keti Zu), 'Identification of Abusing IPRs: Discuss on the Enforcement of Article 55 of AML' (滥用知识产权行为的界定:谈《反垄断法》第 55 条的具体运用 Lanyong Zhishi Chanquan Xingwei De Jieding: Tan 《Fan Longduan Fa》Di 55 Tiao De Juti Yunyong) (2012) 6 Study on China Administration for Industry and Commerce (中国工商管理研究 Zhonguo Gongshang Guanli Yanjiu) 24.

patent rights under China's patent law may lead to compulsory licensing due to a monopoly.[36] Thus, the definition of abusing IPRs is reliant on other laws, and not just on intellectual property law. It can be understood that the conducts of exercising IPRs allowed in intellectual property law will not be regarded as abusing IPRs.[37] Many conducts could be viewed as legal in some cases and illegal in other cases, because the legitimacy of these conducts is dictated by specific situations arising in individual cases. Intellectual property law and regulations do not explicitly stipulate the conditions for the legitimacy of these conducts *ex ante,* and the legitimacy needs to be judged *ex post*. Thus, these conducts that are permitted in intellectual property law may fall within the scope of regulation by competition law. The narrower understanding of the abuse of IPRs in Article 55 is incorrect.

In a broader sense, in addition to the explicit stipulation, the abuse of IPRs can also be analysed from other perspectives, such as whether the conduct coincides with the objective of intellectual property law, whether the intention of the conduct is in good faith, or whether the conduct unnecessarily affects trade and technology transfer.[38] However, the criteria are abstract and difficult to assess, and more importantly, do not exist in Chinese law.[39] Some commenters consider that monopoly should be identified by competition law to amount to the abuse of IPRs.[40] If so, the preceding

[36] Patent Law of China 2009, art 48(2).

[37] Gerald F Masoudi, 'Some Comments on the Abuse-of-Dominance Provisions of China's Draft Antimonopoly Law' (*The US Department of Justice*, 21 July 2007) <http://www.justice.gov/atr/public/speeches/225357.pdf> accessed 10 September 2012.

[38] TRIPs, art 8 ('Appropriate measures, provided that they are consistent with the provisions of this Agreement, may be needed to prevent the abuse of intellectual property rights by right holders or the resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology.')

[39] Yijun Tian, 'The Impacts of the Chinese Anti-Monopoly Law on IP Commercialisation in China & General Strategies for Technology-Driven Companies and Future Regulations' (2010) 9 Duke L & Tech Rev i, v (stating that the US antitrust law does not define 'abusing IPRs'; rather, it has special guidelines to address this issue).

[40] Peter J Wang and others, 'New Chinese Anti-Monopoly Law' (*Jonesday*, October 2007) <http://www.jonesday.com/New_Chinese_Anti-Monopoly_Law/> accessed 7 November 2012 (considering the abuse of IPRs to be similar to 'patent misuse' in US law that 'seeks to leverage its lawful monopoly IP rights to extend them beyond the proper scope of the patent'); Liming Wang, 'Innovation and Antitrust Regulation on Abuse of the IPRs' (*Index of Science & Engineering*, 2010) <http://www.seiofbluemountain.com/upload/product/201001/1263781873z8qrvvfx.pdf> accessed 7 November 2012 ('An abuse of intellectual property rights often occurs in IP agreements, especially in technological transfer agreements. The supplier of technology utilises its advantage status to impose

contradiction holds true. Moreover, a prohibition of the abuse of IPRs is different from the regulation of competition law on the exercise of IPRs.[41] This is especially true in litigation regarding the infringement of IPRs, where the abuse of IPRs is usually a defence to the claim, while violation of competition law is a counterclaim of the defendant. In substantive law, the abuse of IPRs concerns mainly the objectives and scope of the exercise of IPRs, while competition law focuses primarily on the effects on competition.[42] Thus, without an explicit confirmation, the current Article 55 complicates rather than clarifies.

5.2.2 Definitions in the 7th Guidelines, the Rules and the New Guidelines 2017

There are some other rules and legislative drafts that try to explain Article 55. The 7th draft of the Guidelines on Enforcing the Anti-Monopoly Law with Respect to Abuse of Intellectual Property Rights[43] (7th Guidelines) and the Rules provide three conditions for identifying the 'abuse' of IPRs that eliminate and restrict competition according to the AML. The first is that the exercise of IPRs is contrary to the scope and objective of intellectual property laws and regulations.[44] This condition cannot offer a range of the 'scope' or the substantial contents of the 'objective'. A conduct coinciding with the promotion of dynamic efficiency, advocated by intellectual property law, can be

inadequate restraints on licensees from utilising, absorbing, improving, selling technologies and products, which will hurt the interest of licensees.')

[41] *B Braun Medical v Abbott Labs* 124 F 3d 1419, 1426 (Fed Cir 1997).

[42] Richard Calkins, 'Patent Law: The Impact of the 1988 Patent Misuse Reform Act and Noerr-Pennington Doctrine on Misuse Defence and Antitrust counterclaims' (1989) 38 Drake L Rev 175,187.

[43] SAIC, 'Guidelines on Enforcing the Anti-Monopoly Law with Respect to Abuse of Intellectual Property Rights (7th draft of SAIC) (关于滥用知识产权的反垄断执法指南 (国家工商总局第七稿) Guanyu Lanyong Zhishi Chanquan De Fan Longduan Zhifa Zhinan (Guojia Gongshang Zongju Diqi Gao)),' (*SAIC*, 4 February 2016) <http://www.saic.gov.cn/fldyfbzdjz/gzdt/201602/t20160204_166524.html...> accessed 28 March 2016. The 5th draft of the Guidelines (5th Guidelines) also contains the same three conditions for identifying the 'abuse' of IPRs that eliminate and restrict competition. 5th Guidelines, art 3. SAIC Task Force (draft), American Bar Association (trans), 'The 5th Draft of Guidelines on Enforcing the Anti-Monopoly Law with Respect to Intellectual Property Rights (关于知识产权领域反垄断执法的指南 Guanyu Zhishi Chanquan Lingyu Fan Longduan Zhifa De Zhinan),' both Chinese and English version (*American Bar Association*, 2012) <http://www.americanbar.org/content/dam/aba/uncategorized/international_law/aba_china_aml_ip_guidelines_comments_finalpackage.authcheckdam.pdf> accessed on 5 October 2015. Moreover, the 7th Guidelines clarify that abuse of IPRs can breach different types of law, including but not limited to intellectual property law, anti-unfair competition law and anti-monopoly law. The implication of this statement seems to be that not all abuse of IPRs constitutes a violation of anti-monopoly law. 7th Guidelines, art 2.

[44] ibid 7th Guidelines, art 2.

considered as not abusing IPRs. However, if the conduct results in severe anti-competitive effects, then competition law may still intervene. The second condition is that the exercise of IPRs is improper.[45] This is a very vague statement, as it is unclear how to identify what is 'improper' and whether it will be judged only from the way that IPRs are exercised or according to other factors as well. The final condition is that the exercise of IPRs harms the interests of other people and social public interests.[46] The harm can be of differing types, and includes both long and short-term impacts. The application of competition law should be based on the weighing up of positive and negative effects, rather than looking at harm in isolation. Otherwise, it may result in the conduct being identified as the abuse of IPRs and being regulated by competition law, simply because a negative impact is present, thus ignoring the possibility of any possible positive effects. Although the 7th Guidelines adopted the broader understanding of the abuse of IPRs, it is still abstract. The Guidelines on Anti-Monopoly Law with Respect to Abusing Intellectual Property Rights (draft for comments) [47] (New Guidelines 2017) seems completely ignore to offer a further explanation on 'abusing IPRs,' instead it mainly focuses on assessing effects of the monopoly conducts on restricting or eliminating competition in the market. [48]

The Rules of the Administration for Industry and Commerce on the Prohibition of Abuse of Intellectual Property Rights for the Purposes of Eliminating or Restricting Competition (Draft for Comments)[49] (Draft of the Rules) identifies conducts that

[45] ibid.

[46] ibid.

[47] AMC, 'Guidelines on Anti-Monopoly with Respect to Abuse of Intellectual Property Rights (draft for comments) (关于滥用知识产权的反垄断指南 (征求意见稿) Guanyu Lanyong Zhishi Chanquan De Fan Longduan Zhinan (Zhengqiu Yijian Gao)),' (*AMC*, 23 March 2017) <http://fldj.mofcom.gov.cn/article/zcfb/201703/20170302539418.shtml> accessed 2 April 2017. The mentioned specific anti-competitive issues and relevant analysis in this Guidelines are less detailed comparing with guidelines made by SAIC.

[48] ibid art 4.

[49] SAIC (draft), American Bar Association (tans), 'Rules of the Administration for Industry and Commerce on the Prohibition of Abuse of Intellectual Property Rights for the Purposes of Eliminating or Restricting Competition (Draft for Comments) (工商行政管理机关禁止滥用知识产权排除、限制竞争行为的规定(征求意见稿) Gongshang Xingzheng Guanli Jiguan Jingzhi Lanyong Zhishi Chanquan Paichu、Xianzhi Jingzheng Xingwei De Guiding (Zhengqiu Yijian Gao)),' both Chinese and English version (*American Bar Association*, 2014) <http://www.americanbar.org/content/dam/aba/administrative/antitrust_law/at_comments_201407saic.authcheckdam.pdf> accessed 5 October 2015.

constitute the abuse of IPRs in order to eliminate or restrict competition. Such conducts are said to constitute a monopoly that is in violation of the AML and other IPRs-related laws and regulations, such as a monopoly agreement or the abuse of dominant position.[50] This definition makes use of the broader sense, but the use of the word 'and' rather than 'or' may mislead people into mistakenly believing that the conduct must violate both the 'AML and other IPRs-related laws and regulations' in order to constitute an abuse. However, some conducts that should be regulated by competition law may conform to intellectual property law, but breach competition law, so the definition is still confusing. The Rules[51] require violation of only the AML, whilst the violation of other IPRs-related laws and regulations has been deleted.[52] It narrows the scope of the application of competition law to IPRs, compared with the draft, and is seemingly clearer as the conduct to be regulated by competition law must violate only the AML rather than any other laws. A question arises regarding whether the AML has clear content in regard to IPRs. The answer to such a question would be no as the AML is too simplistic, which may result in uncertainty surrounding the decision as to whether or not some conducts violate the AML. Finally, the identification of the conducts that constitute the abuse of IPRs in order to eliminate or restrict competition is still unclear.

5.2.3 Conclusion

Article 55 of the AML places emphasis on justification of the exercise of IPRs in the light of intellectual property law, aiming to strengthen confidence in the protection of IPRs in China, and eliminate the abuse of competition law to restrict interests of IPRs owners. However, it makes the context of Article 55 appear contradictory, and this causes confusion regarding the extent that competition law can be applied to IPRs in technology transfer. Moreover, confusion exist about further regulations and guidelines that are formulated to be consistent with Article 55, such as the 7th

[50] Draft of the Rules, art 3.

[51] Except for the exclusions of applying AML to copyright and the abuse of issuing infringement warning letters, both of which were contained in the Draft of the Rules, the Rules have very few changes. Draft of the Rules, arts 14,15

[52] Rules, art 3.

Guidelines, the Rules and the New Guidelines 2017. Such flaws should not be present in such a fundamental legislation. In exceptional circumstances, competition law may regulate the exercise of IPRs in light of intellectual property law. Therefore, Article 55 should be amended to:

> This law is applicable to undertakings' conducts that eliminate or restrict competition by exercising IPRs; however, if the exercise of IPRs is in accordance with intellectual property law or relevant administrative regulations, it might be considered of being exempted from the scrutiny of this law.'[53]

This suggestion utilises the effect-based model, and clearly indicates that even though IPRs are compatible with intellectual property law and regulations, an IPR may be regulated by the AML once it has been abused to eliminate or restrict competition. This coincides with the foregoing discussion regarding the relationship between IPRs and competition law, because the 'abuse of IPRs' as a condition to apply AML indicates the necessary respect for IPRs. Whether or not the conduct constitutes violation of the AML will rely upon an examination of the effects caused by eliminating or restricting competition, rather than on the judgement of whether the conduct amounts to the 'abuse of IPRs,' which is a more abstract concept with no criteria for judgement in Chinese legislation.

5.3 Legislation for When Technology Owners Transfer Technology

5.3.1 Relevant Legislation in Foreign Trade and Foreign Investment Laws and Regulations in China

Foreign trade and foreign investment are two primary foreign commercial activities in China. They utilise the labour-intensive advantage to manufacture products to export,

[53] This is very similar to the draft of the AML in 2005. It is also alike to the IPRs-related provision in the 2002 draft of the AML: 'This law is not applicable to the conduct of business operators exploiting intellectual property in accordance with the copyright law, trade mark law and other laws protecting intellectual property rights. However, this law shall apply where there is abuse of intellectual property rights with the effect or potential effect of over-broadly limiting or eliminating competition.' H Stephen Harris, 'The Making of an Antitrust Law: The Pending Anti-Monopoly Law of the People's Republic of China' (2006) 7 Chi J Int'l L 169, 227.

and also provide large amounts of financial support, through which advanced technologies and equipment are introduced from abroad and contribute to Gross Domestic Product (GDP), thus increasing the rate of employment. In addition, foreign investors may make good use of their advantageous positions by imposing restrictions on technology-related trade and investment in order to limit the competitiveness of Chinese companies. Although such conducts had not been identified as 'monopoly' conducts, and had no anti-monopoly law specialising in the conducts, the government noted these problems and stipulated provisions in relevant foreign trade and investment laws and regulations.

In Article 30 of the Foreign Trade Law, clauses relating non-challenge, tying, and exclusive grant-back in agreements may be regulated if they result in anti-competitive effects.[54] In a regulation relating to foreign investment, it is a stipulation that the fee for exploiting the technology should be reasonable, and restrictions regarding price, quantity, and territory should not be imposed on the recipient, unless there is an alternative agreement in place.[55] The recipient is entitled to exploit the technology in question after expiry of the technology transfer agreement, of which the term is normally no longer than ten years.[56] Further, the condition of grant-back should be reciprocal, and the recipient is entitled to decide where to buy equipment, spare parts, and raw materials.[57]

5.3.2 Relevant Legislation in Contract Law and Relevant Regulations

[54] 'Where the intellectual property right owner is involved in such practices as preventing the licensee from challenging the validity of the intellectual property right in the licensing contract; and conducting coercive package licensing or incorporating exclusive grant-back conditions in the licensing contract, which impairs the fair competition order of foreign trade, the authority that is responsible for foreign trade under the State Council may take measures as necessary to eliminate such impairment.' Foreign Trade Law of China 2004, art 30.

[55] Regulations for the Implementation of the Law of China on Chinese-Foreign Equity Joint Ventures 2011, art 43.

[56] ibid.

[57] ibid.

5.3.2.1 The Emergence of Regulation on Anti-competitive Conducts in the 1980s and 1990s

The legislation governing technology transfer contracts in China can be traced back to two laws and their regulations for implementation, although they have now been repealed. The first of these is the Technology Contract Law[58] and its regulations for implementation.[59] These exclude their application to contracts involving any foreign party,[60] and stipulate that the licensor and the licensee are allowed to agree on a specified scope for the exploitation of patent and non-patent technology in the technology transfer contract. However, the contract should not restrict the competition and development of technology,[61] and the contract will be null and void if it 'monopolises technology and impedes technological progress'.[62] The regulation further explains that the agreed 'scope of exploitation' refers to the agreed period, territory, and method of exploiting patent and non-patent technology,[63] and that 'monopolising technology and impeding technology progress' refers to restricting the research and development (R&D) of the other party on the technology in question, restricting the other party from exploiting other technologies, or impeding another party from sufficiently exploiting patent and non-patent technology, based on market demand.[64]

The other legislation is the Regulations on the Administration of Technology Import Contracts in 1985 and its detailed rules for implementation.[65] These govern contracts that are concluded with at least one foreign party. The title of the regulations highlights the fact that, at that time, China was concerned with importing technology rather than exporting technology. The relevant law was required to function as a filter

[58] Technology Contract Law of China 1987 (repealed 1999).
[59] Regulations on the Implementation of the Technology Contract Law 1989 (repealed 1999).
[60] Technology Contract Law of China 1987 (repealed 1999), art 2.
[61] ibid art 35.
[62] ibid art 21.
[63] Regulations on the Implementation of Technology Contract Law of China 1989 (repealed 1999), art 55.
[64] ibid art 25.
[65] Detailed Rules for the Implementation of the Regulations on Administration of Technology Import Contract 1988 (repealed 2002).

to guarantee that only valuable technologies were imported, and that the technology owner would not make use of their advantageous position to adversely impact China, including imposing restrictions on competition. Thus, the regulations contained strict requirements to conclude and exercise foreign related contracts, such as requiring all contracts to be approved by the government before becoming effective[66] and the technology to be identified as advanced technology.[67] The listed restrictions on the recipient, such as tying or the selection of other suppliers to provide raw materials, and restrictions on R&D, were prohibited. However, in order to encourage the transfer of advanced technologies to China, the regulations stipulated an exception — those restrictions could be considered legitimate after being approved by the government.[68]

At this early stage, the legislation has three features. Firstly, it was recognised that whilst anti-competitive conducts and negative effects existed in technology transfer, there were very few provisions relating to anti-competitive conducts, and those that did were too simple, unclear, and not easy to implement. Secondly, relevant contracts were treated differently, based on whether a foreign party was involved. Foreign-related contracts were provided stricter and more detailed provisions, and were more partial to a domestic importing party.[69] The third one is that under the Reform and

[66] Regulations on the Administration of Technology Import Contracts 1985 (repealed 2002), art 4.

[67] ibid art 3. The different treatment of technology transfer contracts involving foreign parties and non-foreign parties was suspicious of discrimination, so it was repealed before China entered the World Trade Organisation (WTO). However, at that time it might have been a useful way for the government to ensure only the advanced technologies were imported, and more importantly, to enjoy the preferential policies in China.

[68] 'The supplier shall not oblige the recipient to accept requirements which are unreasonably restrictive. Unless specially approved by the examining and approving authorities, a contract shall not include any of the following restrictive provisions: 1) requiring the recipient to accept additional conditions which are not related to the technology to be introduced, such as requiring the recipient to purchase unnecessary technology, technical service, raw materials, equipment or products; 2) restricting the freedom of choice of the recipient to obtain raw materials, parts and components or equipment from other sources; 3) restricting the development and improvement by the recipient of the introduced technology; 4) restricting the acquisition by the recipient of similar or competing technology of the same kind from other sources; 5) non-reciprocal terms for exchange of improved technology between the contracting parties; 6) restricting the quantity, variety or sales price of products to be turned out by the recipient with the technology acquired; 7) unreasonably restricting the sales channels or export markets of the recipient; 8) forbidding the continued use by the recipient of the acquired technology after expiration of the contract; and/or 9) requiring the recipient to pay for or to undertake obligations for patents which are unused or no longer effective.' ibid art 9.

[69] For instance, it stipulates that the ownership of the developed technology, which is based on the technology in the contract, belongs to the party who develops the technology. Detailed Rules for the Implementation of the Regulations on Administration of Technology Import Contract 1988 (repealed

Opening-Up environment it was recognised that technology was significant for economic development. Therefore, those laws and regulations worked to diffuse technology and encourage the importation of technology, as well as to regulate other behaviour under the contract.

5.3.2.2 Current Legislation

The Technology Contract Law was replaced by the Contract Law in 1999, which applies to contracts concluded by parties regardless of whether they are foreign or domestic. Chapter 28 of the Contract Law relates to technology contracts, and Article 329 stipulates that any technology contract that illegally monopolises technologies, impedes technological progress, or infringes upon the technological fruits of others is null and void.[70]

The previous regulations relating to importing technologies were substituted by the Regulations on the Administration of Technology Imports and Exports in 2002. They contain provisions relating to exporting technologies that were not available in the previous regulations. Technologies are categorised into prohibited, restricted, and unrestricted types, of which both restricted and unrestricted types are obliged to register, and the restricted type must seek approval from the government.[71] Chapter 2 of the regulations deals with importing technologies, in which the restrictions on recipients have been prohibited without any exception and most of the restrictions listed in previous regulations were kept. Only the terms 'non-reciprocal terms for exchange of improved technology between the contracting parties' and 'forbidding the continued use by the recipient of the acquired technology after expiration of the

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2002), art 12. This removes the opportunity for the owner to require the recipient to agree that ownership of all developed technologies, regardless of who develops them, belongs to the foreign owner. Also, the maximum term of the importing technology contract is ten years, unless the government approves one that is longer. ibid art 8. The term within which recipients should normally keep know-how confidential should not exceed the term of the contract. Detailed Rules for the Implementation of the Regulations on the Administration of Technology Import Contract1988 (repealed 2002), art 13.

[70] Contract of Law of China 1999, art 329 ('A technology contract which illegally monopolises technology, impairs technological advancement or infringes on the technology of a third party is invalid.')

[71] Regulations on the Administration of Technology Imports and Exports of China 2002, arts 9-11, 32-34.

contract' were removed.[72] There is a chapter on exporting technologies, but similar provisions for restrictions in the contract were not included.[73]

In 2004, the Supreme People's Court issued an interpretation of a number of issues regarding technology contracts, including an explanation of Article 329 of the Contract Law.[74] In light of the interpretation, the 'illegally monopolising technologies, impeding technological progress' in Article 329 contain restrictions on development on the basis of the contractual subject technology,[75] non-compete restrictions,[76] restrictions on the fields of exploitation of the technology,[77] tying,[78] restrictions on the technology-related objects[79] and non-challenge.[80]

The AML was still at a drafting stage in 2004, so the formulation of the interpretation regarding technology transfer lacked an essential basis on the structure and background of competition law, and it focused on a few important issues rather than providing systematic regulations that apply to all relevant issues. The interpretation was relatively more detailed for each mentioned anti-competitive issue, so that it was foreseeable by parties to the contract and was easy for courts to refer to. In terms of the provisions, they are more favourable to the transferee because technology owners

[72] ibid art 29.

[73] ibid ch 3.

[74] Interpretation of the Supreme People's Court concerning Some Issues on the Application of Laws for the Trial of Cases on Disputes regarding Technology Contracts No 20/2004.

[75] 'Restricting one party from undertaking new research and development on the basis of the contractual technology or from exploiting improvements to the technology; or the conditions to exchange improvements on the subject of the technology is non-reciprocal for each party, including A) one party requires the other party to provide improvements on the technology undertaken by the other party without consideration; B) one party requires the other party to transfer improvements on the technology to him without reciprocity; C) one party requires IPRs on any improvements on the technology to be held solely by him or jointly by both parties without consideration.' ibid art 10(1).

[76] 'Restricting one party from obtaining technologies that are similar to or competitive with those of the technology provider from other sources.' ibid art 10(2).

[77] 'Restricting one party from exploiting the technology sufficiently and reasonably based on the demand of the market, including restricting the recipient in a clearly unreasonable manner from manufacturing products or the provision of services with respect to quantities, varieties, prices, sales channels or export markets.' ibid art 10(3).

[78] 'Requiring the recipient to accept additional conditions that are not essential to exploit the technology, including purchasing non-essential technologies, raw materials, products, equipment and service, or employing non-essential personnel, etc.' ibid art 10(4).

[79] 'Unreasonably restricting the channels and resources through which the recipient may purchase raw materials, parts and components, products or equipment, etc.' ibid art 10(5).

[80] 'Prohibiting the recipient from challenging the validity of the IPRs of the objective technology, or attaching conditions to such challenge.' ibid art 10(6).

impose most of the restrictions. Foreign technology owners are normally in a more advantageous position in the contract, and there are more Chinese transferees than foreign technology owners. These reasons may account for the interpretation being more restrictive than those in Commission Regulation (EU) No 316/2014 of 21 March 2014 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to categories of technology transfer agreements[81] (TTBER 316/2014) and AML, in which the same regulation in competition law would depend on whether the parties were competitors or non-competitors. The interpretation could apply to any contract regardless of the relationship between the parties.[82] The TTBER 316/2014 and AML have conditions for exemptions, but these are not available in the interpretation. [83] The interpretation shows that the anti-competitive issues surrounding technology transfer have caught the attention of the legislature and judiciary, and they have begun providing a source of law to guide and solve the problem.

[81] The TTBER 316/2014 entered into force on 1 May 2014 and will expire on 30 April 2026. Commission Regulation (EU) No 316/2014 of 21 March 2014 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to categories of technology transfer agreements [2014] OJ L93/17. It supersedes TTBER 772/2004 and makes some amendments. Commission Regulation (EC) No 772/2004 of 27 April 2004 on the application of Article 81(3) of the Treaty to categories of technology transfer agreements [2004] OJ L123/11.

[82] Considering that the degree of anti-competitive effect of horizontal and vertical restrictions on the market may differ; for example, the impediments may be weaker in vertical restrictions than in horizontal ones; the threshold of applying competition law to a specific anti-competitive issue should be specified depending on the relationship of the parties involved. Tilottama Raychaudhuri, 'Vertical Restraints in Competition Law: the Need to Strike the Right Balance between Regulation and Competition' (2011) 4 (4) NUJS L Rev 609, 611-12 (stating that horizontal restrictions tend to increase the likelihood of a monopoly to be anti-competitive, while vertical restrictions may harm competition when the enterprise imposing restrictions already has market power); Nikolaos Vettas, 'Developments in Vertical Agreements' (2010) 55 (4) Antitrust Bull 843, 846-47 (stating that horizontal restrictions take place between competitors and thus have an immediate elimination of a rival, while vertical restrictions, between non-competitors, cannot be presumed to have such direct adverse impacts on competition, except under specific circumstances).

[83] It indicates that the interpretation mainly applies a conducts-based approach to judge if the anti-competitive restrictions should be regulated by law. However, the effects-based and economics-based approaches are more suitable because such approaches focus on the overall effects resulting from anti-competitive conduct on competition. Thus if the anti-competitive effects do not lead to a certain degree of restriction or elimination of competition, competition law should not intervene and should leave the market mechanism to operate. Otherwise, competition law may applied. Anti-competitive restrictions may be exempted if they have objective justification for being so. Giorgio Monti, 'EC Competition Law: The Dominance of Economic Analysis?' in Roger Zach and others (eds), *The Development of Competition Law: Global Perspective* (Edward Elgar 2010) 4-5 (stating '[a]n effect-based approach, grounded in solid economics, ensures that citizens enjoy the benefits of a competitive, dynamic market economy').

5.4 Legislation for when Technology Owners Refuse to Transfer Technology: Compulsory Licensing in Patent Law

Compulsory licensing is not common in intellectual property law, as it breaks the essential exclusive rights that are embodied in IPRs. The reasons for granting compulsory licences are very particular. One such reason could be that the right owner or others have failed to exploit the IPRs within a reasonable period without justifiable cause, resulting in the objective of protection by IPRs of dynamic efficiency not being realised or enjoyed by consumers. Thus, a compulsory licence would be applied to correct this. It could also be done for the benefit of the state or public interests, or because the anti-competitive effect that stems from the exercise of IPRs outweighs the positive effects.

Compulsory licensing provisions have been existing and being amended since the first Patent Law came into force in 1985.[84] The provisions state that compulsory licensing is allowed: 1) if the patented invention or utility model has not been exploited in a certain period;[85] 2) for a national emergency, or extraordinary state of affairs, or public interest;[86] 3) when the exploitation of a new patented invention or utility model is dependent on a previous patented invention or utility model, i.e. the patent administration department may grant a compulsory cross-licence if the new patented invention or utility model is 'an important technical advance of considerable economic significance';[87] and 4) if the exercise of the patent has been determined as

[84] The Patent Law of China took effect in 1985, and was then amended three times, in 1993, 2001, and 2009.

[85] Patent Law of China 1985, art 52; Patent Law of China 1993, art 51; Patent Law of China 2001, art 48; Patent Law of China 2009, art 48 (1).

[86] Patent Law of China 1993, art 52; Patent Law of China 2001, art 49; Patent Law of China 2009, art 49. According to the repealed Technology Contract Law, the government could require individuals or companies holding non-patent technology that is significant to national interests or social public interests to license it to other companies. Technology Contract Law of China 1987 (repealed 1999), art 7. However, the technology with significance to national interests or social public interests must meet strict criteria. It must represent significant economic and social profit, and have been awarded the 1st prize for Invention or the 1st prize for Scientific Progress by the National Science and Technology Committee. Regulations on the Implementation of Technology Contract Law of China 1989 (repealed 1999), art 9.

[87] The compulsory licence requires that the new patented invention or utility model is an 'advanced technology'. Patent law of China 1985, art 53; Patent Law of China 1993, art 53. The requirements for the new patented invention or utility model become stricter when granting a compulsory licence. Patent Law of China 2001, art 50, Patent Law of China 2009, art 51.

an act of monopoly and leads to an adverse effect on competition.[88] Of these categories, the last two involve competition in the market.

With regard to the third type of compulsory licence listed above, cross-licensing may result in anti-competitive effects.[89] However, the compulsory licence for blocking patents has a pro-competitive effect due to its promotion of follow-on innovation, so that the new generation of products can enter the market to compete with the old generation of products and with other new products, and avoid possible costs of litigation. The compulsory licence may mean less negotiation on other aspects, such as royalties, field of use, and restricting competition, than a voluntary licence.[90] However, the compulsory licence would relax the exclusivity of patents so that it may not encourage initial innovation, but the follow-on innovation could be promoted. Overall, the positive effect can outweigh the adverse effect.

The fourth type of compulsory licence, occurring when exploitation of a patent is considered a monopoly act, was first stipulated in the latest amendment of the Patent Law in 2009, after the adoption of the AML in 2008. However, the provision is very simple and does not define an act of monopoly. It simply provides a legal ground for

[88] Patent Law of China 2009, art 48(2).

[89] For example, if cross-licensing is concluded between competitors in a relevant market, the parties might set a fixed price and divide the market in order to reduce competition and earn more profit. These are established anti-competitive behaviours, both in US and EU law. 'When cross-licensing or pooling arrangements are mechanisms to accomplish naked price fixing or market division, they are subject to challenge under the per se rule.' Antitrust Guidelines 2017, s 5.5. See also Treaty on the Functioning of the European Union (TFEU) 2009, art 101 (1) (a)(b).

[90] Compulsory licensing normally has few restrictions on both parties, except that the licensee should not have exclusive rights to exploit it, should not have the right to authorise the third party to exploit it, and that they can negotiate the licensing fee. Otherwise, the Patent Department can decide the amount of the licensing fee. Patent Law 2009, arts 56, 57. This implies that the applicant of the compulsory licence does not need to accept any anti-competitive conditions issued by the licensor to get the licence. Therefore, it is almost impossible to have intrinsic anti-competitive effects between them. However, this may involve some anti-competitive effects for third parties, especially when they are competitors and have some agreements restricting third parties. See also Peter Grindley, 'IP, Cross-Licensing and Patent Pools: Similarities and Contrasts' (*Federal Trade Commission*, 17 April 2002) <http://www.ftc.gov/opp/intellect/020417petergrindley.pdf> accessed 3 May 2012 (most cross-licensing agreements require royalty payments and grant patents on a non-exclusive basis so that the parties reserve the right to license their patents to other third parties); Stephen A Merrill, Richard C Levin and Mark B Myers, 'A Patent System For 21st Century' (*The National Academies Press*, 2004) <http://www.nap.edu/openbook.php?record_id=10976&page=37> accessed 3 May 2013 ('the avoidance of litigation is important, since litigation can be especially damaging in an industry where a new product can provoke multiple infringement suits and the capital investment required to produce it is very large').

dealing with refusals to license a patent by competition law from the perspective of patent law, so as to avoid the contradiction that may arise between the two laws.

5.5 Conclusion

The context of Article 55 in the AML leads to problems that may include a misunderstanding that competition law cannot intervene in the exercise of IPRs in accordance with intellectual property law. However, the conduct of exercising IPRs in some cases may be legitimate under intellectual property law, but fall within the scope of competition law. Considering that this is the only article that exists for competition law to deal with IPRs-related anti-competitive issues in the AML, a very important principle, and that its weaknesses may lead to misinterpretation of further detailed regulation and guidelines, then it must be corrected.[91] Since a number of technologies were introduced from abroad when the Reform and Opening-Up policy was implemented, China has noted the anti-competitive restrictions in technology transfer and has made a few relevant provisions. However, they either stipulate only some terms of the restriction with very little description, or they simply mention anti-competitive effects generally due to a lack of experience or intention to offer more space for authorities to deal with the problem.[92] Whilst the interpretation of the Supreme People's Court specifies anti-competitive conducts in technology transfer much clearer than previous legislation, it merely clarifies that some of the conducts should be prohibited, rather than providing the reasons and an effects-based approach.[93] Patent law provides a legal framework so that the compulsory licensing patent of competition law can be recognised by IPRs under certain conditions, but the logic of the patent law and Article 55 of the AML contradict each other. There are no

[91] If this cannot be clarified, there are some anti-competitive issues that might be excluded from the scope of competition law. For example, the refusal to license is a basic conduct for exercising IPRs in accordance with intellectual property law as well as obedience of a fundamental principle of 'freedom of contract'. However, it could still fall within the scope of competition law in exceptional circumstances.

[92] The largest problem of the pre-AML provisions is that they are not systematic and are difficult to apply.

[93] The conducts-based rather than effects-based approach applied in the interpretation makes the provisions rigid. In accordance with it, the vertical and horizontal restrictions may be treated equally if they have the same conducts, and this may result in intervention for some conducts in the vertical restrictions, which would not necessarily need to be regulated due to the minimal harm to competition. It is not systematic and addresses only a few anti-competitive issues.

detailed contexts in either patent law or the AML for identifying the exact conditions in which to apply the compulsory licence. Whilst being the first adopted regulation to specifically address anti-competitive issues in the IPRs-related area, the Rules are still too general for purpose.[94]

The discussion up to this point has indicated that the exercise of IPRs in technology transfer falls within the scope of competition law when the positive effects[95] of such application outweigh its negative effects.[96] This doctrine is justified both by theoretical research on the complementary relationship between competition law and the IPRs system[97] along with an effects-based approach,[98] and by a historical revivew of China's two legal systems.[99] There are certain existing and potential anti-competitive issues in technology transfer within China that have, or will have, severe impacts on China. These issues are complex, and so they demand a proper, special, and comprehensive competition law to address them. However, the current legislation, as observed in this chapter, reveals that legislation of the intersection area is still in the infancy stage. Some are scattered and not systematic, some overly general, whilst some provide merely a few guidelines that are incapable of tackling issues properly. Therefore, the formulation of comprehensive guidelines for solving specific issues is

[94] Relevant provisions addressing specific issues in the Rules will be analysed in Chapters 5 and 6 in detail.

[95] The likely positive effects of applying competition law include static efficiency that results in sufficient output and lower price, namely immediate consumer welfare, a competitive market structure, greater opportunity for SMEs to be involved in the market, diffusion of technologies, and innovation that is achieved by a different mechanism to the IPRs system. For more details, see Chapter 2 of this thesis.

[96] The possible negative effects focus mainly on the discouragement of innovators, resulting from the application of competition law to the exercise of certain IPRs and leading to anti-competitive effects. Thus, the incentive of initial innovation, the core value of the IPRs system, may be impeded and may affect the dynamic efficiency in the long run. For more details, see Chapter 2 of this thesis.

[97] For more details, see Chapter 2 of this thesis.

[98] An effects-based approach attempts to assess whether and to what extent competition law can apply to the exercise of IPRs. Considering that both the application of competition law and the exercise of IPRs can have negative as well as positive effects, this approach will assess the effects of such an application on various values, including innovation, dissemination of technology, efficiency, consumer welfare, etc. If the positive effects of such an application outweigh the negative effects, the application should be considered to be justified. This approach is different from a conduct-based approach, which attempts to categorise certain conducts occurring in the exercise of IPRs that fall under competition law. For more details, see Section of 2.4.3 of Chapter 2 of this thesis.

[99] Both IPRs and competition law are transplanted from abroad, and the analysis of their historical development in China indicates that their interface, especially the application of competition law to IPRs, is consistent with the developmental trend seen during the process of the modernisation of contemporary China. For more details, see Chapter 4 of this thesis.

urgently called for. This should be primarily achieved by assessing the positive and negative effects that result from the intervention of competition law on IPRs in technology transfer, and such effects should be assessed on the impacts they have upon innovation, efficiency, and consumer welfare, etc. Finally, it should be decided if competition law would be applied. This would provide a legal basis for AMEAs, and even courts, to deal with the issues and assure the certainty of their decisions. It would also offer foreseeability for market actors when evaluating the legitimacy and outcomes of their conducts in technology transfer *ex ante*.

CHAPTER 6. PROPOSALS FOR DEALING WITH ANTI-COMPETITIVE ISSUES WHEN TECHNOLOGY OWNERS TRANSFER TECHNOLOGY IN CHINA: THE EXPERIENCES OF THE US AND THE EU

6.1 Introduction

Under intellectual property rights (IPRs), a technology owner can either transfer the technology with the imposition of some restrictions, or refuse to transfer. This chapter will focus on the anti-competitive issues relating to the former. A technology owner could realise profits by transferring technology to others when they do not have sufficient resources to exploit the technology themselves,[1] or in situations where they intend to increase profit despite having already commercialised the technology themselves.

Price heavily affects structure and competition in the market, as well as consumer welfare.[2] Thus, the anti-competitive effects of price-related restrictions, such as price fixing and price discrimination, could be significant. There are also a few noteworthy non-price-related issues that might restrict competition: allocation of markets, tying, grant-back.[3] These issues are very likely to arise or have already occurred within

[1] Nowadays, companies and universities tend to focus on research and development (R&D), rather than on exploitation and commercialisation of the intellectual property. This is a result of their specific situation, such as solely commercial objectives on technology transfers, or sufficient intellectuals in universities.

[2] The price can normally be determined on the basis of the relationship between demand and supply, but under specific situations, such as price cartel or monopoly, the price may be determined by the market actors who acquire market power, for the purpose of gaining supra-profits or excluding competitors from the market. Market structure and competition will be heavily affected as a result, and the unfairly high price and restriction on competition will directly or indirectly harm consumers. See also Gerald P O'Driscoll Jr, 'Money, Prices, and Bubbles' (2011) 31 (3) Cato J 441, 441 ('Prices play a critical role in allocating resources by signalling the relative scarcity of resources. Prices convey information, but when distorted they may mislead.'); Paul T M Ingenbleek and others, 'Best Practices for New Product Pricing: Impact on Market Performance and Price Level under Different Conditions' (2013) 30(3) J Prod Innov Manag 560, 560-61 (stating that pricing is a complex decision, and that price setters can determine the price according to their specific situation).

[3] In addition to these typical anti-competitive issues, there are others that may arise in technology transfer, including non-challenge restrictions, output restrictions, captive use restrictions, etc., but they will be excluded from the discussion of this thesis.

China's technology market. However, neither detailed guidelines nor sufficient case law experience are available in China, only a small number of provisions scattered throughout various laws and regulations, none of which suitably or effectively tackle the problems.[4] The relevant legislation in China is extremely inadequate. Some recent drafts of guidelines,[5] together with the Rules on the Prohibition of Abuse of Intellectual Property Rights for the Purposes of Eliminating or Restricting Competition[6] (Rules) that came into force in 2015, indicate China's intention to provide a special legal framework for solving these problems, reflecting the current attitudes of both the Anti-Monopoly Enforcement Authorities (AMEAs) and academic circles towards tackling these issues. However, the drafts and the Rules have only addressed a few of the issues and in a limited manner, some being very similar to the

[4] For more details, see Chapter 5 of the thesis.

[5] There are four Anti-Monopoly Enforcement Authorities (AMEAs) under the State Council in China. The Ministry of Commerce (MOC) is responsible for anti-monopoly review regarding concentrations; the National Development and Reform Commission (NDRC) focuses on tackling price-related monopoly issues; the State Administration of Industry and Commerce (SAIC) deals with other non-price-related and non-concentration-related issues; and the Anti-Monopoly Commission (AMC) coordinates the anti-monopoly work of these authorities. For more details about AMEAs, see Section 4.3.3 of Chapter 4 of this thesis. In 2015, the AMC tasked the State Intellectual Property Office (SIPO) and the other three AMEAs with drafting the respective guidelines, following which the Commission would revise, adjust and integrate these guidelines into a single uniform set of guidelines. The 5th draft of the Guidelines on Enforcing the Anti-Monopoly Law with Respect to Intellectual Property Rights (5th Guidelines) was published by the SAIC in 2012. The 7th draft of these guidelines (7th Guidelines) was updated in 2016. In addition, the NDRC drafted the Guidelines of Anti-Monopoly with Respect to Abuse of Intellectual Property Rights (draft for comments) (NDRC Guidelines) at the end of 2015. SAIC Task Force (draft), American Bar Association (trans), 'The 5th Draft of Guidelines on Enforcing the Anti-Monopoly Law with Respect to Intellectual Property Rights (关于知识产权领域反垄断执法的指南 Guanyu Zhishi Chanquan Lingyu Fan Longduan Zhifa De Zhinan),' both Chinese and English version (*American Bar Association*, 2012) <http://www.americanbar.org/content/dam/aba/uncategorized/international_law/aba_china_aml_ip_guidelines_comments_finalpackage.authcheckdam.pdf> accessed on 5 October 2015. SAIC, 'Guidelines on Enforcing the Anti-Monopoly Law with Respect to Abuse of Intellectual Property Rights (7th draft of SAIC) (关于滥用知识产权的反垄断执法指南 (国家工商总局第七稿) Guanyu Lanyong Zhishi Chanquan De Fan Longduan Zhifa Zhinan (Guojia Gongshang Zongju Diqi Gao)),' (*SAIC*, 4 February 2016) <http://www.saic.gov.cn/fldyfbzdjz/gzdt/201602/t20160204_166524.html...> accessed 28 March 2016. NDRC, 'Guidelines on Anti-Monopoly with Respect to Abuse of Intellectual Property Rights (draft for comments) (关于滥用知识产权的反垄断指南 (征求意见稿) Guanyu Lanyong Zhishi Chanquan De Fan Longduan Zhinan (Zhengqiu Yijian Gao)),' (*NDRC*, 31 December 2015) <http://jjs.ndrc.gov.cn/fjgld/201512/t20151231_770233.html> accessed 2 February 2016.

[6] 关于禁止滥用知识产权排除、限制竞争行为的规定 Guanyu Jingzhi Lanyong Zhishi Chanquan Paichu、Xianzhi Jingzheng Xingwei De Guiding. The Rules were promulgated on 7th April 2015 by the SAIC and came into force on 1st August 2015. SAIC, 'Rules (official Chinese version)' (*SAIC*, 7 April 2015) <http://www.saic.gov.cn/zwgk/zyfb/zjl/fld/201504/t20150413_155103.html> accessed 10 April 2015. An unofficial English version of the Rules is provided in Appendix 2.

provisions within the Anti-Monopoly Law of China[7] (AML): too general and difficult to apply. This chapter will first discuss statute and case law for some primary anti-competitive issues found in the United States (US) and the European Union (EU). It will then examine the inadequacy of the current Chinese legislation, including the drafts and the Rules. Finally, some comprehensive proposals for assessing these issues will be provided, based upon the combined experiences of the US and the EU, and China's specific situation.

6.2 Price Fixing

6.2.1 Introduction

Price fixing refers to two or more companies agreeing, between or among themselves, to restrict competition by setting a fixed price; such agreements are also called price cartels.[8] In technology transfer, competitive technology owners could fix the royalty rates of interchangeable technologies horizontally, or manufacturers could fix the sales price of a product incorporating the technology and its substitutes. From a vertical perspective, the licensor could fix the licensee's sales price to wholesalers of products incorporating the licensed technology, or a licensor could request a licensee to fix the wholesaler's resale price to retailers.

[7] The Anti-Monopoly Law of China was passed by the Standing Committee of the 10th National People's Congress on 30 August 2007 and came into effect on 1 August 2008. An unofficial English version is provided in Appendix 1.

[8] Paul Scott, 'Price Fixing and the Doctrine of Ancillary Restraints' (1999) 7 Canterbury L Rev 403, 404-405. In a non-competitive market, for example, when a company acquires a dominant position in a relevant market, especially a when it owns a technology without substitute, a company may charge supra-competitive prices as customers have fewer or no alternatives. A single company is not easily able to manipulate the price of products in a competitive market because price is mainly based on the forces of demand and supply, and maximisation of profits can be achieved by increasing the output until the cost of the last unit sold equals the market price. However, companies can conspire to fix a price that is higher than the prevailing price in a competitive market, through which they can maximise profits by reducing output and charging prices above margin costs. Michael K Vaska, 'Conscious Parallelism and Price Fixing: Defining the Boundary' (1985) 52(2) U Chi L Rev 508, 510.

The price can be fixed by a direct means, such as fixing a certain price;[9] fixing a certain degree by which to raise the price;[10] fixing a certain rate that alters the price of a relevant product;[11] fixing a rate of discount/credit/agreement and eliminating a discount or credit;[12] fixing the price-float range, including the maximum[13] and minimum prices, or the price-float within a certain range;[14] or by the competitors agreeing not to reduce the price unless it is approved by other parties. Essentially, their aim is to establish conditions in which companies are unable to adjust price according to their own situation, especially demand and supply status.

Price fixing can also be achieved indirectly through information exchange. The transparency of price is of benefit to not only the conclusion and maintenance of price fixing agreements, but also for determining the exact price that should be fixed.[15] US courts used to adopt a *per se* illegal[16] approach in relation to data dissemination

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[9] For example, two competitors agree to license their competitive technology for £1 million per year, or the licensor requires the licensee to sell the equipment embodying the licensed technology for £5000 each.

[10] It is difficult to agree an accurate price for products with the same technology, but distinct costs, or a certain price rise, such as 30%, would maintain competitive status, although all parties involved could earn more profit.

[11] For example, a laser printer and an ink jet printer are not absolute substitutes, but compete with each other to a certain extent. The manufacturers agree that the price of the ink jet printer is a certain rate, such as 50% of the price of the laser printer, so that whenever the laser printer increases its price, the ink jet printer has to raise its price, and the price reflects the demand-supply of a laser printer rather than an ink jet printer.

[12] An agreement among beer wholesalers to remove short-term interest-free trade credits from retailers was described by the court as 'tantamount to an agreement to eliminate discounts, and thus falls squarely within the traditional *per se* rule against price fixing'. *Catalano v Target Sales* 446 US 648 (1980).

[13] Fixing a maximum price allows room for reducing the price for competition, so that it may not restrict competition as much as fixing a minimum price. However, maximum price fixing 'may discourage entry into the market and may deter experimentation and new development by individual entrepreneurs. It may be a masquerade for an agreement to fix uniform prices, or it may in the future take on that character'. In other words, it may lead to a reduction in inter-brand competition, and so the *per se* illegal rule could be applied. *Arizona v Maricopa County Medical Society* 457 US 332, 348 (1982).

[14] For example, +10% and -10%.

[15] Information exchange could occur within an industry association, as well as between individuals. The Supreme Court held that an 'open competition plan' that required the exchange of stocks on hand, production, shipments, prices, names of purchasers, etc., by the manufacturers of a hardwood association which acquired nearly 1/3 of the US market output was illegal because it intended and had 'the effect of restricting competition in interstate commerce by curtailing production and increasing prices, and it held a combination and conspiracy violating the Anti-Trust Act'. *American Column & Lumber v United States* 257 US 377, 391 (1921).

[16] *Per se* illegal refers to conduct that is inherently illegal without considering any extrinsic proof or defence. It is often quoted in the US to categorise anti-competitive conducts, conclusively presumed on unreasonable trade restrictions, as being illegal. The horizontal anti-competitive agreement was traditionally regarded as being *per se* illegal, and *per se* illegal can be traced back to *Addyston Pipe & Steel*

plans.[17] Information exchange in an industry association may achieve some efficiency, such as the reduction of price to promote competition,[18] whilst information exchange between individuals may not have such an apparent efficiency.[19] Nevertheless, it may not harm competition when the market is competitive and competitors are not colluding to fix prices based on the information exchange. Therefore, the rule of reason[20] instead of *per se* illegal would apply to an analysis of the market's status.[21] A reciprocal exchange of information was regarded as establishing the combination or conspiracy in light of the Sherman Act, and the price stabilisation that stemmed from the exchange of information was deemed to have an anti-competitive effect in the corrugated container industry by reducing relevant price competition.[22]

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v United States 175 US 211 (1898). In modern times, some conducts have been excluded from the *per se* illegal rule, and only a few conducts that have outstanding anti-competitive effects will be regarded as *per se* illegal by a court, such as price fixing and market allocation. 'Anti-trust law does, however, helpfully and intelligibly reject certain defences to or justifications for some alleged antitrust violations on the grounds that those defence are *per se* inadmissible. The outcomes that antitrust law generated will not change significantly as a consequence of realizing that *per se* rules do not define antitrust violation, but instead govern the disposition of some defences. This realisation, however, will help courts structure more rational inquiries that pay increased attention to the substantive goals of antitrust law. In order to improve anti-trust analysis, courts therefore should abandon the notion of *per se* violations and focus on categorizing certain defences as *per se* inadmissible.' Thomas G Krattenmaker, '*Per Se* Violations in Antitrust Law: Confusing Offenses with Defences' (1988) 77 Geo LJ 165, 168-75.

[17] *American Column & Lumber v United States* 257 US 377 (1921); Keith N Hylton, *Antitrust Law: Economic Theory and Common Law* (Cambridge University Press 2003) 148.

[18] The members of the association may reduce their prices after acknowledging another competitor's price, in order to gain price advantage; to some extent, this promotes competition.

[19] In *United States v Container*, companies producing cartons agreed that any of them could ask the others for the most recently charged or quoted price to individual customers. Compared with American Column & Lumber, the information exchange in the case was the same, but the exact information exchange was between two individual competitors rather than between all of the competitors. The Supreme Court did not distinguish this difference but held that it might disturb the freedom to set the price in a severely concentrated market where the information exchange had been used to fix the price. *United States v Container* 393 US 333 (1969).

[20] Rule of reason refers to '[i]n any action under the antitrust laws, or under any State law similar to the antitrust laws, the conduct of—

(1) any person in making or performing a contract to carry out a joint venture, or

(2) a standards development organisation while engaged in a standards development activity,

shall not be deemed illegal *per se*; such conduct shall be judged on the basis of its reasonableness, taking into account all relevant factors affecting competition, including, but not limited to, effects on competition in properly defined, relevant research, development, product, process, and service markets. For the purpose of determining a properly defined, relevant market, worldwide capacity shall be considered to the extent that it may be appropriate in the circumstances.' Rule of Reason Standard (15 USC § 4302).

[21] Mr Justice Marshall, whom was joined by Mr Justice Harlan and Mr Justice Stewart, believed that the rule of reason should be applied rather than the *per se* rule. *United States v Container* 393 US 333, 341-44 (1969).

[22] ibid 335-38.

6.2.2 Price Fixing in US Law

6.2.2.1 Rejection by Courts of Defences of Ruinous Completion and Non-harm to Consumers

In earlier US cases of relevance, two major statements were issued that defended the illegality of price fixing. One is found in *United States v Trans Missouri Freight Association,*[23] and its aim was to avoid ruinous competition in price. The Supreme Court did not support this argument as the Sherman Act prohibits all restraints of trade.[24] The other is found in *United States v Trenton Potteries,*[25] where the defendant stated that the fixed price was reasonable and did not harm consumers. The court rejected the defence because the aim and result of every price-fixing agreement is the elimination of competition, and a price fixed as reasonable on one day may become unreasonable on another day due to economic and business changes.[26] Moreover, once price fixing is established, it can be maintained unaltered because of the absence of competition, and 'agreements [...] may well be held to be in themselves unreasonable or unlawful restraints'.[27]

6.2.2.2 Varying Degrees of Strictness in Horizontal and Vertical Price Fixing in Patent Licences

[23] 166 US 290 (1897).

[24] The lower courts held the agreement to be lawful based on the common law rule that 'the validity of contracts restricting competition was to be determined by the reasonableness of the restriction. However, the Supreme Court reversed this by a 5 to 4 vote on the ground of the Sherman Act to prohibit all restraints of trade.' 53 F 440 (1992), aff'd, 58 F 58, 82 (8th Cir 1893), rev'd, 166 US 290 (1987). A similar opinion was given by the Supreme Court. *United States v Addyston Pipe & Steel* 85 F 271 (6th Cir 1898), aff'd, 175 US 211 (1899); *Northern Securities v United States* 193 US 197 (1904); *Standard Oil v United States* 221 US 1 (1911).

[25] 273 US 392 (1927).

[26] ibid 397-98.

[27] ibid. The decision in this case also confirmed the *per se* illegal nature of naked price fixing by stating that: '[I]t has since often been decided and always assumed that uniform price-fixing by those controlling in any substantial manner a trade or business in interstate commerce is prohibited by the Sherman Law, despite the reasonableness of the particular prices agreed upon.' ibid 398. A court confirmed that 'price fixing agreements are unlawful *per se* under the Sherman Act,' although the parties do not monopolise the market, and the agreement does not charge a uniform price. *United States v Socony-Vacuum Oil* 310 US 150, 218 (1940).

Horizontal and vertical price fixing have different degrees of restriction on competition. In *National Harrow v Hench,*[28] the court held that where patentees set up a company to be responsible for licensing pooled patents to pool members, and the licence contains provisions to fix the resale price of the patented products, then such price fixing is unlawful because pool members have colluded to restrict price increases in order to restrain competition.[29] In *Bement v National Harrow,*[30] the resale price restraint provision was invulnerable when the patent pool licensed patents to a non-patent pool member. Based on the monopoly of patents and excepting very few illegal restraints, the Supreme Court held that restrictions regarding manufacture and sale would be upheld. Moreover, it reflects that the value of the products can be legally decided by the patentee.[31] Almost the same licensor and price fixing provisions, in the two cases, but with different licensees could create different results. Although the price fixing was a vertical restraint in *National Harrow*, in essence it was a horizontal restraint that might have led to the elimination of competition among patent pool members. However, in *Bement,* the actual vertical price fixing provision enabled the court to consider the attribute of a patent and the nature of heavy price fixing, and they ultimately exempted the provision.

In *United States v General Electric*,[32] the Supreme Court upheld the justification of price fixing imposed by a patentee, who was also a manufacturer of the patented products. This decision was based on premise that the patentee is entitled to gain reward from a patent by selling the products, because if there is no restriction and the licensee's sale price is lower than the patentee's price, then the patentee may not gain profit. This may result in the patentee being unwilling to license the patent, or only

[28] 83 F 36 (1898).
[29] ibid 38.
[30] 186 US 70 (1902).
[31] 'The provision in regard to the price at which the licensee would sell the article manufactured under the license was also an appropriate and reasonable condition. It tended to keep up the price of the implements manufactured and sold, but that was only recognising the nature of the property dealt in, and providing for its value so far as possible. This is the parties were legally entitled to do. The owner of a patented article can, of course, charge such price as he may choose, and the owner of a patent may assign it, or sell the right to manufacture and sell the article patented, upon the condition that the assignee shall charge a certain amount for such article.' ibid 93.
[32] 272 US 476 (1926).

allowing the licensee to use the products himself rather than selling to others.[33] Additionally, there would be no benefit from the dissemination of technology. The doctrine that resulted from the case, i.e. that the patentee may impose price fixing on a manufacturing licensee, is 'normally and reasonably adapted to secure pecuniary reward for the patentee's monopoly'.[34] It has been limited to a certain extent by subsequent decisions, and the legitimacy of price fixing might be excluded when several patentees pool their patents;[35] or when the patentee has multiple licensees;[36] or when the patentee is not himself a manufacturer competing with licensee manufacturers;[37] or when price fixing on an unpatented product made by a patented machine or patented method.[38]

6.2.2.3 Conclusion

Although the rule of reason has been applied to a few cases,[39] the *per se* rule has been the primary rule applied to price fixing.[40] In IPRs-related cases, horizontal price fixing

[33] '"Yes, you may make and sell articles under my patent, but not so as to destroy the profit that I wish to obtain by making them and selling them myself." He does not thereby sell outright to the licensee the articles the latter may make and sell, or vest absolute ownership in them. He restricts the property and interest the licensee has in the goods he makes and proposes to sell.' ibid. The Supreme Court also clarified that the exhaustion applies to the patentee who sells patented products, rather than imposing price restraints on the licence agreement.

[34] ibid.

[35] *United States v Line Material* 333 US 287 (1948).

[36] *Newburgh Moire v Superior Moire* 237 F2d 283 (3d Cir 1956).

[37] The licensor is a patent holding company and licensees are manufacturers. *United States v New Wrinkle* 342 US 371 (1952). See also *Royal Indus v St Regis Paper* 420 F2d 449, 452 (9th Cir 1969).

[38] *Cummer-Graham v Straight Side Basket* 142 F2d 646 (5th Cir 1944); *American Equipment v Tuthill Bldg Material* 69 F2d 406, 409 (7th Cir 1934).

[39] In addition to the above *General Electric* case, another representative case is *Broadcast Music v CBS*. In this case, the Supreme Court believed that the 'blanket license' with a fixed price avoided the severe inconvenience and potentially large transactional costs of negotiation of individual copyright owned by music users, outweighed the possible adverse effects of price fixing. *Broadcast Music v CBS* 441 US 1 (1979). In *State Oil v Khan*, the Supreme Court held that the maximum vertical price fixing could be evaluated under the rule of reason. *State Oil v Khan* 522 US 3 (1997). The rule of reason might be considered a compromise between these exceptional case decisions and the *per se* illegal approach. 'It would condemn such price fixes only in cases of significant power and where the price that is fixed is in some way unreasonable.' However, problems may be encountered as the rule of reason 'greatly encumbers the analysis of a problem without giving anything in return.' Other factors, such as the validity and infringement of the patent, cannot impede the harm that results from a product price fixing. The value of the patent that such price fixing intends to reasonablycover is costly and uncertain. Herbert Hovenkamp, 'Antitrust and the Patent System: A Reexamination' (2015) 72 Ohio St LJ 467, 524-28.

[40] *Dr Miles Medical v John D Park & Sons* 220 US 373 (1911) (the court established a clear rule of *per se* illegality for resale price maintenance); *United States v Colgate* 250 US 300 (1919) (it was held that a manufacturer can lawfully refuse to sell to a dealer who refuses to abide by the manufacturer's advised

among licensors, especially in practice among members of patent pools, are *per se* illegal,[41] while for the substantially vertical price fixing, such as restriction on resale prices, which was considered as *per se* illegal shall be applied by the rule of reason according to the Antitrust Guidelines for the Licensing of Intellectual Property of United States 2017[42] (Antitrust Guidelines 2017),[43] and more recently in the case of *Mallinckrodt v Medipart,*[44] where the court held that the patentee could freely impose restrictions on post-sales, and that only price fixing and tying should be dealt with by the *per se* illegal rule.[45] The only exceptional factor to justify price fixing is consideration of the rewards that the patentee should recoup, so that courts might allow such price fixing in certain cases to relieve the competitive pressure suffered by the patentee when the patentee is vertically integrated to compete with the licensee in the market of a patented product.

6.2.3 Price Fixing in EU Law

6.2.3.1 Price Fixing in Calculating Royalties

Price fixing has been regarded as a hardcore restriction in Commission Regulation (EU) No 316/2014 of 21 March 2014 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to categories of technology transfer agreements

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retail price); *United States v General Electronic* 272 US 476 (1926) (it was held that the *per se* rule would not apply if the dealer received the manufacturer's goods as a 'consignee' or 'agent,' rather than as a 'purchaser'); *Simpson v Union Oil* 377 US 13 (1964) (the judge overruled the doctrine created in General Electric); *Monsanto v Spray-Rite Serv* 104 S Ct 1464 (1984) (reaffirmed the application of the *per se* rule to vertical price restraints).

[41] '[T]he Agencies will often evaluate horizontal restraints under the rule of reason. Additionally, some restraints may merit *per se* treatment, including price fixing, allocation of markets or customers, agreements to reduce output, and certain group boycotts.' Antitrust Guidelines for the Licensing of Intellectual Property of United States 2017 (Antitrust Guidelines 2017), s 5.1.

[42] The Antitrust Guidelines issued by the US Department of Justice and the Federal Trade Commission on 12 January 2017.

[43] Antitrust Guidelines 2017, s 5.2. The Antitrust Guidelines for the Licensing of Intellectual Property of United States 1995 (Antitrust Guidelines 1995) considered *per se* illegal to apply all Resale Price Maintenance. Antitrust Guidelines 1995, s 5.2. However, the Antitrust Guidelines 2017 states *per se* illegal applies to horizontal catel of Resale Price Maintenance, and vertical Resale Price Maintenance shall be applied by rule of reason. Antitrust Guidelines 2017, s 5.2.

[44] 976 F2d 700 (Fed Cir 1992).

[45] See also Richard H Stern, 'Quanta Computer Inc v LG Electronics Inc — Comments on the Reaffirmance of the Exhaustion Doctrine in the United States' (2008) 12 EIPR 527, 531.

(TTBER 316/2014), as well as in Article 101 of the Treaty on the Functioning of the European Union (TFEU).[46] In the TTBER 316/2014, price fixing, both between competitors and non-competitors, is almost excluded from block exemption.[47] For horizontal price fixing, it contains direct restrictions, including agreement on exact price or on a price list with certain allowed maximum rebates, and also indirect restrictions, such as terms that the royalty rate will increase if product prices are reduced below a certain level.[48]

According to TTBER 316/2014, the fixing of the price based on the claim of royalties. The parties are free to decide the royalty rate, but in some cases the rights have been used as a way of cooperating to fix the price. Competitors may cross-license their technologies and agree to base the calculation of reciprocal royalties on the individual product sales, as the amount of payable royalty has a direct impact on the marginal cost and prices of products. Such a cross-licensing agreement with a running royalty may be treated as a price fixing agreement if it violates the purpose of pro-competition and acts as a shield to fix the price.[49] If the cross-licence imposes running royalties that are clearly disproportionate to the market value of the licence, and the royalties have a significant impact on the price of products, then Article 101(1) of the TFEU may apply and the restriction cannot be exempted. Evaluating the magnitude of the disproportion is mainly reliant on the data of other licensees in the relevant market for the same or substitute technologies.[50] The terms used to calculate royalties, on the basis of all product sales, irrespective of whether the licensed technology is being incorporated, are also regarded as price fixing, because this will raise the cost of the product that incorporates the licensee's own competition technologies, thus

[46] 'The following shall be prohibited [...] (a) directly or indirectly fix purchase or selling prices or any other trading conditions'. TFEU, art 101.

[47] '[...] are competing undertakings, the exemption provided for in Article 2 shall not apply to agreements [...] have as their object: (a) the restriction of a party's ability to determine its prices when selling products to third parties.' TTBER 316/2014, art 4(1)(a); '[...] are not competing undertakings, the exemption provided for in Article 2 shall not apply to agreements [...] have as their object: (a) the restriction of a party's ability to determine its prices when selling products to third parties, without prejudice to the possibility of imposing a maximum sale price or recommending a sale price, provided that it does not amount to a fixed or minimum sale price as a result of pressure from, or incentives offered by, any of the parties'. TTBER 316/2014, art 4(2)(a).

[48] Guidelines of TTBER 316/2014, para 99.

[49] ibid para 100.

[50] ibid para 186.

restricting competition.[51] This can be legitimate only when it lacks such terms, because without such terms it would be impossible or unduly difficult to calculate and monitor the royalty payable by the licensee.[52] For example, in *Windsurfing v Commission,*[53] the calculation of royalties for the patented rig was dependant on the net selling price of the entire sailboard, including both rig and board. The court held that because the clause did not result into the fact that the royalty rate for the separate sale of rigs is lower than the rate for sales, then as a whole it did not contravene Article 101(1) of the TFEU.

Price fixing in agreements between competitors and non-competitors are deemed to be a hardcore restriction in TTBER 316/2014,[54] but the imposition of a maximum sale price or recommendation of a sale price may be exempted, on the condition that it will not result in a fixed or minimum sale price in agreements between non-competitors.[55] Indirect price fixing includes fixing a margin and the maximum extent of discounts, linking sales price to that of competitors, threats, intimidation, warnings, penalties, etc.[56] Some measures can be combined to identify price-cutting to achieve price fixing, including a monitoring system, or requirement of licensees to report price deviations.[57] Other measures, such as an obligation on the licensee to apply a most-favourable-customer clause, will help reduce the licensee's incentive to lower the selling price.[58] The calculation of royalties on the basis of products incorporating technologies licensed from the licensor, as well as from other licensors, for convenience may be exempted. However, considering that the obligation may exclude the use of other licensors' technologies, and decrease competition by increasing the costs of the products incorporating technology licensed by other licensors (through the above method of calculating royalty), it is necessary to examine whether the

[51] ibid para 101.
[52] ibid.
[53] Case 193/83 [1986] ECR 611 [67].
[54] TTBER 316/2014, arts 4(1)(a), (2)(a).
[55] ibid art 4(2)(a).
[56] Guidelines of TTBER 316/2014, para 118.
[57] ibid.
[58] ibid.

obligation forecloses third parties' technology. If this is so, then it may not be exempted.[59]

6.2.3.2 Conclusion

Compared with the relatively clear application of the *per se* rule to horizontal, along with switch from *per se* to rule of reason for vertical price fixing rencently, price fixing under US law, TTBER 316/2014 and its guidelines systematically show a preference for the rule of reason. Although price fixing is viewed as a hardcore restriction, it is only excluded from block exemption, and may be exempted in individual exemptions that need the Commission to assess the effect, dependant on the specific situation *ex post*. Various methods of calculating royalties can be employed in agreements, and the Commission will analyse the efficiency and any anti-competitive effects to assess whether or not it is lawful.

6.2.4 Proposals for China

6.2.4.1 Current Legislation and Relevant Provisions in Some Drafts

Chinese competition legislation does not apply a *per se* rule to price fixing.[60] The AML stipulates that agreements between competitors for fixing or changing the prices of commodities,[61] and agreements between non-competitors for fixing the price for resale to a third party[62] or for restricting the minimum price for resale to a third party,[63] are prohibited. However, they could be exempted if the conditions of Article 15 of the

[59] ibid para 188.
[60] For example, the prohibition of price fixing is conditioned on 'unreasonable' price fixing or 'without being agreed by both parties'. See Regulations on the Administration of Technology Imports and Exports 2002, art 29; Interpretation of the Supreme People's Court concerning Some Issues on the Application of Laws for the Trial of Cases on Disputes regarding Technology Contracts No 20/2004, art 10(3); Regulations for the Implementation of the Law of China on Chinese-Foreign Equity Joint Ventures 2011, art 43.
[61] AML, art 13(1).
[62] ibid art 14(1).
[63] ibid art 14(2).

AML are satisfied.[64] Accordingly, the *per se* rule is excluded from the Regulations on Anti-Price Monopoly[65] (RAPM) which regulate price fixing[66] as well as price-related conducts practised by dominant companies to restrict or exclude competition.[67]

This existing Chinese legislation is overly general and too simplistic for IPRs-related issues, and detailed guidelines are expected. The 5th Draft of the Guidelines on Enforcing the Anti-Monopoly Law with Respect to Intellectual Property Rights[68] (5th Guidelines) only mentions that they apply to licence fees and the price of products incorporating licensed IPRs, and then replicate almost the same content as the AML.[69] The 7th Draft of the Guidelines on Enforcing the Anti-Monopoly Law with Respect to Abuse of Intellectual Property Rights[70] (7th Guidelines) further offers a definition of

[64] 'Agreements among undertakings with one of the following objectives shall be exempted from application of Articles 13, 14: (i) agreements to improve technology, to research and develop new products; (ii) agreements for the purposes of product quality upgrading, cost reduction and efficiency improvement, unified standards, norms, or specialisation; (iii) agreements by small and medium-sized enterprises to improve operational efficiency and to enhance their competitiveness; (v) agreements to cope with economic depression, to moderate serious decrease in sales volumes or distinct production surplus; (iv) agreements to achieve public interests, such as saving energy, protecting environment, relieving the victims of a disaster and so on; (vi) agreements to maintain legitimate interest in the cooperation with foreign economic entities and foreign trade; (vii) other situations stipulated by laws and the State Council. Undertakings pursuant to (i) to (v), and therefore exempted from Articles 13, 14, must additionally prove that the agreements can enable consumers to share impartially the interests derived from the agreements, and will not entirely eliminate the competition in the relevant market.' AML, art 15.

[65] The regulations were formulated by the NDRC and promulgated on the 29th December 2010, coming into force on the 1st February 2011.

[66] It includes lists of detailed forms of horizontal fixing price related to the range of changing price, relevant fee affecting price, such as a service fee and discount, the agreed price that is the basis to trade with a third party, the formula to calculate price, necessary agreement from other parties before changing the price, etc. Regulations on Anti-Price Monopoly 2011, art 7.

[67] ibid art 3.

[68] The 5th Guidelines were drafted by the SAIC in 2012. SAIC Task Force (draft), American Bar Association (trans), 'The 5th Draft of Guidelines on Enforcing the Anti-Monopoly Law with Respect to Intellectual Property Rights (关于知识产权领域反垄断执法的指南 Guanyu Zhishi Chanquan Lingyu Fan Longduan Zhifa De Zhinan),' both Chinese and English version (*American Bar Association*, 2012) <http://www.americanbar.org/content/dam/aba/uncategorized/international_law/aba_china_aml_ip_guidelines_comments_finalpackage.authcheckdam.pdf> accessed on 5 October 2015.

[69] An agreement between competitors will be prohibited if it involves '(1) Fixing or changing the fee of licensing IPRs or the price of products incorporating IPRs'. 5th Guidelines, art 13. An agreement between non-competitors will be prohibited if it involves '(1) Fixing price for resale to a third party regarding the products incorporating IPRs; (2) Restricting the minimum price for resale to a third party regarding the products incorporating IPRs; (3) other monopoly agreement regarding abusing IPRs confirmed by the AMEAs of State Council'. 5th Guidelines, art 14. See also AML, art 13 (1), 14.

[70] The 7th Guidelines was updated in 2016. SAIC, 'Guidelines on Enforcing the Anti-Monopoly Law with Respect to Abuse of Intellectual Property Rights (7th draft of SAIC) (关于滥用知识产权的反垄断执法指南（国家工商总局第七稿）Guanyu Lanyong Zhishi Chanquan De Fan Longduan Zhifa Zhinan (Guojia Gongshang Zongju Diqi Gao)),' (*SAIC*, 4 February 2016) <http://www.saic.gov.cn/fldyfbzdjz/gzdt/201602/t20160204_166524.html...> accessed 28 March 2016.

price restriction,[71] but it does not provide detailed guidelines for considering the positive and negative aspects of this type of restriction.[72] The National Reform and Development Commission (NDRC) drafted the Guidelines on Anti-Monopoly with Respect to Abuse of Intellectual Property Rights (draft for comments)[73] (NDRC Guidelines) at the end of 2015, which were expected to provide more comprehensive provisions for tackling price-related issues,[74] but merely contain a very simple provision on price restrictions between non-competitors, and lack provisions on price restrictions between competitors.[75] Guidelines on Anti-Monopoly Law with Respect to Abusing Intellectual Property Rights (draft for comments) 2017[76] (New Guidelines 2017) do not specify price-related restrictions. The TTBER 316/2014 and its guidelines can be used as an example of providing detailed contents specialising in technology transfer, in which they initially discuss the possible efficiencies and adverse effects, then weigh them, and finally arrive at a decision regarding whether or not competition law should intervene the issue of price-fixing.

6.2.4.2 Possible Efficiencies in Price Fixing

As price fixing is not *per se* illegal under the AML, it is crucial to provide clear and specific guidance based on an effects-based approach.[77] The ancillary doctrine to

[71] ibid art 13 (definition of price restriction between competitors), art 19 (definition of price restriction between non-competitors).

[72] AML, art 14.

[73] NDRC, 'Guidelines on Anti-Monopoly with Respect to Abuse of Intellectual Property Rights (draft for comments) (关于滥用知识产权的反垄断指南 (征求意见稿) Guanyu Lanyong Zhishi Chanquan De Fan Longduan Zhinan (Zhengqiu Yijian Gao)),' (*NDRC*, 31 December 2015) <http://jjs.ndrc.gov.cn/fjgld/201512/t20151231_770233.html> accessed 2 February 2016.

[74] The NDRC is the only one of the four AMEAs that focuses on tackling price-related monopoly issues. For more details about AMEAs, see Section 4.3.3 of Chapter 4 of this thesis.

[75] 'If the selling price or the minimum selling price of the products incorporating the IPRs that will be sold from the licensee to any third parties have been fixed by the licensor, this can be applied by provisions regarding to fixing re-sale price or minimum re-sale price in the AML.' NDRC Guidelines, art 2(2)(1).

[76] AMC, 'Guidelines on Anti-Monopoly with Respect to Abuse of Intellectual Property Rights (draft for comments) (关于滥用知识产权的反垄断指南 (征求意见稿) Guanyu Lanyong Zhishi Chanquan De Fan Longduan Zhinan (Zhengqiu Yijian Gao)),' (*AMC*, 23 March 2017) <http://fldj.mofcom.gov.cn/article/zcfb/201703/20170302539418.shtml> accessed 2 April 2017.

[77] An effects-based approach attempts to assess whether and to what extent competition law can apply to the exercise of IPRs. Considering that both the application of competition law and the exercise of IPRs can have negative as well as positive effects, this approach will assess the effects of such an application on various values, including innovation, dissemination of technology, efficiency, consumer welfare, etc. If

distinguish naked restraint or ancillary restraint may be helpful for the analysis. Naked restraint refers to a price fixing agreement that solely intends to restrict or eliminate competition, while ancillary restraints attached to other commercial purposes may lead to sufficient efficiency for competition and consumers, in a reasonable and necessary way.[78] The doctrine has been widely used in US law,[79] and there are proposals to use it in China to observe price fixing at an initial stage.

Although price fixing is regarded as being generally harmful to competition, there are a few justifications and efficiencies that should be considered. Firstly, the efficiency may be generated from the organised management of IPRs. In *Broadcast Music*,[80] the price fixing for 'blanket licences' was justifiable mainly because it produced a new service that saved a large amount of transactional costs.[81] The organisation of patents in technology transfer happens in China, especially when the manufacture of high-tech products involves the licensing of a portfolio of patents, and when Chinese patentees learn how to manage a patent pool or standardisation.[82] Therefore, they need to consider the efficiency of removing patent thickets[83] and saving individual transactional costs when analysing the packed charge of technologies.

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the positive effects of such an application outweigh the negative effects, the application should be considered to be justified. This approach is different from a conduct-based approach, which attempts to categorise certain conducts occurring in the exercise of IPRs that fall under competition law. For more details, see Section 2.4.3 of Chapter 2 of this thesis.

[78] The doctrine of ancillary restraints was conceived by Judge William Howard Taft and focuses on the main purpose of the agreement, and the reasonableness and necessity of the restraints. *United States v Addyston Pipe & Steel* 85 F271 (6th Cir 1898), aff'd, 175 US 211 (1899).

[79] It is included in the terms 'quick look' or 'facial examination,' which direct the court to conduct a preliminary inquiry to see whether the *per se* rule should apply to price restraints. *Vogel v American Society of Appraisers* 774 F2d 598, 603 (7th Cir 1984). See also Edward Brunet, 'Streamlining Antitrust Litigation by 'Facial Examination' of Restraints: The Burger Court and the *Per Se* Rule of Reason Distinction' (1984) 60 Wash L Rev 1, 10-15; James T Halverson, 'The Future of Horizontal Restraints Analysis' (1988) 57 ALJ 33, 48-50.

[80] *Broadcast Music v CBS* 441 US 1 (1979).

[81] Elyse Dorsey, 'Building Patent Portfolios to Facilitate Cross-Licensing Agreements: Implications for Merger Efficiency Analysis' (2013) 15 Colum Sci & Tech L Rev 125, 143-45 (stating that the decision of *Broadcast Music* has been widely recognised as an important implication for efficiency analysis.)

[82] D Daniel Sokol and Wentong Zheng, 'FRAND in China' (2013) 22(1) Tex Intell Prop 71, 79-86 (overviewing the standard-setting status, policies, and legal framework in China).

[83] Patent thickets refer to when numerous patents cover a product, and the potential refusal of any holder of these patents may impede the recoupments on the previous investments of other patent holders, and jeopardise technology development. T Randolph Beard and David L Kaserman, 'Patent Thickets, Cross-Licensing, and Antitrust' (2002) 47 Antitrust Bull 345, 351-52.

Secondly, price fixing may be justifiable if the restraint concerns a joint venture. Chinese legislation should guarantee the investment of foreign investors who do not intend to restrict competition.[84] A joint venture enables two or more individual companies to jointly invest resources in the new company, including the transfer of their technologies, and whilst the price of the products for the joint venture may be the outcome of negotiation with the parent companies, it could generate efficiencies. For example, two companies that hold different competitive technologies and produce relevant competitive products may invest resources, including the technology, to establish a joint venture, and then stop producing the goods themselves on an individual basis. If there are genuine investments of resources that create economies of scale or improve the efficiency of production,[85] so that they lead to lower costs and prices to benefit consumers, and do not restrict or eliminate competition, they may be exempted from the AML. If the parent companies are not competitors but hold complementary technologies, one of the major efficiencies is the generation of new products that could not be produced, or could be produced with great cost advantages.[86] However, if the joint venture has no substantial integration of resources invested by parent companies, and the price becomes unreasonably high or the output decreases without the joint venture so that it may be a disguised cartel, then that should be prohibited.[87] However, it is of course important to distinguish price restraint on technology transfer, which may be justifiable, from products

[84] Foreign investment, through which advanced technologies are introduced, plays an important role in the economic development of China, and can be achieved in the form of a joint venture established by a Chinese company and a foreign company, or by different foreign companies. Matthew A Marcucci, 'Navigating Unfamiliar Terrain: Reconciling Conflicting Impressions of China's Intellectual Property Regime in an Effort to Aid Foreign Right Holders' (2013) 23 Fordham Intell Prop Media & Ent LJ 1395, 1429 (stating that the Chinese government is eager to transfer IPRs from foreign rights owners).

[85] In addition, it may decrease the parent companies' risks, avoid duplication of resources, and access complementary assets. Paul Scott, 'Unresolved Issues in Price Fixing: Market Division, the Meaning of Control and Characterisation' (2006) 12 Canterbury L Rev 197, 207.

[86] A company needs to access the necessary technology from another company by paying the licensing fee. Once the joint venture is established, the licensing fee is likely to be free.

[87] The District Court commented: 'If a joint venture or partnership is formed for the purpose of a lawful business enterprise and restraints result from the right to protect an established business interest, no violation of law occurs. But if the association is formed for the purpose of continuing a combination to allocate exclusive sales territories in the world, to fix prices and to eliminate competition both within and without the combination, it cannot hide from the effects of the law under the cloak of a joint venture or partnership. Were it otherwise, an easy way could be found to circumvent the law by entering into agreements purportedly to protect a joint venture or partnership.' *United States v Timken Roller Bearing* 83 F Supp 284, 312 (1949), aff'd as modified, 341 US 539 (1951).

incorporating the transferred technology, which removes incentives for the licensee or franchisers to produce internal efficiencies by price competition in marketing and production.

Thirdly, when the transferor and transferee are competitors in a market of products incorporating the transferred technology, vertical price fixing may encourage the dissemination of the technology because it can reduce the risk of loss to the transferor. Currently in China, indigenous technology holders can be reluctant to license technology as they worry about the loss of competitiveness by transferring technologies.[88] The allowance of a certain level of restraint may be helpful to promote transfer. However, horizontal price fixing may generate more harm, so the justification should incorporate several conditions.

Fourthly, if the licensor charges royalties based on the unit price of products that incorporate the technology, the licensor may be justified in fixing the minimum price to prevent the licensee from strategically selling the products at a very low price. If the price is lower than the cost, it may impede the licensor from receiving proper royalties for some other commercial intentions.[89]

Fifthly, the maximum price in an exclusive licence may generate certain efficiencies. For example, a technology owner may worry that too many licensees will result in a reduction in their competitiveness, which may encourage them to only grant exclusive licences to specific licensees in certain territories. In this way, the licensees can gain market power in their territories, if the delivery from other territories is costly. If there is no restriction on maximum price, the licensees may charge an excessively high price to operate a predatory development in that area. This not only harms consumer welfare, but also discourages efficiency in producing the goods. However, if the maximum price has been set for multiple licensees and it is near the marginal cost, it

[88] For more details, see Section 3.3 of Chapter 3 of the thesis.
[89] For example, the licensee may sell patented printers at a lower price, but charge a higher price for unpatented cartridges to recoup the loss.

may lead to a similar situation to those licensees engaged in horizontal price fixing, which is not justified.[90]

Finally, vertical price fixing can avoid the discouragement of local distributors investing in the products, by fearing other parallel dealers may free ride on the investment of the local dealer and induce consumers with lower price. [91]

6.2.4.3 A Landmark Case Regarding Minimum Resale Price Maintenance in China — *Ruibang v Johnson & Johnson*

It was not until the first vertical monopoly case involving price fixing in China in May 2012 that a discussion took place regarding how to analyse price fixing under Chinese law. In *Ruibang v Johnson & Johnson,*[92] Ruibang, as a franchiser, had been selling the stitching instruments and sutures of Johnson & Johnson in the Beijing area for approximately fifteen years, and the franchising contracts were renewed on a yearly basis. They had concluded a franchising contract, including the territory, quota of sales, and minimum resale price, in January 2008. However, in August 2008, Johnson & Johnson terminated the franchising contract because Ruibang was found to have breached the contract by bidding with a price that was lower than the minimum resale price, to a hospital that was outside the territory designated to Ruibang. Ruibang claimed that Johnson & Johnson had intended to restrict competition directly by fixing the minimum resale price, and had threatened Ruibang into maintaining the minimum price through warning, suspending, and terminating the contract, as well as through operating a price-monitoring system. Therefore, Johnson & Johnson had

[90] The US Supreme Court extended the *per se* rule against minimum resale price maintenance to maximum resale price maintenance, because these restrictions limited the freedom of price setting by dealers. The Court also believed that the restriction may lead to a focus mainly on costs of production, ignoring other essential services, so that only large and efficient dealers could win as ultimately the maximum price could instead become a minimum price. *Albrecht v Herald* 390 US 145 (1968). However, the current concerns are mainly in relation to minimum resale price.

[91] Ariel Katz, 'First Sale Doctrine and the Economics of Post-Sale Restraints' (2014) 1 BYU L Rev 55, 84-87 ('Parallel trade thus could undermine the incentive to invest in building the local market and to provide pre-sale and post-sale services, ultimately to the detriment of the local dealer, local consumer, and the manufacturer.')

[92] (2010) Shanghai No 1 Intermediate People's Court No 169/2010 ((2010) 沪一中民五(知)初字第 169 号 (2010) Hu Yi Zhong Min Wu (Zhi) Chu Zi Di 169 Hao), rev'd, (2012) Shanghai High People's Court No 63/2012 ((2012) 沪高民三(知)终字第 63 号 (2012) Hu Gao Min San (Zhi) Zhong Zi Di 63 Hao).

violated the prohibition of fixing minimum resale price of Article 14(2) of the AML, and should compensate Ruibang's losses. Johnson & Johnson primarily argued that the franchising contract could not be regarded as a monopoly agreement, because the products in question had sufficient competition in China and the defendant did not acquire a dominant position in China. As such, the clauses for fixing a resale price did not restrict or eliminate competition.[93]

The initial court dismissed Ruibang's claim because it failed to prove the dominant position of Johnson & Johnson and the relevant restrictive impacts on the competition of the market.[94] However, the initial decision ware reversed in the appeal.[95] There are a number of notable points in this judgment. Above all, the higher court confirms that 'excluding or restricting competition' is a necessary requirement for constituting both horizontal and vertical monopoly agreements.[96]

The higher court also identified that the minimum resale price amounted to a monopoly agreement, and this decision was based primarily on the following aspects: the relevant market lacked sufficient competition; otherwise, consumers could have

[93] Johnson & Johnson also argued: 1) the fixing of a resale price happened before the AML came into force so it should not be regulated by the AML; 2) Ruibang was not a proper plaintiff because if the contract was a monopoly agreement, Ruibang was one party concluding and implementing the contract, and the AML protects public market order and consumer welfare and social public interest rather than the interest of the participants of a monopoly agreement; 3) the claim of a loss by the plaintiff fell under contract disputes rather than monopoly disputes. ibid, Shanghai No 1 Intermediate People's Court No 169/2010 ((2010) 沪一中民五(知)初字第 169 号 (2010) Hu Yi Zhong Min Wu (Zhi) Chu Zi Di 169 Hao).

[94] The Shanghai No 1 Intermediate People's Court held that it must be discovered if the fixing of a resale price restricts or eliminates competition. Thus it is necessary to examine the market share of the products in the relevant market; the competition in the upstream or downstream market; and the effect of fixing resale price on the output and price. In this case, the plaintiff only provided the market share included in the defendant's self-introduction on the internet, which was not sufficient to confirm market power, while the defendant provided evidence of many companies operating the same type of business in the market. Therefore, simply affirming monopoly conduct was not enough, and the plaintiff failed in the judgement. It can be seen that the key issue was one of evidence for identifying whether the defendant acquires dominant position in the market, rather than a fundamental review of the scope of the concept of price-fixing. ibid.

[95] (2012) Shanghai High People's Court No 63/2012 ((2012) 沪高民三(知)终字第 63 号 (2012) Hu Gao Min San (Zhi) Zhong Zi Di 63 Hao).

[96] The appellant claimed that 'excluding and restricting competition' is a condition considered to be a horizontal monopoly agreement rather than vertical, dependant on the AML. However, the court stated that this provision stipulates that it applies 'in this law,' implying that it is relevant to all monopoly agreements. 'Competing undertakings shall be prohibited from entering into any monopoly agreement that will: ... The term "monopoly agreements" referred to herein means any agreements, decisions or other concerted actions that eliminate or restrict competition'. AML, art 13. ibid.

switched suppliers if the resale price of a certain supplier was restricted. In terms of the medical suture in question, the court said that the purchasing parties imposed non-sufficient pressure on competition in the market.[97] Johnson & Johnson had intentionally invested substantial resources[98] into generating the strong dependency of its user on its brand of medical suture, reducing the pressure on price from hospitals to Johnson & Johnson. Further, the barrier for entering the market of medical sutures was high because of the stringent access system controlled by the government; the dependency mentioned above; and the solid business relationship with hospitals.[99] Finally, the fact that the price of medical sutures from Johnson & Johnson had changed very little in the last fifteen years, indicated that Johnson & Johnson was easily able to fix the price in the long term because the competition in the relevant market was insufficient.[100]

Evidence illustrated that Johnson & Johnson occupied a strong market position. Johnson & Johnson had an advantageous position in the business to purchasing parties and need not follow another price in the relevant market.[101] Its strong reputation helped sustain such a dominant position. Additionally, Johnson & Johnson had strong control over its franchisers, because the franchisers could not sell competitive products. Each hospital had been designated to just one franchiser, so that there was no intra-brand competition. A rigorous supervising system was in place to guarantee the franchisers' behaviour in business, and to ensure that franchisers operated and

[97] By taking hospitals as an example, this was because the cost of medical sutures accounts for a very small proportion of the operational costs, and hospitals could easily pass the cost onto patients. The sensitivity of the purchasing party to the medical suture was much less than that of consumers to normal products. In addition, the medical sources in China are relatively insufficient and imbalanced, so patients are very reliant on hospitals, and hospitals are able to easily pass on costs to patients. ibid (2012) Shanghai High People's Court No 63/2012 ((2012) 沪高民三(知)终字第 63 号 (2012) Hu Gao Min San (Zhi) Zhong Zi Di 63 Hao).

[98] It includes training doctors and nurses to use their products, organising exhibitions, academic research conferences, and visiting doctors and nurses regularly with the aim of encouraging them to use their products. Once this habit has been developed, it is difficult for doctors and nurses to switch to other products due to familiarity and other costs, so the cross-elasticity of products of different brands is relatively low. ibid.

[99] ibid.

[100] ibid.

[101] ibid.

competed little by themselves. Franchisers extended the contract on a yearly basis, which encouraged them to obey the requirements or risk losing the business.[102]

The motive behind fixing minimum resale price is to avoid price competition.[103] Fixing a minimum resale price restricts intra-brand and inter-brand competition as a result of a tacit agreement of sustaining the price at a certain level or increasing the price, in which case economic efficiency and consumer welfare will be ruined. However, it does not benefit by improving the safety and quality of products in order to avoid 'free-riding' effects, or to promote new products entering the market.[104]

The appellate decision based on the rule of reason in this case has a special impact on the judgements of courts in China.[105] Assuming that this case goes ahead in the US and Johnson & Johnson licenses a patent to Ruibang, as one of the franchisers, the options (as follow) that involve imposing a minimum resale price are very likely to be unlawful according to US case law, because post sales restrictions might be construed as *per se* illegal.[106] The possible options are: 1) Ruibang only purchases products incorporating

[102] ibid.

[103] Johnson & Johnson took actions, both to improve the quality of services and to upgrade new products, in order to sustain the price, the objective of which was also listed in the agreement with its franchisers. ibid.

[104] ibid.

[105] It is very rare for a plaintiff to win an anti-monopoly case in China, although there have only been a few monopoly-related cases in China, because in earlier cases, the greatest difficulty plaintiffs faced was to prove the dominant position of the defendant in the market. Even if Ribang had appointed a third consulting or investing company to provide some data regarding market share, the court would have been reluctant to accept it since 'the data quoted in the report has not been provided the source', and it could not guarantee the genuineness and authority of the data. The provider states in the legal announcement 'that they will not guarantee the accuracy and integrity of the data quoted in the report.' However, the higher court confirmed the insufficient competition and the strong position of Johnson & Johnson in the market, not primarily from the data regarding market share, which was relied on by courts in other monopoly-related cases, but from a systematic view. Such a method of systematic analysis was not provided by the plaintiff, but was actively created by the court. It is a new phenomenon in China's trial practice; it also offers a new method for a plaintiff to prove his case. It provides the possibility of winning for the plaintiff who may be relatively small, as it is difficult to collect enough market data to prove the market position and market share of the defendant. See also Chunfai Liu and Stephenson Harwood, 'A Landmark Court Ruling in China: Resale Price Maintenance as Examined in the Johnson & Johnson Case' (2013) 2 Competition Pol'y Int'l Antitrust Chron1, 4 (stating that the court employs economic principles in the decision making); John Z Ren, 'Dragon Mirrors the Eagle: Why China Should Look to U.S. Antitrust Law in Determining How to Treat Vertical Price-Fixing' (2014) 47 Cornell Int'l L J 473, 487-88, 495-97 (stating that it is right for the Chinese court to apply the rule of reason to analyse resale price maintenance in the case of *Ruibang*).

[106] The attitue of the Agencies on Restrictions of post sale has been changed from *per se* illegal to rule of reason, but the court may apply *per se* illegal. See Antitrust Guidelines 2017, s 5.2. Case laws in Section

the patent, and sells rather than manufactures the products itself;[107] or 2) Ruibang is allowed to manufacture and sell, but Johnson & Johnson is strictly the licensor and not the manufacturer;[108] or 3) both Ruibang and Johnson & Johnson are manufacturers, and Johnson & Johnson is entitled to compete with any franchisers.[109] Although the US Supreme Court held that the vertical price restraints as minimum advertised pricing are not *per se* illegal but should be analysed based on the rule of reason,[110] which overrules the traditional doctrine of the application of *per se* illegal to resale price maintenance[111] and provides some space for considering the possible efficiencies, in terms of intellectual property, the Agencies change to apply rule of reason rather than the *per se* rule against resale price maintenance.[112]

Within the EU, the agreement, including resale price maintenance, is presumed to restrict competition and fall within Article 101(1) of the TFEU. However, companies can provide compelling evidence to prove that all conditions for an efficiency defence in Article 101(3) are met.[113] *Per se* is inapplicable in China because the AML is mainly

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6.2.2 of this chapter of the thesis. There are only a few exceptions to this rule. *United States v General Electric* 272 US 476 (1926) (fixing resale price may be lawful); *Mallinckrodt v Medipart* 976 F2d 700 (Fed Cir 1992) (the court intended to apply the rule of reason to all post-sale restraints, rather than only tying and price fixing).

[107] On the basis of the exhaustion doctrine, resale price is generally illegal when the products have been sold and owned by the dealers. *Dr Miles Medical Co v John D Park & Sons* 220 US 373, 408 (1911); *Ethyl Gasoline v United States* 309 US 436 (1940); *United States v Univis Lens* 316 US 241 (1942).

[108] *Quanta Computer v LG Electronics* 553 US 617 (2008) (the court reaffirmed that the exhaustion doctrine of patents removed the legality of many post-sale restraints that were lawful in previous cases, especially price fixing); *United States v General Electric* 272 US 476 (1926) (the court excluded the legitimacy of imposing a resale price on a licensee when the licensor and licensee do not compete in the market of products incorporating the licensed patent).

[109] *Newburgh Moire v Superior Moire* 237 F2d 283, 293-94 (3rd Cir 1956) (the multiple licences in franchiser networks could lead to horizontal price fixing effects among licensees). *United States v General Electric* 272 US 476 (1926) (however, in this case, the court supported the restriction on the licensee's resale price when the licensor and the licensee were competitors in the market of products incorporating the licensed technology, taking into consideration the incentive of granting a licence).

[110] *Leegin Creative Leather Products v PSKS* 551 US 877, 886 (2007) (the Supreme Court overruled the application of the *per se* rule to resale price maintenance, which has been exploited in US case law for more than a hundred years, and decided to apply the rule of reason, by holding that resale price maintenance can have 'either precompetitive or anticompetitive effects, depending upon the circumstance in which they are formed.').

[111] There is a long-standing precedent of applying the *per se* rule to resale price maintenance. *Dr Miles Medical v John D Park & Sons* 220 US 373 (1911).

[112] Antitrust Guidelines 2017, s 5.2 (rule of reason); Antitrust Guidelines 1995, s 5.2 (*per se* illegal).

[113] Greg Shaffer, 'Anti-competitive Effects of RPM (Resale Price Maintenance) Agreement in Fragmented Market' (*Gov.uk*, 2013) <http://www.oft.gov.uk/shared_oft/research/RPM.pdf> accessed 1 May 2013. See also TTBER 316/2014, arts 4(1)(a), 4(2)(a); Commission Regulation (EU) No 330/2010 of 20 April 2010 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to

effects-oriented. For example, if the market share of the licensor and licensees is very small, such as below 5%, which implies there are still many competitors in the relevant market, and if the maintenance of the resale price is too high, consumers could switch to other competitors. Therefore, the fixing of the resale price may not be prohibited, as it does not harm competition. Moreover, in a case involving a franchise system, the technology owner could license the technology to other manufacturers to provide uniform products, and this may generate efficiency resulting from the licensor and licensee combining their resources, including IPRs, finance, materials, and labour. Restrictions of territory in franchising, along with some others that include price fixing, may be accepted, because it induces investment and creates a network. This is why in *Ruibang,* both of the parties and the court agreed that there might be efficiencies in minimum resale price, and the court analysed the availability of the efficiencies.[114]

6.2.4.4Conclusion

The current laws and regulations in respect of price fixing in China do not apply the *per se* rule. Rather, they allow for reasonable causes and agreements between the parties in question. The AML does not stipulate specific guidelines but simple provisions for both horizontal and vertical price fixing conducts; neither do other drafts provide more detailed provisions. In order to weigh up the positive and negative effects of price fixing in technology transfer, consideration should be given to any harm caused by the price fixing, including the charging of excessively high prices that impede innovation. Consideration must also be given to efficiencies under specific conditions, such as reducing the costs in management of different technologies, efficiency in joint ventures, encouragement of technology dissemination, the guarantee of proper royalties for licensors, and the avoidance of predatory pricing. The

categories of vertical agreements and concerted practices [2010] OJ L102/1, preface (10) ('[i]n particular, vertical agreements containing certain types of severe restrictions of competition such as minimum and fixed resale-prices, as well as certain types of territorial protection, should be excluded from the benefit of the block exemption established by this regulation').

[114] (2010) Shanghai High People's Court No 63/2012 ((2012) 沪高民三(知)终第 63 号 (2012) Hu Gao Min San (Zhi) Zhong Zi Di 63 Hao).

judgment of *Ruibang* has provided a new perspective and a model for analysing resale price fixing in cases.

6.3 Price Discrimination

6.3.1 Introduction

Price discrimination refers to the charging of different prices to different customers for the same quantity of the same product[115] with fixed costs,[116] or when different customers are charged the same price but the costs of products are different. In other words, the sales have various ratios of price to marginal cost, and the seller can get various returns for the same product from different customers.[117] According to different criteria, such as maximum reserve prices of each entity,[118] quantity of the demanding products,[119] and customer groups,[120] price discrimination can be categorised as first-degree, second- degree, or third-degree.[121]

[115] Wendy J Gordon, 'Intellectual Property as Price Discrimination: Implications for Contract' (1998) 73 Chi-Kent L Rev 1367, 1376-77.

[116] Sometimes the difference in price is not discrimination, but results from the varied costs, such as the different distribution fees based on the different destinations. Louis Phlips, *The Economics of Price Discrimination* (Cambridge University Press 1983) 6. Price discrimination is described as being 'the sale or purchase of different units of a good or service at prices not directly corresponding to differences in the cost of supplying them.' Richard Whish and David Bailey, *Competition Law* (7th edn, Oxford University Press 2008) 748.

[117] Herbert Hovenkamp, 'Post-Sale Restraints and Competitive Harm: The First Sale Doctrine in Perspective' (2011) 66 NYU Ann Surv Am L 487, 532 (stating that price discrimination occurs in three degrees).

[118] Customers in different situations normally have various maximum reserve prices imposed on them for the same product, but it is not realistic to charge each customer his maximum reserve price to capture all consumer surpluses. This is because the seller will normally set a unified price for a product, at least within a territory or for a certain group of customers, and it is unlikely that they will set a price for each customer, according to their maximum reserve prices. However, when the technology transferor and transferee disclose enough information to negotiate and finally agree to a proper rate, this type of discrimination, first-degree discrimination, can be achieved. Robert H Frank, *Microeconomics and Behavior* (8th edn, McGraw-Hill 2010) 393-94.

[119] Second-degree price discrimination offers various prices based on quantity, such as discounts on certain products. This normally arises in highly competitive markets and is regarded as benign by competition law. When technologies have been packaged or bundled to be licensed with a preferential royalty rate, instead of being licensed individually, then they may belong to second-degree price discrimination. Massimo Motta, *Competition Policy: Theory and Practice* (Cambridge University Press 2004) 495. ibid Robert H Frank 395.

[120] Third-degree price discrimination refers to different prices being offered to different groups of customers, identified by some easily observable or ascertainable characteristics. This can be indicated when pool royalty rates are charged dependant on objective criteria, such as the industry the licensee is in,

Price discrimination normally works without arbitrage, where customers that are charged a lower price sell the products to those charged a higher price, and the relevant management and distribution costs can be recouped.[122] These differ from products that are protected by IPRs, for which suppliers have to actively distinguish the customer groups, such as end users or resellers.[123] For example, the licensor and licensee have to negotiate whether the licensee can sub-license the patent to a third party, or if the software licensed is for private use only, or if it can be replicated to be an input in manufacturing computers. Therefore, technology owners are able to achieve price discrimination for different customer groups.

The ability to exploit price discrimination indicates a dominant position or market power.[124] Price discrimination may lead to primary line injury, where the technology transferor's competitors are foreclosed, such as by offering a selectively low price to exclude equally efficient competitors based on market power, or charging a higher price later. It may also result in secondary line injury where the exclusionary effects are between the licensees or third parties *inter se,*[125] because the lower price-favoured

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or, for example, when a different version of a Personal Computer (PC) operating system for Windows software has been sold at different prices aimed at different consumer groups. Jerry A Hausman and Jeffery K MacKie-Mason, 'Price Discrimination and Patent Policy' (1988) 19 RAND J Econ 253, 255 (stating that this type of discrimination is prevalent in the economy, and has recognised efficiency justifications). See David Begg, Stanley Fischer and Rudiger Dornbusch, *Economics* (8th edn, McGraw-Hill 2005) 247; Daniel A Crane, 'Patent Pool, RAND Commitments, and the Problematics of Price Discrimination' in Rochelle C Dreyfuss and others (eds), *Working within the Boundaries of Intellectual Property* (Oxford University Press 2010) 371-94; ibid Robert H Frank 492.

[121] Herbert Hovenkamp, 'Post-Sale Restraints and Competitive Harm: The First Sale Doctrine in Perspective' (2011) 66 NYU Ann Surv Am L 487, 532.

[122] In addition to avoiding the arbitrage, it requires the seller to have certain market power and have some way to segment the customers according to different price elasticities of demands. Kathleen Carroll and Dennis Coates, 'Teaching Price Discrimination: Some Clarification' (1999) 66 S Econ J 466, 470-71.

[123] IPRs owners cannot perfectly divide all customers by the intensity of their valuations, but they have a legal device for promoting self-selection by customers; in particular, those intending to apply the IPRs to commercially significant uses. Wendy J Gordon, 'Intellectual Property as Price Discrimination: Implications for Contract' (1998) 73 Chi-Kent L Rev 1367, 1375; Yannis Bakos and others, 'Shared Information Goods' (1999) 42 JLE 117, 190-93..

[124] In a common market with sufficient competition, customers can switch to other suppliers when they are charged a discriminatory higher price. However, where the discriminatory higher price is persistent, which often occurs in a concentrated market in which the supplier has market power, those customers have no choice but to accept it.

[125] Robert O'Donoghue and A Jorge Padilla, *The Law and Economics of Article 102 TFEU* (2nd edn, Hart Publishing 2013) 555 (arguing that price discrimination has not been seen as *a priori* good or bad for consumer welfare).

transferee will have a cost advantage over other transferees in the downstream market. However, price discrimination may also be the result of efficiency,[126] such as allocative efficiency, through an increased output[127] by providing different prices to satisfy customers with different maximum reserve prices.[128]

6.3.2 Price Discrimination in US Law

6.3.2.1 Changing From Price-Based Approach to Effects-Based Approach

In the US, the Clayton Act[129] and the Robinson-Patman Act[130] (RPA) focus on price discrimination. [131] They provide the elements that constitute illegal price discrimination: 1) different prices for different purchasers; 2) the sale of relevant commodities of like grade and quality; and 3) the harming of competition or creating a monopoly in any line of commerce. However, it was relatively simple to discern illegal price discrimination in the earlier period by applying the RPA, even by just

[126] Alison Jones and Brenda Sufrin, *EU Competition Law: Text, Cases, and Materials* (5th edn, Oxford University Press 2014) 388.

[127] Richard Schmalensee, 'Output and Welfare Implication of Third Degree Price Discrimination' (1981) 71 Am Econ Rev 242, 245 ('[M]any subsequent authors seem to equate the efficiency effects of discrimination with its impact on total output.').

[128] Especially in high technology markets with high sunk costs for R&D and low marginal costs, the supplier could charge a higher price, to those willing to pay, in order to recoup the sunk costs, and charge a lower and marginal price to others. To take the Windows operating system software as an example, the price of the family version is much lower than the price of the company version. This avoids the possible deadweight loss on society imposed by a single price, increases consumer welfare, and encourages potential creators with the prospect of having their R&D investment covered. *ProCD v Zeidenberg* 86 F3d 1447, 1449-50, 1455 (7th Cir 1996) (Judge Easterbrook believed that the dual pricing structure contained lower prices for ordinary consumers and higher prices for commercial users, through which the price to ordinary consumers could be sustained low and the quality of products could be increased); Derek Ridyard, 'Exclusionary Pricing and Price Discrimination Abuse under Article 102 — An Economic Analysis' (2002) ECLR 286, 287-88.

[129] 'It shall be unlawful for any person engaged in commerce, in the course of such commerce, either directly or indirectly, to discriminate in price between different purchasers of commodities of like grade and quality, where either or any of the purchases involved in such discrimination are in commerce, where such commodities are sold for use, consumption, or resale within the United States or any Territory thereof or the District of Columbia or any insular possession or other place under the jurisdiction of the United States, and where the effect of such discrimination may be substantially to lessen competition or tend to create a monopoly in any line of commerce …' 15 USC §13 (2006). The Clayton Act primarily focuses on the primary line effects of price discrimination.

[130] 15 USC §13(a)-(b), 21(a) (2006).

[131] The Clayton Act mainly focuses on primary line effects of price discrimination. As an amendment to Section 2 of the Clayton Act, the RPA extends the primary line of the Clayton Act to cover secondary line effects.

considering 'different prices' and ignoring other factors. For example, in *Utah Pie v Continental Baking*,[132] the Supreme Court held that below-cost pricing was illegal due to its indication of 'predatory intent'.[133] The straightforward conclusion of the effect of harming competition and the ignorance of the potential increase in consumer welfare that stems from low prices brought controversies,[134] and the authorities[135] and courts[136] have gradually begun to apply the RPA less and less.[137] This is especially so in light of the Sherman Act, in which Section 1 regulates cases where the supplier and the buyer negotiate to deal with a discriminatory price in order to exclude competitors of the supplier or the buyer; and Section 2 regulates cases where the monopolistic supplier charges a predatory price, excessively high price, or differential prices.[138]

There are two landmark cases that display the attitude of courts when assessing the criterion of harm to competition. In *Brooke Group v Brown & Williams Tobacco,*[139] Brooke Group (BG) and Brown & Williams Tobacco (BWT) were tobacco

[132] 386 US 685 (1967) (Utah Pie filed a lawsuit because Continental Baking, as a new competitor in a particular territory, offered a below cost pricing that was lower than Continental Baking offered in other territories).

[133] ibid.

[134] Critics pointed out that declining price benefited consumers and should be illegal only if the below cost pricing established a subsequent monopoly or market power. Ward S Bowman, 'Restraint of Trade by the Supreme Court: The Utah Pie Case' (1967) 77(1) Yale LJ 70, 76-78; Elzinga KG and Hogarty TF, 'Utah Pie and the Consequences of Robinson-Patman' (1978) 21(2) J L & Econ 427, 439-40.

[135] In a report in 1977, the DOJ and FTC felt that the Act was based on 'question-able economic assumptions prevalent in the 1930s.' US Department of Justice, 'Report on the Robinson-Patman Act' (*Hathi Trust Digital Library*, 1977) <http://babel.hathitrust.org/cgi/pt?id=mdp.39015055270436;seq=4;view=1up> accessed 2 April 2013. See also Antitrust Modernization Commission,
'Report and Recommendations' (*CyberCemetery*, 2 April 2007) <http://govinfo.library.unt.edu/amc/report_recommendation/amc_final_report.pdf> accessed 2 April 2013.

[136] According to empirical studies, the percentage of plaintiff wins in primary-line cases was 57% in the period 1982-1993, but has dropped to less than 6% since 1993. A significant drop in the success of plaintiffs in secondary-line cases was found, from 27% to below 5% after 2006. Ryan Luchs and others, 'The End of the Robinson-Patman Act? Evidence from Legal Case Data' (2010) 56(12) Magt Sci 2124, 2124-25.

[137] Daniel J Gifford and Robert T Kudrle, 'Law and Economics of Price Discrimination in Modern Economies: Time for Reconciliation' (2010) 43 U C Davis L Rev 1235, 1270 ('Strict enforcement of the [Robinson-Patman] Act would likely impose rigidity pricing that would discourage price competition and foster oligopolistic pricing behaviour, effects that run counter to the pro-competitive policies of the other antitrust laws').

[138] The Supreme Court has recognised the likely conflict between the RPA and the Sherman Act, and indicated, in this case, that the precompetitive policies of the Sherman Act should prevail. *Automatic Canteen v FTC* 346 US 61, 74 (1953); *United States v US Gypsum* 438 US 422, 458-59 (1978).

[139] 509 US 209 (1993).

manufacturers and were among the largest six in the market. BG introduced a generic cigarette to the market, and BWT also brought in its own line of generic cigarette at the same price. Both used the same distributor, but BWT offered discriminatory rebates. BG alleged that the rebates and the below-cost price of BWT excluded BG from the market, and that this did lead to a high price in the market later, which harmed consumer welfare.[140] However, BG could not substantially prove that BWT could recover its costs through below-cost pricing. The Supreme Court held that because BG could not prove that the practice of BWT would lead to supra-competitive prices, BWT was not acting illegally under the RPA.[141] The court suggested that if BWT charged a supra-competitive price in that market and other competitors could easily enter the market to compete, BWT could not achieve a restriction of competition, and ultimately, a reduction in price benefits consumers.[142] This case increased the threshold that the plaintiff needed to achieve to prove substantial harm in the market and apply the RPA in cases regarding primary line injury.[143] Moreover, it supplemented important factors such as market power and barriers to entry, which were not included in the RPA, to prove that charging supra-competitive prices, after acquiring dominant position and after foreclosing competitors, would inevitably arise in just a short period of time.

In *Volvo Trucks North America v Reeder Simco GMC,*[144] Reeder, as a Volvo dealer, claimed that Volvo had offered price concessions to other competing dealers but not to it, which led to a reduction in business. Volvo sold heavy-duty trucks to its franchising dealers through a competitive bidding process, in which retail customers listed their specifications and invited bids from franchising dealers of different manufacturers. The Volvo dealer would arrange the deal only when the bid proved successful, and then Volvo would build the truck according to the customers' specifications. The Supreme Court held that Volvo offered the same discount to all

[140] ibid.
[141] ibid.
[142] ibid.
[143] Jonathan B Baker, 'Predatory Pricing after Brooke Group: An Economic Perspective' (1994) 62(3) ALJ 585, 590-95; Michael L Denger and John A Herfort, 'Predatory Pricing Claims after Brooke Group' (1994) 62(3) ALJ 541, 558-59.
[144] 546 US 164 (2006).

dealers, and only offered more discount when the dealer was selected to submit the bid.[145] This would not affect competition in bidding, based on the 'existing relationship, geography, reputation, and cold calling or other marketing strategies initiated by individual dealers'.[146] Reeder also failed to provide evidence to show the differential price concession provided to Reeder and competitive dealers, quoted to the same retail customer at the same time.[147] It was only in such a case that price discrimination could be regarded as affecting competition. The threshold needed to apply the RPA in cases regarding secondary line injury also arose from the judgment.[148]

Although the two cases are unconnected to technology, they indicate the developmental trend of price discrimination in the US, in which courts abandon the conducts-based requirement of merely 'differential prices for different customers' found in the RPA, and instead opt for an effect-based one that can prove that competition has been affected by price discrimination.[149] However, it might be controversial to request proof of recoupment of below-cost price. From an *ex ante* perspective, it is difficult for the party to provide direct proof when required by the court, such as written documents initially stating a clear strategy of practice, followed by a subsequent rise in the price and it becoming supra-competitive. It is better for the court to only require indirect proof, such as the monopoly of the company, which indicates that it is very likely to charge a supra-competitive price later, thus avoiding a conduct-based approach.

6.3.2.2 Price Discrimination in Technology Transfer

[145] ibid.
[146] ibid. See also 374 F3d 701, 719.
[147] ibid.
[148] Simon A Rodell, 'Antitrust Law: The Fall of the Morton Salt Rule in Secondary-Line Price Discrimination Cases' (2006) 58(4) Fla L Rev 967, 972-76; Daniel J Gifford, 'Farewell to the Robinson-Patman Act? The Antitrust Modernisation Commission's Report and Recommendation' (2008) 53(3) Antitrust Bull 481, 482-87.
[149] Daniel J Gifford and Robert T Kudrle, 'Law and Economics of Price Discrimination in Modern Economies: Time for Reconciliation' (2010) 43 U C Davis L Rev 1235, 1269 (stating that in 1970s, the understanding of courts on antitrust law turned from fairness and rivalry to efficiency and the generation of income and wealth).

In *Laitram v King Crab,*[150] Laitram leased its patented shrimp-peeling machine to companies canning shrimp, and charged rental based on the weight of shrimp processed. Companies, including King Crab, were charged a double rate because their shrimp size in the Pacific Northwest area was approximately half the average size of shrimp in the Gulf area, so it would take double the time to process the same weight. As a result of this, King Crab brought a case to court. Laitram alleged that the double rate was proper and did not constitute abuse of patent, and that the double rate was consistent with the benefits flow from the operation as King Crab saved double the time in labour costs. King Crab claimed that the discriminatory rate increased its costs, putting it at a severe disadvantage to those only being charged the single rate in the shrimp canning market. The court held the opinion that the Federal Trade Commission (FTC) had given in some other cases,[151] that the patentee could exploit its patent by charging a discriminatory price but it should not destroy the primary part of an industry, otherwise antitrust law should intervene because of the elimination of competition. Therefore, the discriminatory price in this case was an abuse of monopoly power, and substantially and unjustifiably impaired the shrimp canning industry.[152] It shows that although the exploitation of a patent by charging differential prices in the upstream market is legal, it may be prohibited if such pricing leads to an anti-competitive effect in a downstream market. From a broader perspective, it may be deemed as leveraging a monopoly in one market to another relevant market to restrict competition. However, in this case, even without the discriminatory rates, King Crab still had the disadvantage of increased labour costs if peeling by hand, and if the extra labour costs and the extra leasing rate were similar, then Laitram should not be liable for such a disadvantage and the patentee was not responsible for remedying the disadvantage. If the extra labour costs were much less than the extra leasing rate, the charge of the extra leasing rate might not be justified. However, unfortunately the

[150] 244 F Supp 9, modified, 245 F Supp 1019 (1965). For a similar case that was supported by the court see also *Gen Talking Pictures v W Electrics* 305 US 124 (1938) (licensing fees are different subject to field of use – commercial theatre use or home use).

[151] *Motion Picture Patents v Universal Film Manufacturing* 243 US 502, 515 (1917); *United States v Masonite* 316 US 265, 277 (1942).

[152] *Laitram v King Crab* 244 F Supp 9, modified, 245 F Supp 1019 (1965).

court did not have such a precise efficiency analysis, and this shows the attitude that favoured antitrust law at that time.[153]

In *ProCD v Zeidenberg,*[154] the plaintiff, ProCD, spent more than USD 10 million (GBP 6.25 million) compiling a database and keeping the information updated, with which it exercised price discrimination to charge one low price to ordinary consumers and a much higher price to commercial users. The court held that the dual pricing structure kept the price low for ordinary consumers and the quantity of copies distributed had increased. This generally benefited consumers and was a good thing.[155]

In *United States v Microsoft,*[156] IBM was both a hardware and software company that developed and sold OS/2 and SmartSuite. These were alternatives to Microsoft's Windows and Office suite. It was also involved in Personal Computer (PC) manufacturing, which relied heavily on Windows licences from Microsoft to pre-install onto the PC.[157] After IBM refused to remove its business, which directly competed with Microsoft's Windows and Office, Microsoft punished IBM PC company by charging it significantly higher prices for Windows than IBM's major competitors,[158] and offering it a late licence for Windows 95 and withholding technical and marketing support.[159] In this case, Microsoft intended to exclude IBM from competing in the PC operating system market and Office suite software market for Windows and Office by charging discriminatory high royalties on licensing Windows. This led to non-competitiveness and reduced IBM's profits in the PC market. It also meant that IBM may have to abandon OS/2 and SmartSuite. Such a 'business strategy

[153] See similar case, *Emile M LaPeyre v FTC* 366 F2d 117 (5th Cir 1966).

[154] 908 F Supp 640 (WD Wis 1996) (discussing plaintiff's efforts), rev'd, 86 F3d 1447 (7th Cir 1996)

[155] Judge Easterbrook also discussed the legality of price discrimination: 'If ProCD had to recover all of its costs and make a profit by charging a single price-that is, if it could not charge more to commercial users than to the general public-it would have to raise the price substantially over $150. The ensuing reduction in sales would harm consumers who value the information at, say, $200. They get consumer surplus of $50 under the current arrangement but would cease to buy if the price rose substantially. If because of high elasticity of demand in the consumer segment of the market the only way to make a profit turned out to be a price attractive to commercial users alone, then all consumers would lose out-and so would the commercial clients, who would have to pay more for the listings because ProCD could not obtain any contribution toward costs from the consumer market.' ibid 86 F3d 1449-50, 1455.

[156] 84 F Supp 2d 9 (DDC 1999) (Findings of Fact); 87 F Supp 2d 30 (DDC 2000) (Conclusions of Law).

[157] ibid 84 F Supp 2d 9 (DDC 1999), para 115.

[158] ibid para 130.

[159] ibid para 116.

of directing its monopoly power toward inducing other companies to abandon projects that threaten Microsoft and toward punishing those companies that resist'[160] hampers technical innovations and business initiative, and sustains application barriers.[161] This breached Section 2 of the Sherman Act because it was an attempt to sustain a monopoly in the PC operating system through anti-competitive conducts, including discriminatory treatment. However, it differed from other relevant cases[162] in that the exclusion of competitors in the PC operating system was not achieved through direct primary line price discrimination, but through the threat of loss resulting from secondary line price discrimination.

6.3.2.3 Conclusion

Authorities and courts in the US basically have a lenient attitude and recognise that IPRs owners can discriminate on price in certain circumstances, such as different customer groups and different periods. This satisfies various customers, increases output, and avoids deadweight to benefit consumer welfare. It also maximises the revenue of IPRs owners, allowing them to recoup their investment in R&D and promote their incentives to innovate. Price discrimination might fall foul of antitrust law when it severely impairs the competition, either in the upstream market or downstream market, and it requires the party which alleges the harm to provide relatively clear proof of the abusive motive of the other party and the very likely harm to competition and consumer welfare.

6.3.3 Price Discrimination in EU Law

[160] ibid para 132.

[161] *United States v Microsoft* 87 F Supp 2d 30, 39, 44 (DDC 2000) ('In essence, Microsoft mounted a deliberate assault upon entrepreneurial efforts that, left to rise or fall on their own merits, could well have enabled the introduction of competition into the market for Intel-compatible PC operating system.')

[162] Normally, primary line price discrimination utilises predatory pricing, namely below cost pricing, to exclude competitors to the market, while secondary line price discrimination requires the charging of a higher price in an upstream market, and so the two lines of price discrimination are distinct. However, in this case it seems that just one price discrimination achieves the two objectives of restricting competition in both upstream and downstream markets.

6.3.3.1 Regulation under Articles 101 and 102 of the TFEU

Both Article 101 and Article 102 of the TFEU contain provisions targeting price discrimination. Agreements that 'apply dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage' are prohibited by Article 101.[163] Article 102 (c) forbids an entity with dominant position in the market to '[apply] dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage'.[164] These provisions apparently prohibit a supplier from conducting price discrimination among competing purchasers, as those that suffer a higher price will be competitively disadvantaged. The two articles thus focus on regulating the secondary line injury of price discrimination. For example, in *British Airways* v *Commission,*[165] one of three types of special rebate offered by British Airways (BA) to ticket agents was that the current ticket sales should exceed the sales during the same time period in the previous year.[166] As described by the Commission, this meant that two agents selling the same number of BA tickets would gain different rates of commission if their sales were different in the previous year,[167] so 'the effect of these discriminatory commissions will be to place certain travel agents at a competitive disadvantage relative to each other'.[168] As such, the reward scheme was deemed to be abusive under Article 102 of the TFEU.

Nevertheless, there are still some cases in which the primary line injury of price discrimination has been prohibited. In *Hoffmann-La Roche v Commission,*[169] a dominant pharmaceutical manufacturer offered extra discounts to customers who purchased all or most of their vitamins from it, called 'fidelity rebates'. The court held that the discount was an indirect means to force customers into exclusive dealings in order to exclude other competitors, and it was abusive under Article 102 of the TFEU.

[163] TFEU, art 101(1)(c).
[164] TFEU, art 102(c).
[165] Case T-219/99 [2003] ECR II-5917, [2004] 4 CMLR 1008.
[166] The other two types are: exceeding a minimum number of ticket sales per year; and BA's share of the ticket agents' worldwide sales increased. ibid.
[167] *Virgin/British Airways* [2000] OJ L 30/1, [2000] 4 CMLR 999 [109].
[168] ibid [110].
[169] Case 85/76 [1979] ECR 461, [1979] 3 CMLR 211.

Similarly, in *BPB Industries v Commission*,[170] the Commission decided that loyalty rebates were abusive as they were dependant on an exclusive dealing agreement. Also, in *AKZO Chemie BV* v *Commission,*[171] the selective below-cost pricing was regarded as abusive under Article 102 of the TFEU because it eliminated competitors, and the allocative efficiency from the below-cost price would not continue in the long term.

6.3.3.2 Price Discrimination in Separate Markets

Employing IPRs to distort competition without justification may be prohibited,[172] but different pricing based on other justifiable standards may be legitimate.[173] The correlation, between the markets where price discrimination is conducted and where relevant effects may be imposed, affects the assessment of the legitimacy of price discrimination. For example, a patentee can license the patent in different fields for use only if it does not violate competition law, and royalties for different fields of use can vary because they are non-equivalent transactions and are in a separate relevant

[170] Case C-310/93 P [1995] ECR I-865, [1997] 4 CMLR 238.

[171] Case C-62/86 [1991] ECR I-3359, [1993] 5 CMLR 215, [1993] 2 CEC [115]. See also *Michelin v Commission* [1983] ECR 3461 (the court held that the rebates based on sales targets for exclusionary purposes was abusive); Case IV/33.133d *Soda-Ash—ICI* [1991] OJ L152/40; IV/33.133d *Soda-Ash—Solvay* 1991] OJ L152/21 (the technique of 'top slice' discounts was deemed as abusive under Article 102 by the Commission).

[172] IPRs grant the owner freedom, including that to set prices. However, if the discounting system is abusive, to the extent that it excludes competition, then it is beyond the necessary scope of the freedom of patents, in which the discriminatory standard of the discounting system is not essential for achieving a recoupment or for encouraging incentives to innovate patents. At the same time, it restricts the competitive opportunities of competitors, and also results in some customers losing certain benefits that other customers are able enjoy, even imposing on them some disadvantages of the downstream market.

[173] Normally, rebates offered to customers, based on identical quantities or frequency of use, are permitted as they could result in reduced delivery, management, and other costs. This improves the efficiency of transactions and the cost saving benefits to customers in the form of lower prices. Whilst this may lead to disadvantages for small customers with fewer orders, it can be justified by the efficiencies and be exempted from Article 102 TFEU because it is a non-equivalent transaction. However, if the rebates or discounts are practised for the purpose of exclusive dealing and to lock customers into an exclusionary relationship, with the motive of excluding other competitors, sustaining dominant position, and restricting competition, then they lack justification. This also applies to technology transfer. *Hoffman-La Roche v Commission* [1979] ECR 461 (the court agreed that the discounts exclusively relating to quantities open to all customers were legal); *Hilti v Commission* [1992] 4 CMLR 16 (the Commission indicated that the different treatment of equivalent quantities was abusive); *Tetra Pak v Commission* [1994] ECR II-755 (the GCimplied that quantity discount may be the only justification for different price); *Coditel v Cine Vog* [1982] ECR 3381 (The copyright holder could specify the number using the right and charge a licence fee dependant upon the frequency of use).

market, so the different groups of customers will not compete with each other.[174] However, if the separate markets are connected, or one is an upstream market and the other is a downstream market, or they are neighbouring markets, the different pricing may fall foul of Article 102 (c) of the TFEU because the dominant company may strategically aim to exclude competition in one or all of the markets, especially when the company is involved in all of the markets. In *BPB Industries and British Gypsum v Commission*,[175] the two markets were linked and the dominant company strategically used the profits in the market where it was dominant to subsidise pricing in another market to restrict competition in this market. This could be deemed as illegal under Article 102 (c) of the TFEU. Again, in *Hilti v Commission,*[176] in addition to offering very favourable discounts to customers of competitors prepared to switch to Hilti, it also reduced the discount to Hilti customers who bought their cartridge strips without nails. This was deemed to be an offence under Article 102 (c) of the TFEU, because it enabled Hilti to extend its market power in the patent cartridge strips market to the unpatented nails market through price discrimination. It also placed those customers who purchased nails from other competitors in the downstream market at a competitive disadvantage, and excluded competitors in the market for nails by tying the cartridge strips and nails through price discrimination.

In some cases, where the separate markets are not linked, the analysis of price discrimination must be based on each market. In *Tetra Pak v Commission,*[177] Tetra Pak offered various discounts to customers of their patented aseptic and non-aseptic milk carton machines, between 20%-40% and as much as 50%-60% off non-aseptic milk carton machines where Tetra Pak does not have dominant position in the market. The practice was deemed to be discriminatory pricing under Article 102 (c) of the TFEU. Tetra Pak argued that the large variability in discount on the machines could only lead to a very small overall discount, such as 4%, of the final packaged product because of

[174] GC stated that the relevant market must be analysed separately to identify price discrimination. *Tetra Pak v Commission* [1994] ECR II-755 [162]. It indicated that the court and Article 102 do not necessarily require an equivalent price across markets. Ulrich Springer, 'Borden and United Brands Revisited: A Comparison of the Elements of Price Discrimination under EC and US Antitrust Law' (1997) 18 ECLR 42, 45.

[175] Case T-65/89 [1993] ECR II-389.

[176] Case T-30/89 [1991] ECR II-1439, [1992] 4 CMLR 16.

[177] Case C-333/94P [1996] ECR I-5951, [1997] 4 CMLR 662.

the higher price for cartons, and the court should treat the packing system as integrated and indivisible. However, the court pointed out that customers should be free to use cartons from other suppliers of Tetra Pak machines, and the machine market and cartons market should be assessed separately.

6.3.3.3 Considering the Loss and Gain of Possible Efficiency in Price Discrimination — *Rambus*

In *Rambus*[178] in 2010, Rambus, a US based company, was taken to court for charging potentially abusive royalties for using certain patents for Dynamic Random Access Memory chips. Rambus was dominant in that market[179] and did not disclose its patents or patent applications in the context of the standard-setting process, in which the relevant technologies are placed into a standard.[180] In order to settle the disputes, Rambus proposed commitments, including the agreement to using a number of chips incorporating its patented technologies for five years free of charge, a maximum royalty rate for the chips, and most-favoured-licensee (MFL) clause to offer the lowest rate to every other licensee.[181] However, some respondents argued that the MFL clause could lead to Rambus refusing to offer rates below the specific rates it proposed.[182] Rambus eventually removed the clause.[183]

Rambus was purely a research company without manufacturing operations, and the technological licensing fee was its only source of income.[184] As it charged running royalties rather than a lump sum, the maximum income might be achieved through

[178] COMP/38.636 [2010] OJ C30/17, IP/09/1867, MEMO/09/544.
[179] ibid [2], [26].
[180] ibid [1].
[181] ibid [49].
[182] 'A number of respondents argued that the Commitments should not include a most-favoured-licensee clause as Rambus would likely refuse to agree to any royalty rate below those specified in paragraph (49) above because it arguably would have to offer those rates to every other licensee, thereby preventing licensees from obtaining better rates through negotiations.' ibid [53].
[183] ibid [58].
[184] James Killick and Pascal Berghe, 'Rambus: An Overview of the Issues in the Case and Future Lessons for SSOs When Designing IPR Products' (*White & Case*, June 2010) <http://www.whitecase.com/files/Publication/8a08ec44-5c06-4094-a1e7-f1678976886b/Presentation/PublicationAttachment/eda66bde-648c-46b7-b05f-fb503a08fdba/article_Rambus_An_Overview_of_the_Issues_in_the_Case_and_Future_Lessons_for_SSOs_When_.pdf> accessed 10 April 2013.

higher royalty rates and a greater output of the licensee's products. There is concern that the MFL clause is very likely to make Rambus charge a relatively higher, even the maximum, price to all licensees in order to maximise its total income. Otherwise, a lower rate would apply to all licensees. The high royalties will be transferred as the high ultimate price to consumers, and result in less possibility for other companies to enter the downstream market with a lower royalty rate. However, it should not be forgotten that the Commission justified the maximum rate proposed,[185] so it is not considered unreasonable for the ultimate consumer or licensees. Moreover, the MFL can pass on the same costs of the licensed technologies to any licensee competing in the downstream market[186] to avoid secondary line injury. Considering that the technology is one of the product inputs, licensees can facilitate competition by reducing the costs of other inputs and providing better services. Ultimately, consumers may benefit from a lower price and extraordinary services. Therefore, the MFL clause is justifiable, lawful, and avoids price discrimination.

6.3.3.4 Conclusion

Article 101 (1)(c) and Article 102 (c) of the TFEU incorporate provisions similar to the RPA in the US,[187] and stress the secondary line injury of price discrimination.[188] In the

[185] ibid [55], [74].

[186] This is also the reason why Rambus proposed the clause: '(e) Rambus will provide to licensees under this proposal a most-favoured-licensee assurance that the rates provided to the licensee will be the lowest per unit rates, under similar terms, conditions and business circumstances, including the forward-looking-only nature of the license, offered to any other party during the duration of the license.' COMP/38.636 *Rambus* [2010] OJ C 30/17, IP/09/1867, MEMO/09/544 [49]. In addition, because Rambus is a pure research company, it might not cross-license with other licensees, which could reduce the costs of licensing and create a competitive advantage.

[187] The reason for the similarity between the competition policies of the EU and US is because the drafter of the Treaty of Rome (the predecessor of the TFEU) learns greatly from the models of US antitrust law. Guy Pevtchin, 'The E.C. — An Example of Breaking Down the Barriers of Sovereignty-Implications for Canada and the United States' (1988) 24 Can US L J 89, 89 ('[T]he draftsmen of the Treaty of Rome went to the best source of knowledge on antitrust to write the well-known Article 85 and 86 that were drafted by an American lawyer named Robert Bowie from Howard University'). The RPA was designed originally to protect small retail companies from the competition of powerful buyers, and later it also has been extended to protect discriminating seller's competitors – only against predatory pricing. While EU competition law regulates the secondary line injury resulting form price discrimination, in practice it has also 'focused on protecting initial sellers from the competition of their powerful rivals'. This demonstrates their integration. Daniel J Gifford and Robert T Kudrle, 'Law and Economics of Price Discrimination in Modern Economies: Time for Reconciliation' (2010) 43 U C Davis L Rev 1235, 1276-77.

EU, the different prices based on justifiable standards, such as quantity,[189] are permitted, but the criteria should be carefully observed by the Commission or courts. However, it appears that the EU courts apply the *per se* rule to dissimilar prices imposed on equivalent transactions, according to Article 102 (c) of the TFEU.[190] In addition, the formally legitimate differential pricing in separate markets may be regarded as illegal when considering the integrated anti-competitive effects on the markets. By comparison with the US, the stricter treatment of the abusive practice of lower price, including below-cost price and selective cost price, by the EU courts means that it is not a requirement to prove that the dominant company would raise the price in the long run to recoup losses that resulted from a lower price in the short term, dependant on the theory that the lower price conduct has no other intention but to exclude the existing competitors and signals a threat to a potential entrant.[191] Such proof would be required in the US. The manner in which the Commission allowed the involved parties in the *Rambus* case to negotiate in order to remove the MFL clause highlights a lenient attitude towards price discrimination, to some extent.

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[188] The request in Article 102 of the TFEU for proof of dominance of the company conducting the price discrimination is an advance over the US approach that does not consider the size or prominence of the discriminating company. ibid Daniel J Gifford and Robert T Kudrle 1274.

[189] Case 85/76 *Hoffmann-La Roche v Commission* [1979] ECR 461, [1979] 3 CMLR 211 (the court indicated that quantity discounts exclusively associated with the volume of purchases substantially and open to all customers were legitimate); Case T-30/89 *Hilti v Commission* [1991] ECR II-1439, [1992] 4 CMLR 16 (the Commission stated that products of equivalent quantities bought by customers can enable different treatment to be abusive); Case T-83/91 *Tetra Pak (Tetra Pak II) v Commission* [1994] ECR II-755, [1997] 4 CMLR 726 (the court held that quantity discount may be the sole objective justification for price discrimination).

[190] Peter Oliver, 'The Concept of "Abuse" of A Dominant Position Under Article 82 EC: Recent Developments in Relation to Pricing' (2005) 1 ECJ 315, 334 (on the judgement of courts on price discrimination: 'once discriminatory treatment by a dominant undertaking is shown, trading partners can be presumed to have suffered competitive harm'); Steven Anderman and Hedvig Schmidt, *EU Competition Law and Intellectual Property Rights: The Regulation of Innovation* (2nd edn, Oxford University Press 2011) 162 (stating that the EU Courts continually apply the *per se* rule to price discrimination, although economists widely argue that 'a strict *per se* illegality approach to price discrimination is not favourable, and that clear evidence of anti-competitive effects is needed before the behaviour can be seen as abusive'.)

[191] 'First, price below average variable costs must always be considered abusive. In such a case, there is no conceivable economic purpose other than the elimination of a competitor, since each item produced and sold entails a loss for the undertaking. Secondly, price below average costs but above average variable costs are only to be considered abusive if an intention to eliminate can be shown [...] Furthermore, it would not be appropriate, in the circumstances of the present case, to require in additional proof that Tetra Pak had a realistic chance of recouping its losses. It must be possible to penalize predatory pricing whenever there is a risk that competitors will be eliminated.' Case C-333/94 P *Tetra Pak v Commission* [1996] ECR I-5951 [41], [44].

6.3.4 Proposals for China

6.3.4.1 The Current Legislation and Relevant Provisions in Some Drafts

The AML[192] prohibits competitors from concluding agreements that 'fix or change prices of commodities'.[193] This article appears primarily to regulate price fixing, but it may be relied upon to tackle competitors colluding to charge different prices to their customers for equivalent transactions. However, it would be more an improvement if it could clarify such an intention as it refers to in Article 101 (1) (c) of the TFEU. The AML prohibits abuse of dominant position to conduct price discrimination from two perspectives: 'selling commodities with unfairly high price and purchasing commodities with unfairly low price'[194] and 'without justifiable causes, conduct discriminatory treatments including price discrimination to business counterparties with equivalent conditions of transaction.'[195] The two articles overlapped, as both of

[192] Prior to the adoption of the AML, there were few provisions regarding price discrimination in laws and regulations. This may be because price was regarded as a direct method for companies to freely decide how to operate their business, so it should not be so easy to alter unless there are genuine reasons for doing so. Embodied within the Anti-Unfair Competition Law of China (AUCL) is a provision concerning price discrimination which states that a below-cost sales price will be unlawful if its objective is to exclude other competitors. 'A business operator shall not sell commodities at a price below costs for the purpose of excluding competitors. AUCL, art 11 (Any of the following situations shall not be deemed as unfair conduct: 1) selling perishable and living commodities; 2) disposing of commodities the expiry date of which is close to be passed or are overstocked; 3) seasonal decreasing of prices; 4) selling commodities at a reduced price because of clearing off debts, or changing of business, or suspension of business.')

[193] AML, art 13(1).

[194] ibid art 17(1).

[195] ibid art 17(6). This provision is very similar to Article 102 (c) of the TFEU, but it does not clarify the negative effects – placing a competitive disadvantage on other parties, as indicated in Article 102 (c) – and only describes the conduct of price discrimination. It may technically imply that both primary line and secondary line injuries can be regulated. If so, this design may be better than Article 102 (c), which literally directs secondary line injury, but it is resorted by courts to expand to regulate primary line injuries in practice, which has been criticised, however. Daniel J Gifford and Robert T Kudrle, 'Law and Economics of Price Discrimination in Modern Economies: Time for Reconciliation' (2010) 43 U C Davis L Rev 1235, 1275 (stating that '[the] court nonetheless employed a legal provision directed at secondary-line effects — effects on the seller's customers — to support its condemnation of Hoffmann-La Roche's discrimination [that focused on the primary-line effects]'). There is an article in the Regulations on Anti-Price Monopoly containing almost the same description, but lacking further interpretation, whilst another separate provision of the regulations prohibits abusive discounts used to restrict counterparties from dealing with others. Regulations on the Anti-Price Monopoly 2011, art 16 (containing the same description as article 17(6) of the AML); Regulations on Anti-Price Monopoly 2011, art 14 (prohibiting a business operator from 'employing discounts on price or other method to limit counterparties to deal with him or other business operator designated by him only'). This is very similar to the prohibition on loyalty or fidelity rebates by EU courts, and aims to impede primary line injury. Case 85/76 *Hoffmann-*

them involve improper prices and may lead to first and second line injuries. Without a clear explanation, however, it may be unclear exactly in what kind of situations they could apply. In some drafts, the emphasis is on offering factors to be considered for licensing IPRs with unfairly high prices, including comparison of the licensing fee with the value of the intellectual property itself, as well as with the history of the licensing fee or another licensing fee that can serve as a reference, etc.[196] However, they do not clarify the scope of the reference licensing fee. This may be either the fee that the licensor charges other licensees for the same IPRs, which is the core aspect of price discrimination, or the fee that other licensors charge other licensees for similar IPRs. Thus, unfairly high prices could involve price discrimination that is not clearly described under the heading of unfairly high price, as well as excessively high prices that have been highlighted by requesting comparison with the value of the intellectual property itself.

With respect to price discrimination categorised as discriminatory treatment in the AML, there are no further guidelines, apart from the 7th Guidelines, offering an example of IPRs owners charging overly high prices to their competitors.[197] This is completely inadequate.[198]

6.3.4.2 Method of Assessing Primary and Secondary Line Injury

Price discrimination with primary injury has occurred in China. For example, in order to impede the marketing of the word processing software WPS 97, produced by a Chinese company in China, Microsoft released a beginner's version of Word 97 with a

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La Roche v Commission [1979] ECR 461, [1979] 3 CMLR 211; Case T-219/99 *British Airways v Commission* [2003] ECR II-5917, [2004] 4 CMLR 1008. However, this provision is not incorporated in the AML, and also is not deemed to be the interpretation of Article 17 (6) of the AML.

[196] There are other factors: whether the licensing fee goes beyond the licensed territory or the field of exploitation; whether the licensing fee includes the fee for invalid or expired intellectual property or for intellectual property that is not requested by the licensee; whether the licence contains other restrictions that lead to an unfairly high price; whether an unjustifiable method has been imposed to compel the licensee to accept the unfairly high price. 7th Guidelines, art 23; NDRC Guidelines, art 3(2)(1).

[197] ibid 7th Guidelines, art 27.

[198] The New Guidelines 2017 do not provide specified guidance for price-related restrictions. It contains only an article about discriminatory treatment which may apply to price discrimination. But this article neither expressly mentions discriminatory price apart from volumes, territories and period of licence, nor provide more detailed guidance for assessment. New Guidelines 2017, art 18.

low price of RMB 97.00 (GBP 9.70), while the normal price for Office 97, including Word 97, was approximately RMB 3000.00 (GBP 300.00).[199] Norton's anti-virus software, produced in the US, normally retailed for approximately RMB 280.00 (GBP 28.00) in China, but a promotion was run allowing any other brand of anti-virus software plus RMB 59.00 (GBP 5.90) to be offered in exchange for the latest Norton anti-virus software. This severely affected other competitors, including domestic anti-virus software companies in China.[200] Thus, any creation by Chinese companies could be suppressed at the outset by the price discrimination strategies of multinationals. Not only can price discrimination drive out existing competitors from the market, but it can also warn other potential entrants to not enter or invest in relevant R&D, as the company has enough strength to exclude them through lowering prices. This is especially the case with companies that are involved in multi-markets, as they can recoup the temporary loss in one market from the profits from other markets, even if they do not acquire market power in the market where the lower pricing is being practised. In such cases, the linked markets need an integrated analysis.

Secondary line injury also exists in China. For example, Microsoft licensed pre-installed Windows 98 to large-scale Chinese PC manufacturers for RMB 300.00 (GBP 30.00), and to Chinese SMEs for RMB 690.00 (GBP 69.00), but only charged American PC manufacturers in the region of RMB 100.00 (GBP 10.00). This placed Chinese manufacturers in the relevant PC market at a severe competitive disadvantage, and also harmed Chinese consumers who may have had to pay an additional RMB 1 billion (GBP 100,000.00) per year for PCs.[201] With secondary line injury, it is selectively high prices that influence competition in the downstream market. To do so, first it is necessary to identify that licensees operate in the same downstream market; and then assess whether the licences are equivalent, and the degree of the difference in licensing fee; and finally the price of the products incorporating the licensed technology in the downstream market should be observed. However, sometimes

[199] Xianlin Wang, Bu Shou and Liping Wang, 'The Abuse of IPRs by Multinationals in China' (跨国公司在华知识产权滥用 Kuaguo Gongsi Zai Hua Zhishi Chanquan Lanyong) (*Sina*, 9 November 2005) <http://finance.sina.com.cn/g/20051109/15022106106.shtml> accessed 15 April 2013.
[200] ibid.
[201] ibid.

licensees have advantages in other aspects, such as more efficient and cheaper management skills and distribution channels, so it is more accurate to assess the licensing fee as a proportion of the cost, rather than assessing only the final price. In other words, the selectively high price not only results in a higher ultimate price, but also deprives the licensee of the competitive advantages that they should have in a downstream market, even when the ultimate price of that licensee does not appear to be high.

Two types of price discrimination exist in secondary line injury. With the first type, the dominant licensor is non-vertically integrated. The licensor does not operate in a downstream market so has less incentive to restrict competition there. A licensor normally prefers a competitive market, because the incremental output will lead to more royalties if the output and the royalty are linked.[202] However, if the licensing fee is a lump sum, the licensor may charge a selectively high price to maximise income, and this would impose competitive disadvantages on some licensees and affect competition in the downstream market. The second type is where the vertically integrated licensor, who operates in both the upstream and downstream markets, has strong incentives to set explicitly high rates in order to exclude competitors from the downstream market. This is especially the case when the dominant licensor practises cross-licensing with licensees that hold other technologies in the downstream market, resulting in those licensees not involved in the cross-licensing paying a relatively higher royalty rate. In order to avoid restricting competition in the downstream market as a result of the different royalty rates, it is necessary to figure out the accurate royalty rates that the licensor licensed to itself, and compare them with others to identify whether or not differential royalties are present.[203]

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[202] Anne Layne-Farrar, 'Non-Discriminatory Pricing: Is Standard Setting Different?' (2010) 6(4) J Comp L & Econ 811, 820 ('Non-integrated firms will only be interested in anti-competitive licensing discrimination if it increases their total royalty payments, but often increased downstream competition will maximize upstream royalty earnings.')

[203] This is a very complicated question in the field of economics as it relates to the expenditures in developing the technology as well as in manufacturing embodiments, and scholars provide various models. William J Baumol and Daniel G Swanson, 'The New Economy and Ubiquitous Competitive Price Discrimination: Identifying Defensible Criteria of Market Power, Symposium on Competitive Price Discrimination' (2003) 70 ALJ 661, 678 (providing a formula: 'License Price = IP owner's final product price — IP owner's incremental cost of remaining inputs'); Anne Layne-Farrar, A Jorge Padilla and Richard Schmalensee, 'Pricing Patent for Licensing In Standard Setting Organisations: Making Sense of

6.3.4.3 Possible Efficiency in Price Discrimination

The efficiency of price discrimination in technology transfer links closely with the characteristics of IPRs.[204] Technology, such as patents and copyrighted software, may need a large amount of sunk costs in R&D and the recoupment is highly risky.[205] Thus, sufficient opportunities are desirable to maximise income and recoup the investment, and even to earn some profits; otherwise, the inventors may not be willing to invest in R&D. Therefore, inventors should be allowed to offer differential rates of royalties based on various maximum reserve prices and various economic criteria, such as different sales quantities, fields of use, customer groups, and periods of use, to gain as much profit as possible to recoup investment and encourage innovation.[206] For example, the PC operating system of Windows 7 contains three main versions.[207] These are based on the same technologies and have only a few different functions.[208] However, they have different prices aimed at different consumer groups, including those that have high functional requirements, and ordinary companies and families. Offering different versions mainly prevents arbitrage between different groups. However, in essence it allows for the licensing of the same software copyright to

FRAND Commitments' (2007) 74 ALJ 671, 679-80 (offering a more complicated formula for evaluating the rate of a patent in setting standards).

[204] Nikolaos Vettas, 'Developments in Vertical Agreements' (2010) 55 Antitrust Bull 843, 862 (stating that an economic study indicates that the final net effects of price discrimination on welfare rely on some crucial variables, such as the importance of different types of consumers and the characteristics of products).

[205] There is a high risk that upfront costs may not be recouped because of the possibility that R&D may be unsuccessful, or the final technology or product may not be recognised by consumers to be properly commercialised, or even because of the piracy or reverse engineering practised by others.

[206] Louis Kaplow, 'The Patent-Antitrust Intersection: A Reappraisal' (1984) 17 Harv L Rev 1875, 1891 ('[P]rice discrimination might enable patentees to recover even more than the total economic surplus generated by their invention without resorting to any disguised cartelisation. A patentee would reap this benefit if its price discrimination enabled it to capture not only the surplus generated by its invention, but also the surplus that would have gone to consumers or other producers in the absence of the patentee's invention.'); William J Baumol and Daniel G Swanson, 'The New Economy and Ubiquitous Competitive Price Discrimination: Identifying Defensible Criteria of Market Power, Symposium on Competitive Price Discrimination' (2003) 70 ALJ 661, 668 ('[P]rice discrimination helps a firm with fixed costs to recover its outlays and is sometimes necessary in order for a firm to recover those outlays.'); Benjamin Klein and John Shepard Wiley Jr., 'Competitive Price Discrimination as an Antitrust Justification for Intellectual Property Refusals to Deal' (2003) 70 ALJ 599, 617 (alleging that 'innovation would not occur at all in competitive high-technology industries without price discrimination').

[207] Windows 7 Ultimate, Windows 7 Professional, and Windows 7 Home Premium.

[208] Windows 7 Ultimate has 73 functions; Windows 7 Professional has fewer functions than Windows 7 Ultimate; and Windows 7 Home Premium has fewer functions than the other two.

different customer groups, so that each group can afford it and the total cost can be shared; the higher prices being charged to the high value customers, and the lower prices to the low value customers. From another perspective, price discrimination generates the allocative efficiency that benefits consumer welfare.[209] It avoids a situation where uniform pricing may price out some price sensitive consumers because the uniform price is above those consumers' maximum reserve price,[210] and thus it increases output.[211] Therefore, price discrimination is not *per se* illegal.[212]

6.3.4.4 Geographic Price Discrimination in China — *Kam Hing v Microsoft*

In *Kam Hing* v *Microsoft,*[213] Kam Hing, located in Mainland China, accused Microsoft of abusing its dominant position by charging an unfairly high price and demanding that Kam Hing purchase the software at full price which, in Mainland China, was around 50% higher than in Hong Kong.[214] Eventually, the two parties settled the dispute.

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[209] Lars A Stole, 'Price Discrimination and Competition' in Mark Armstrong and Robert Porter (eds), *Handbook of Industrial Organisation* (Chicago University Press 2007) 2223.

[210] Benjamin Klein and John Wiley, 'Competitive Price Discrimination as an Antitrust Justification for Intellectual Property Refusals to Deal' (2003) 70 ALJ 599. See also Drew Fudenberg and Jean Tirole, 'Customer Poaching and Brand Switching' (2000) 31 Rand J Econ 634, 641-48 (price discrimination may result in lower prices to consumers compared with uniform prices). The improving satisfaction of consumer needs can relieve the deadweight loss resulting from the possible supracompetitive price of patented products. F Scott Kieff, 'Property Rights and Property Rules for Commercialising Inventions' (2001) 85 Minn L Rev 697, 727 (assuming a perfect price discrimination conducted by a patentee and eliminating the deadloss connected with the pricing of patented products); Suzanne Scotchmer, *Innovation and Incentives* (MIT Press 2006) 37 ('Deadweight loss is the main defect of intellectual property as an incentive mechanism. However, there is an important caveat to this arguement, namely, price discrimination.')

[211] Nikolaos Vettas, 'Developments in Vertical Agreements' (2010) 55 Antitrust Bull 843, 862 (outlining that a necessary condition for allowing price discrimination is that it can lead to total sales (quantity) increase for the product).

[212] Margaret A Ward, 'Symposium on Competitive Price Discrimination' (2003) 70 ALJ 593, 563-65.

[213] *Microsoft v Kam Hing* (2012) Nansha District of Guangdong People's Court No 56-58/2012 ((2012) 穗南法知民初字第 56-58 号 (2012) Sui Nan Fa Zhi Min Chu Zi Di 56-58 Hao), transferred, (2013) Guangzhou Intermediate People's Court No 944-946/2013 ((2013) 穗中法知民终字第 944-946 号 Sui Zhong Fa Zhi Min Zhong Zi Di 944-946 Hao). See also Hua Su, 'Microsoft is Facing Excessive Pricing Accusation in China' (*Kluwer Competition Law Blog*, 17 December 2012) <http://kluwercompetitionlawblog.com/2012/12/17/microsoft-is-facing-excessive-pricing-a> accessed 26 May 2013.

[214] For example, the price of Microsoft software SQLSvrEntCore2012 in Hong Kong is approx. RMB 210,000.00 (GBP 21,000.00) for two sets, but approx. RMB 270,000.00 (GBP 27,000.00) for one set in mainland China. Hua Su (苏华), 'Can Anti-monopoly Law Judge Excessive Pricing of Microsoft?' (反垄断法能否对微软高价行为进行判定 Fan Longduan Fa NengFou Dui Weiruan Gaojia Xingwei Zuowei

Kam Hing could claim price discrimination against Microsoft due to the AML prohibiting dominant companies from imposing a 'different selling price in equivalent transactions'.[215] Even supposing that the dominant position of Microsoft could be proven,[216] it is unfortunate that the current Chinese legislation does not provide further guidance on price discrimination.[217] However, EU case law can be turned to. In *United Brands v Commission,*[218] the widely differing prices of identical bananas packed in identical boxes, sold from two ports, but dependant on the destination in Europe, has been concluded as a violation of competition law. The reason being that the artificial creation of different pricing levels places some distributors at a comparative disadvantage, thus distorting competition.[219] In *Irish Sugar v Commission,*[220] Irish Sugar offered special rebates to retailers in the border areas of Ireland, so as to deter the imports of sugar with lower prices from Northern Ireland (outside the Irish market). This was identified as foreclosing the Irish sugar market from other member states' competition and violating competition law.[221] In *Gema,*[222] the Commission

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Panding) (*Economic Information*, 26 December 2012) <http://jjckb.xinhuanet.com/opinion/2012-12/26/content_420486.htm> accessed 26 May 2013. Kam Hing was sued by Microsoft in March 2012 in the Nansha District of Guangdong Province People's Court (Nansha Court) for using pirated Microsoft software. The parent company of Kam Hing, which was based in Hong Kong, bought genuine Microsoft software in 2002 but failed to negotiate with Microsoft to license the software to Kam Hing. Kam Hing then installed pirated software and was fined by a local authority after being reported by Microsoft in 2010. Later, Microsoft sued Kam Hing in the court due to infringement of software copyright and claimed damages of RMB 4.7 million (GBP 470,000.00). It required Kam Hing to purchase a certain quantity of genuine Microsoft software at a certain price. Then Kam Hing brought a counterclaim accusing Microsoft of violating the AML. The case was transferred to Guangzhou Intermediate People's Court because Nansha Court had no jurisdiction over monopoly matters. ibid.

[215] AML, art 17(6). Kam Hing may also make use of the excuse that the AML also prohibits dominant companies from selling commodities at unfairly high prices. AML, art 17(1).

[216] The plaintiff bears the burden of proof of the defendant's dominant position in the relevant market and the related abusive conduct, and the defendant should then provide proof of justification of the conduct. Regulations of the Supreme People's Court on Issues of Application of Law to the Trial of Cases of Civil Disputes resulting from Monopoly Conducts 2012, art 8.

[217] 'Business operators that have a market dominant position shall not, without a justifiable causes, impose selective price discrimination on trading partners who are entitled to the same transactions terms.' Regulations on the Anti-Price Monopoly of China 2011, art 16. This article is almost the same as Article 17(6) in the AML and does not offer any detailed guidelines.

[218] Case 27/76 *United Brands v Commission* [1978] ECR 207.

[219] ibid 298.

[220] Case C-497/99p [2001] ECR I-5333, [2001] 5 CMLR 1082.

[221] The court found that Irish Sugar had subsidised the rebates with the profits it earnt from sales in another area of Ireland. The court also held that '[b]y conducting itself in that way, the applicant abused its dominant position in the retail sugar market in Ireland, by preventing the development of free competition in that market and distorting its structures, in relation to both purchaser and consumers.' ibid [188].

found that the German Performing Rights Society violated Article 102 of the TFEU by charging higher royalties on records imported or reimported from other member states than it charged its nationals. In *Basset v SACEM,*[223] the court held that it was not in violation of competition law as the licensing fee did not vary depending on the origin of the product, but was a normal exploitation of the copyright, and the different prices resulted from the different legislation of the member states. It can be concluded from these case laws that geographic price discrimination resulting in either primary line injury or secondary line injury can be in violation of Article 102, and justification for the pricing differences could be different local conditions or national legislations.

In *Kam Hing*, the apparent difference in prices places Kam Hing at a disadvantage when compared with its competitors in Hong Kong, and this will affect competition, especially when the competition arises or the anti-competitive effects occurred in Mainland China.[224] Thus it will violate the AML, unless Microsoft can provide 'reasonable causes' to justify such differing prices. Microsoft must then prove the different location situation or legislation that results in such a different price. For example, companies in Mainland China and Hong Kong are given different reserve prices as well as being provided software with different functions, and the extent of these differences is consistent with the difference in price.

6.3.4.5 Price Discrimination in Standardisation in China — *Huawei v InterDigital*

In *Huawei v InterDigital*,[225] Huawei, a Shenzhen based company, filed a case in 2011 at Shenzhen Intermediate People's Court (Shenzhen Court) claiming that InterDigital,

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[222] (1971) OJ L 134/15, (1971) CMLR D 35.

[223] Case 402/85 [1987] ECR 1747, [1987] 3 CMLR 173.

[224] 'This law will apply to foreign anti-monopoly conducts that eliminate or restrict the competition in China.' AML, art 2.

[225] (2011) Shenzhen of Guangdong Intermediate People's Court No 858/2011 ((2011) 深中法知民初字第 858 号 (2011) Shen Zhong Fa Zhi Min Chu Zi Di 858 Hao), aff'd, (2013) Guangdong High People's Court No 306/2013 ((2013) 粤高法民三终字第 306 号 (2013) Yue Gao Fa Min San Zhong Zi 306 Hao).The case was filed after InterDigital filed patent infringement litigation against Huawei in the US, and a complaint for the same reason to the US International Trade Commission, to start 377 investigations and issue a complete injunction on imports, and to cease and desist orders on relevant goods of Huawei. Huawei

based in the US, had abused its dominant position in licensing standard essential patents (SEPs) regarding 3G wireless communication, by applying a discriminatory and excessive royalty rate, tying non-essential patents with SEPs, engaging in improper transaction conditions, and refusing to deal. InterDigital offered quotes for a licence fee to Huawei on a royalty rate based on sales of embodiment mobile phones, but the rate was not given in the judgment because it was considered a trade secret. InterDigital licensed SEPs to Apple, Samsung, LG, RIM, and HTC for a lump sum. The Shenzhen Court had managed to calculate the royalty rates for those companies according to the sales of mobile phones, and then compared them with the rate offered to Huawei. It found that they were all much lower than that offered to Huawei. Moreover, Huawei's mobile phone sales were less than Apple, Samsung, and the others. Therefore, it constituted unfairly high pricing and violated the AML.[226]

Later, both parties appealed to Guangdong High People's Court (Guangdong Court).[227] InterDigital argued that the approach of assessing the difference in licensing fee by comparing a lump sum and running royalties was incorrect, because the a lump sum was based on the anticipated sales at the beginning of concluding the licensing agreement *ex ante,* which is different to the way of running royalties according to the actual sales *ex post*.[228] Nevertheless, the court held that it is not easy to do a cost-price analysis because it is difficult to identify the investment of R&D in the SEPs, and that a comparison of prices offered to different licensees is the only way. Whilst the method of comparison was justified, the criterion of the comparison criticised by InterDigital could be doubted, because in *Lucazeau* the court stated that a comparison of the

filed the case in question at Shenzhen Court due to abuse of dominant position. Huawei filed another case at the same court to request a judgement concerning a proper licence fee.

[226] ibid, (2011) Shenzhen of Guangdong Intermediate People's Court No 858/2011 ((2011) 深中法知民初字第 858 号 (2011) Shen Zhong Fa Zhi Min Chu Zi Di 858 Hao).

[227] Guangdong Court upheld that every Standard Especial Patent had one unique relevant product market because it was part of a certain industry standard and there was no other substitute. Then, due to the unique and irreplaceable character, Huawei had no other option to access the field of 3G communication but to get a licence from InterDigital, who had 'the ability of controlling price, quantity and other transaction conditions of Huawei to exploit 3G communication-related SEPs'. Also, as InterDigital only licenses technologies rather than manufactures products, it is difficult for InterDigital to be restricted by others through cross-licensing; thus InterDigital also acquires dominant position in the relevant market. ibid.

[228] ibid.

royalty rate and flat-rate should be operated with the same criteria.[229] Whilst Guangdong Court upheld that, basically, the two methods of charging a licence fee should not be compared directly, but InterDigital was reluctant to show a licensing agreement and disclose the royalty rate it charged other licensee companies. So 'the comparison is proper and scientific to some extent, meanwhile the amount of a lump sum InterDigital offered to Huawei is unfairly higher than that to Apple'.[230] The licensing fee of InterDigital decreased between 2009 and 2011 due to the reduced price of embodiment products, according to InterDigital's annual report. This indicates the severe competition in the whole phone market. Therefore, charging Huawei an excessively higher price than Apple and Samsung, which are ranked as the top two mobile phone sellers in the world and have more power in the field of mobile phones, lacks justification, increases the costs and reduces the profits of Huawei, and also restricts Huawei's competiveness.[231] An analysis of the adverse effects on Huawei in the downstream market shows that competitive disadvantages were imposed, and thus restricted the competition in the embodiment products market. InterDigital also violated its responsibility to offer SEPs under the principle of 'Fair, Reasonable and Non-discriminatory' (FRAND), which it had undertaken to do when it became a member of the European Telecommunication Standards Institute.[232] The final decision of Guangdong Court upheld the previous one that the royalty rate offered to Huawei constituted an abuse of dominant position under the AML, and awarded RMB 20 million (GBP 2 million) in damages.[233]

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[229] Joined Cases 110, 241 and 242/88 *Lucazeau v SACEM* (1989) ECR 2811 [23].

[230] (2013) Guangdong High People's Court No 306/2013 ((2013) 粤高法民三终字第 306 号 (2013) Yue Gao Fa Min San Zhong Zi 306 Hao).

[231] ibid.

[232] ibid.

[233] In another case Huawei alleged that the licence fee charged by InterDigital violated the principle of FRAND and requested that a legitimate amount for a licence fee be identified. The Guangdong High People's Court upheld a decision of the Shenzhen Court that the royalty rate should be 0.019% based on the principle of FRAND. *Huawei v InterDigital* (2011) Shenzhen of Guangdong Intermediate People's Court No 857/2011 ((2011) 深中法知民初字第 857 号 (2011) Shen Zhong Fa Zhi Min Chu Zi Di 858 Hao), aff'd, (2013) Guangdong High People's Court No 306/2013 ((2013) 粤高法民三终字第 305 号 (2013) Yue Gao Fa Min San Zhong Zi 305 Hao).

It was concluded that although Huawei claimed both excessive pricing and price discrimination, and a significant difference of licensing fee[234] was confirmed by the court, the court finally decided that the violation of competition law came under Article 17 (1) prohibiting unfairly high price, rather than Article 17 (6) addressing discriminatory treatment including price discrimination, of the AML.[235] This may be because the AML appears to apply the *per se* rule to unfairly high price.[236] Thus, once the court has confirmed the unfair price, Huawei is very likely to win the case, as the court may not consider the possible justification given by InterDigital. With price discrimination, the relevant primary or secondary injury must normally be proven. In this case, Huawei must bear the burden of proving that it is placed at a competitive disadvantage and suffers loss in the downstream mobile phone selling market due to the higher licensing costs. This burden of proof provides InterDigital with an opportunity to justify the price discrimination.[237] Therefore, the strategy of claiming an unfair price is beneficial for Huawei when in litigation, and the inexperienced Chinese court may also choose this easier approach for addressing the complex patent licensing case. This judgment also indicates that when there is no like criterion for

[234] The differing prices for equivalent transactions can be used to support a claim of unfairly high or low price as well as price discrimination. There are methods provided to assess unfairly high or low prices: '(1) whether the sale price or purchase price is obviously higher or lower than the price at which other business operators can sell or purchase the same goods; (2) whether any increase in the sale price or decrease in the purchase price exceeds the normal range while costs remain stable; and; (3) whether an increase in the sale price is obviously greater than that in the cost, or the decrease in the purchase price is obviously greater than that in the costs incurred by trading partners; and (4) other factors that need to be taken into consideration.' Regulations on the Anti-Price Monopoly 2011, art 11.

[235] *Huawei v InterDigital* (2011) Shenzhen of Guangdong Intermediate People's Court No 857/2011 ((2011) 深中法知民初字第 857 号 (2011) Shen Zhong Fa Zhi Min Chu Zi Di 858 Hao), aff'd, (2013) Guangdong High People's Court No 306/2013 ((2013) 粤高法民三终字第 305 号 (2013) Yue Gao Fa Min San Zhong Zi 305 Hao). However, in a similar case in the US, the court mainly relies on the FRAND principle to conclude the violation of antitrust law. *Microsoft v Motorola* No. C10-1823 JLR, 2013 US Dist Lexis 60233 (W D Wash Apr 25, 2013) (The difference of licensing fee charged by Motorola, from an offer of USD 6.00- USD 8.00 to only 3.471 cents as the FRAND rate for that patent.) See also Thomas F Cotter, 'Comparative Law and Economics of Standard-Essential Patents and FRAND Royalties' (2013) 22 Tex Intell Prop L J 311, 359-63 (commenting on the FRAND rate calculated by the court in *Microsoft v Motorola*).

[236] 'A business operator with market dominant position is prohibited to abuse its dominant position to: (1) sell commodities with unfairly high price or purchase commodities with unfairly low price [...]' AML, art 17. Article 17 of the AML addresses six primary types of abuse of dominant position, including selling commodities with below-cost price, refusal to deal, tying, etc. However, aside from unfairly high and low pricing, other abusive conducts will violate the AML, unless they are 'with justifiable causes'.

[237] 'A business operator with market dominant position is prohibited to abuse its dominant position to: [...] (6) without justifiable causes, conduct discriminatory treatments including price discrimination to business counterparties with equivalent conditions of transaction [...]' AML, art 17(6).

assessing the difference in price, especially when the defendant is reluctant to disclose the price, the court may decide on the approach that is most alike to the criterion in order to execute the comparison. Although the court infers these points in its judgments, some should be clarified in further legislation to ensure that outcomes can be anticipated, and that certainty of outcome is sustained. [238]

6.3.4.6 Conclusion

Foreign multinationals have imposed price discrimination on both primary and secondary line effects in China. This could impede the entry of indigenous innovation to the market to compete with incumbents, as well as place Chinese manufactures in the downstream market at a competitive disadvantage. However, the AML and its implementing regulations have only a few provisions, worded almost identically, which are distant from expectation. In the technology transfer area, price discrimination would be more complicated because it involves IPRs, and so more detailed guidelines are required. For primary line effects, a selective low price or a discount offered to some customers may intend to exclude competitors from the market, and thus restrict competition. When a secondary line injury arises in a situation, a selective high price has been imposed on some customers in one market, and this increases the costs of their products in another market; so their competitiveness in another market will be reduced. When assessing equivalent technology transfer and a difference in price, local conditions must be considered and the comparison must use the same criterion. Where this is not possible, the comparison may use a similar criterion. It should not be forgotten that price discrimination might be justified as it has efficiencies, such as maximising income to recoupment, encouraging innovation, and increasing output to satisfy consumers and achieve economies of scale.

[238] D Daniel Sokol and Wentong Zheng, 'FRAND in China' (2013) 22 Tex Intell Porp LJ 71, 92 (stating the Chinese competition law in the context of FRAND is unclear so that the AML could be selectively taken used to be against Western companies.)

6.4 Allocation of Markets

6.4.1 Introduction

Allocation of markets refers to a market that is divided into a number of parts. Certain companies are authorised to be responsible for individual parts, and they cannot carry out business in parts allocated to others, when the business is the same as what is already being carried out there. There are three major types: allocation of customers,[239] allocation of geographic territories,[240] and allocation of field of use.[241/242] An allocated market could be an input market or a sales market, and the allocation of markets contains horizontal allocation[243] or vertical allocation.[244] It could be either that two competitors are collusive in allocating certain markets for themselves respectively, or that a licensor acquiring a dominant position allocates different markets for its licensees.

[239] This divides customers between different companies, and requires them to not compete for the business of specific customers. For example, a disinfection technology can be licensed to manufacture equipment for either catering companies only or hospitals only. Customers can also be divided into wholesalers and retailers, based on the level of distribution.

[240] This allocates territories to different companies and requires them not to compete in particular territories.

[241] This designates certain types of products or technical fields to certain companies, and requires them to not compete for particular types of product. Steven Anderman and Hedvig Schmidt, *EU Competition Law and Intellectual Property Rights: The Regulation of Innovation* (2nd edn, Oxford University Press 2011) 278. For example, a liquid-crystal display technology could be licensed to manufacture either televisions, or tablets, or mobile phones.

[242] There are other types, such as the allocation of time. The business operating times are allocated by competitors, and each can only operate business within a certain time period. However, this type of restriction is used very little in practice nowadays. For an example of this type of allocation of market, see *National Association of Glass Manufacturers v United States* 263 US 403 (1923). E Thomas Sullivan and Jeffrey L Harrison, *Understanding Antitrust and its Economic Implications* (6th edn, Lexis Nexis 2014).

[243] The horizontal input markets could be allocated by the suppliers of the input, and the same for the allocation of a sales market. The same could also occur in a purchasing market. The market can be allocated by the manufacturers requiring the input, in which case those manufacturers agree to purchase the input from certain suppliers, so as to restrict or eliminate competition between purchasers. In this way, it is difficult for suppliers to set up a proper price based on a real demand-supply relation.

[244] The vertical input markets could be allocated by the suppliers, requiring certain purchasers to buy specified amounts or even all of the input from them, when the supplier has strong market power. Vertical input markets could also be allocated by the purchaser, requiring certain suppliers to sell input exclusively, or a specified amount, to that purchaser, when the purchaser gains strong market power. There may even be reciprocal agreements including all these requirements. However, in technology transfer, the technology is one kind of input for the licensee to manufacture relevant products; the allocation of input markets is almost concurrent with the allocation of the market of licensing technology. For example, a licensor licenses a patent exclusively to a licensee in a certain territory, which could be deemed as either allocation of the market of input of patented products, or allocation of the market of a licensing patent.

The competition in an allocated market can be restricted or eliminated, and the company that is allocated is likely to hold a monopoly and charge the maximum price in the market. Comparatively, in a collusive price fixing or limitation of output, although parties have fixed a price or implemented a high price because of a shortage of supply, there are some other non-price competitions, such as service, quality, and sales promotion.[245] Parties with more efficient cost curves may cheat by offering lower prices in order to impose small losses on the price cartel in general, while achieving large gains for themselves. It is difficult for the other parties to uncover such deception,[246] and the dishonesty makes the price cartel unstable.[247] However, allocation of markets almost eliminates price and non-price competition in the allocated market, and it is easy to monitor the source of sales in the market in order to avoid cheating.[248]

6.4.2 Allocation of Markets in US Law

6.4.2.1 Vertical Restrictions in Case Law: Post-Sale Restrictions and Patent Exhaustion Doctrine

The vertical and horizontal allocations of markets in the US have been treated differently. For vertical restrictions, from 1948 to the early 1960s the government generally invalidated territorial restrictions and vertical distribution agreements.[249] In

[245] Milton Handler and others, *Trade Regulation: Cases and Materials* (4th edn, Foundation Press 1997) 332; Herbert Hovenkamp, *Federal Antitrust Policy: The Law of Competition and its Practice* (4th edn, West 2011) 146.

[246] ibid Herbert Hovenkamp 144-45.

[247] 'Cartels are neither easy to form nor easy to maintain. Uncertainty over the terms of the cartel, particularly the price to be charged in the future, obstructs both formation and adherence by making cheating easier.' *Business Electronic v Sharp Electronics* 485 US 717, 723 (1988).

[248] Posner noted that: 'The analogy between price fixing and division of markets is compelling. It would be a strange interpretation of antitrust law that forbade competitors to agree on what price to charge, thus eliminate price competition among them, but allow them to divide markets, thus eliminating all competition between them.' *Blue Cross & Blue Shield United v Marshfield Clinic* 65 F3d 1406, 1415 (7th Cir 1995), cert denied, 116 S Ct 1288 (1996).

[249] The Justice Department's Antitrust Division agreed to apply the *per se* rule to severe airtight territorial restrictions and customer allocation. After that, the government accepted consent orders regarding the illegality of the vertical distribution of agreements. Robert Pitofsky, 'The "Sylvania" Case: Antitrust Analysis of Non-Price Vertical Restrictions' (1978) 78(1) Colum L Rev 1, 5-6.

White Motor v United States,[250] the Supreme Court reversed a judgment that territorial and customer restrictions were *per se* illegal, as this did not consider the general influence of the distribution agreement on the economy.[251] However, a majority at the Supreme Court surprisingly agreed, in *United States v Arnold Schwinn,*[252] that the *per se* rule could be applied to almost every type of post-sales restriction, while the rule of reason only worked when the dealers were agents or consignees.[253] In *Continental TV v GTE Sylvania,*[254] GTE as a wholesaler tried to attract more aggressive and competent franchisees by reducing the number of its current franchisees in certain territories, and also by requiring the franchisees to only sell GTE goods in the territories where they were franchised. Continental, as a franchisee, claimed that this violated antitrust law as it prohibited the sales in other territories, with the exception of the assigned sales. The Supreme Court confirmed that the location restriction in this case was the same as the one in *Schwinn*. However, according to the *per se* rule stated in *Northern Pac Ry v United States*[255] that there are certain agreements or practices which, 'because of their pernicious effect on competition and lack of any redeeming virtue',[256] are conclusively presumed to be unreasonable, 'and therefore illegal without elaborate inquiry as to the precise harm they have caused or the business excuse for their use',[257] the *per se* rule in *Schwinn* could be overruled if these conditions were not satisfied. The situation in this case did not justify use of the *per se* rule. Therefore, the rule of reason should be applied.[258] Territorial restrictions limiting intra-brand competition have also been supported by the Chicago School, which agrees that intra-brand restrictions can induce dealers to operate more promotions and increase services without worrying about free-riding, and so this promotes the inter-brand competition.[259] Therefore, since this case, the rule of reason generally applies to non-price vertical restrictions.

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[250] 372 US 253 (1963).
[251] ibid 263.
[252] 388 US 365 (1967).
[253] ibid 380.
[254] 433 US 36 (1977).
[255] 365 US 1 (1958).
[256] ibid 5.
[257] ibid.
[258] *Continental TV v GTE Sylvania* 433 US 36, 47-59 (1977).
[259] Richard A Posner, 'The Chicago School of Antitrust Analysis' (1975) 127 U Pa L Rev 925, 933-38.

In terms of field of use, in *Mallinckrodt v Medipart,*[260] Mallinckrodt was a patentee of a device used to dispense a radioactive mist used in taking diagnostic lung X-rays and to trap the mist after use. It sold the devices to hospitals with the label 'single use only'. Medipart, without the consent of Mallinckrodt, provided a service to clean and replace some parts of the devices so that the hospitals could reuse them. Mallinckrodt filed a suit against Medipart for infringement of its patent. Finally, the Federal Circuit Court confirmed that the absolute *per se* rule against the post-sale restrictions the patentee imposed on the licensee was only for price fixing and tying, despite the availability of the exhaustion doctrine.[261] This implies that the possible justification for some vertical restrictions in technology transfer can neither be denied by the exhaustion doctrine nor be prohibited by the *per se* rule. It appears that it is necessary to analyse this under the rule of reason, which implies that more post-sales conditions on the use of patents or patented products can be applied, as they were mainly deemed as unenforceable before the case due to the exhaustion doctrine of patents.[262] However, later in *Quanta Computer v LG Electronics,*[263] LG licensed patents on methods and systems of processing information to Intel to manufacture and sell microprocessor products incorporating the patents, and stated in the licensing agreement that Intel should inform its customers that it did not allow third parties to combine Intel's

[260] 976 F2d 700 (Fed Cir 1992).

[261] ibid. Patent exhaustion doctrine, also termed the first sale doctrine, was initially established by the US Supreme Court in 1873. The court stated that 'a patent's monopoly ends with the first sale or disposition of an article embodying the claimed invention by the patentee, or by a licensee of the patentee acting within the scope of the licence.' *Adams v Burke* 84 US 453 (1873); Michael J Lennon, 'The Growing Global Impact of the US Patent Exhaustion Doctrine' (*Intellectual Asset Management*, 2009) <http://www.iam-magazine.com/issues/article.ashx?g=52a5e001-e3e5-4353-abe3-9f1f8ef48a3c> accessed 20 November 2012. Also '[t]he patentee may surrender his monopoly in whole by the sale of his patent or in part by the sale of an article embodying the invention ... But sale of it exhausts the monopoly in that article and the patentee may not thereafter, by virtue of his patent, control the use or disposition of the article.' *United States v Univis Lens* 316 US 241, 250 (1942).

[262] For example, in *General Talking Pictures v Western Electronics*, the patentee General Talking Pictures (GTP) authorised the licensee Western Electric (WEC) to make and sell amplifiers incorporating the patent for home use only. However, the licensee sold and used the patent in its commercial movie theatres. The court held that the commercial use of WEC violated the terms of the patent licence and did not exhaust the patent right. Later, the Supreme Court ruled that a patentee could sometimes use a conditional licence to avoid patent exhaustion; however, that conditional licence did not provide a blanket authority to be exempted from patent exhaustion. In this case, the condition on the licence could impose a field of use restriction downstream, limiting competition. *General Talking Pictures v Western Electronics* 304 US 175 (1938).

[263] 553 US 617 (2008).

microprocessor products with non-Intel products. Quanta purchased the microprocessor products and proceeded to manufacture non-Intel computers with them. LG sued Quanta for patent infringement, and Quanta defended itself on the grounds of the patent exhaustion doctrine. The District Court supported Quanta under the exhaustion doctrine,[264] while the Federal Circuit Court held that the exhaustion doctrine did not apply because the agreement clarified the non-allowance of the combination and such restriction could be imposed by a notice.[265] The Supreme Court asserted that Intel microprocessor products were finished commercial articles for commerce; they had no non-infringing use other than to combine with computers,[266] and the incentive process of patents had been embodied in Intel microprocessor products. In other words, the novelty of a patent can be found in the Intel microprocessor products rather than in the computers containing such microprocessors, and the condition on the licence should be on both the licensee and downstream purchasers of the licensee.[267] Therefore, Quanta did not infringe the patent. Although the court did not explicitly deny the limitation of applying exhaustion doctrine on restrictions imposed by the patentee in *Mallinckrodt*,[268] to some extent this is implied. However, in *Static Control Components v Lexmark International,*[269] Lexmark relied on 'shrinkwrap licenses' and restrictive notices attached to products to prevent the refilling of its toner cartridges, based on the exhaustion doctrine in *Mallinckrodt*. The court alleged that 'the Supreme Court did

[264] *LG Electronics v Asustek Computer* 2002 WL 31996860 (N.D. Cal 2002), rev'd, 453 F3d 1364 (Fed Cir 2006), rev'd sub. nom.

[265] *Quanta Computer v LG Electronics* 128 S Ct 2109, 86 USPQ2d 1673 (2008).

[266] LG argued against the non-infringing uses that the Intel microprocessor products could be sold overseas, or as repair parts, or by disabling features incorporated in patents. However, the Court dismissed those arguements. In terms of exporting or replacement use, the concern was not whether the use generated infringement liability, but whether the product would perform the patented method or embody the patented product. The court asserted that the disabled device aspect of novelty rather than the device that remained must have a non-infringing use, so that disabling them would result in them having 'no real use'. ibid.

[267] The Supreme Court ruled that if LG offered the licensee an unconditional right to sell the patented products but imposed stringent conditions on downstream purchasers to use the patented items, it did not create a conditional license. Moreover, the licensee had an unconditional right to sell so that the sale to the downstream purchaser was authorised and unconditional, and this sale exhausted the patent right. However, '[n]othing in the Licence Agreement limited Intel's ability to sell its products practicing the [LG] Patents.' The authorisation of Intel to sell Quanta thus exhaust the control on scope of patent by LG. ibid.

[268] Steven Seidenberg, 'Patent Predicament' (*Inside Counsel*, 1 September 2008) <http://www.insidecounsel.com/2008/09/01/patent-predicament-?t=ip&page=2> accessed 22 April 2013.

[269] 615 F Supp 2d 575 (ED Ky 2009).

not expressly overrule *Mallinckrodt* in its *Quanta* opinion' but it did so '*sub silentio*'.[270] This reflects the ongoing debate on both the application of the exhaustion doctrine, and the restrictions on sales of customers of a patentee and licensees in the US. Thus, the latest cases imply that the courts are more in favour of the application of the exhaustion doctrine to limit interventions in restrictions post-sale or post-license.[271]

6.4.2.2 Horizontal Restriction in Case Law

The horizontal allocation of markets is *per se* illegal under Section 1 of the Sherman Act.[272] In early cases, the allocation of markets combined with price fixing was usually judged as *per se* illegal by courts, but this does not clarify whether the allocation of markets itself constitutes an application of the *per se* rule.[273] In *United States v Topco Associates,* [274] a chain of twenty-five small and medium sized grocery stores constituted a cooperative association named Topco. Its members could purchase and redistribute goods so as to reduce costs, and also a private label merchandise programme for the members, trade mark 'Topco,' had been created. The members benefited by being able to compete with other large national supermarket chains; individual members could not have achieved the same level of success. The association licensed its members to sell products under the Topco brand only in an exclusive territory, and also prohibited them from selling outside that territory. The total sales volumes of the association ranked 4th place on average, accounting for 6% of the market behind the three largest national supermarket chains. The US government

[270] ibid.

[271] In *LG Electronics v Hitachi*, the court rejected the arguement of LG that the exhaustion doctrine articulated in *Quanta Computer v LG Electronics* only applied when the first authorised sale occurred in the US. *LG Electronics v Hitachi* 655 F Supp 2d 1036 (ND Cal 2009).

[272] 'Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is declared to be illegal.' Sherman Act 1890 (15 USC § 1).

[273] *United States v Addyston Pipe & Steel* 85 F 271 (6th Cir 1898), aff'd, 175 US 211 (1899) (the court held that the territorial market division and price fixing were illegal, unless they were merely ancillary to the main purpose of a lawful contract); *Timken Roller Bearing v United States* 341 US 593 (1951) (the Supreme Court held that regardless of the purpose of the agreement, the price fixing, with aggregation of trade restraints including territorial restrictions, was illegal); *United States v Sealy* 338 US 350 (1967) (the Supreme Court confirmed the illegality of price fixing, and held the territorial restriction to be illegal as well because 'they gave to each licensee an enclave in which it could and did zealously and effectively maintain resale prices free from the danger of outside incursions).

[274] 319 F Supp 1031 (ND III 1970), 405 US 596 (1972).

sued the association because the territorial restriction was *per se* illegal and violated Section 1 of the Sherman Act. The District Court rejected the application of the *per se* rule and held that the territorial restrictions eliminated intra-brand competition, but that it was reasonable in order to promote inter-brand competition.[275] However, the Supreme Court reversed the decision and held that horizontal territorial restriction between competitors was *per se* illegal. It also rejected the argument of promotion of inter-brand competition, and did not consider its non-dominant position in the market.[276] Nevertheless, the decision was not clear-cut because the association did not contain hardcore restrictions, such as price fixing or tying, which are almost *per se* illegal. The association's intention was to enhance competition with other large national supermarket chains, and eventually they only acquired 6% of the market, which didn't restrict or eliminate competition. In addition, the territorial restriction was necessary to avoid free riding, so that members would be encouraged to develop the brand to promote competition. Otherwise, no member would wish to invest in advertising in his territories, and the association would not be able to compete with the other large competitors.

Following this, courts began providing different options, rather than solely applying the *per se* rule for horizontal restrictions. For example, they examined the purpose and effect of the restrictions, and then decided whether the agreement fell in or out of the category of conducts to which the *per se* rule could be applied,[277] and applied the rule of reason in cases involving 'an industry in which horizontal restraints on competition are essential if the product is to be available at all'.[278] In *Polk Bros v Forest City Enterprise,*[279] the provisions of not selling competing products, regarding territorial

[275] ibid.

[276] It stated that the non-application of the *per se* rule would leave courts 'free to ramble through the wilds of economics theory in order to maintain a flexible approach'. It also confirmed the removal of previous doubt about whether territorial restriction unaccompanied by price fixing was *per se* illegal in that case. ibid 405 US 596, 609 (1972).

[277] *Broadcast Music v CBS* 441 US 1, 9, 19-20 (1979) (the Supreme Court did not apply the *per se* rule but considered the efficiency, convenience, and necessity of the price fixing); *Arizona v Maricopa County Medical Society* 457 US 332, 361, 362 (1982) (the Supreme Court stated that before characterising an agreement as a *per se* price fixing one, a court should determine if it is a naked restraint with no other goal but the elimination of competition).

[278] *National Collegiate Athletic Association v Board of Regents* 468 US 85, 101 (1984).

[279] 776 F 2d 185 (7th Cir 1985).

restriction and products division in the lease agreement between two companies occupying the same building, were upheld because the agreement promoting the construction of the building was pro-competitive. Moreover, Posner J held that the allocation of markets was illegal because the restrictions were wider than necessary to achieve the goal of the joint venture of parties in *General Leaseways v National Truck Leasing Association.* [280] This shows that the US courts combined the quick condemnation of horizontal allocation of markets in anti-competitive agreements by the *per se* rule, with an examination of its pro-competitive efficiency mainly from the economic view by rule of reason.

6.4.2.3 Regulation in Antitrust Guidelines 2017 in Technology Transfer

In the Antitrust Guidelines 2017, the IPRs-related horizontal allocation of markets and customers have been categorised as qualifying for the *per se* rule in some circumstances,[281] because when the allocation of markets' 'nature and necessary effect are so plainly anticompetitive', the *per se* rule will be applied 'without an elaborate inquiry into the restraint's likely competitive effect.'[282] This attitude came from and is consistent with the above general evolution of case law regarding the common allocation of markets for the basic rule to apply.

In cases involving IPRs, where there is a greater possibility of the licensor and licensee generating efficiencies than in a common sales agreement, the rule of reason is likely to be applied. The pro-competitive efficiencies might be provided by the allocation of markets, especially in vertical allocation of markets: certain exclusivity in a market for licensees which may encourage them to invest in the commercialisation and distribution of the products and to develop additional applications of the products; certain exclusivity in a market for licensors that may increase their incentives to license IPRs without being cautious about there being no room to protect themselves;

[280] 774 F2d 588 (7th Cir 1984).

[281] '[T]he Agencies will often evaluate horizontal restraints under the rule of reason. Additionally, some restraints may merit *per se* treatment, including price fixing, allocation of markets or customers, agreements to reduce output, and certain group boycotts.' Antitrust Guidelines 2017, s 5.1.

[282] ibid s 3.4.

and protecting licensees against possible free riding on their efforts at promotion and advertising by other licensees or the licensor.[283] The samples given in the Antitrust Guidelines 2017 are not likely, under scrutiny by antitrust laws, to involve vertical allocation of markets.[284] This indicates that there are relatively fewer anti-competitive effects that stem from vertical agreements and the lenient treatment for these types of agreements. For horizontal agreements, even if they relate to IPRs, they may have stronger adverse effects than vertical agreements, and therefore they are more likely to be regulated by competition law.

6.4.2.4 Conclusion

US courts are strict in their treatment of the vertical allocation of markets in common practice, although it is not with an absolute *per se* rule. For restrictions in a patent licence, this relates closely to the patent exhaustion doctrine, and most courts agree to apply the doctrine to most post-sale restrictions of patented products. The Antitrust Guidelines 2017 indicate a relatively lenient treatment of vertical restrictions. For the horizontal allocation of markets, it shows the trend from an absolute *per se* rule to them with some exceptions by both court and the Agencies.

6.4.3 Allocation of Markets in EU Law

6.4.3.1 Treatment of Exclusive Licence in Case Law: from Strict to Relatively Lenient

Prior to the Treaty Establishing the European Economic Community (EEC treaty) signed in 1957,[285] the patentee or licensee could rely on the national patent law, as was the case with other national rights such as trade mark law and design right law, to restrain patent-based or other IPRs-based products from entering certain states

[283] ibid s 2.3.

[284] ibid, s 2.3, example 1 (field of use and territorial limitations); s 4.1.2, example 7 (exclusive license and exclusive dealing).

[285] The EEC treaty was signed in Rome. It brought France, Germany, Italy, and the Benelux countries together as a community and was intended to establish integration 'via trade with a view to economic expansion' within the community. Treaty Establishing the European Economic Community 1957.

without the consent of the patentee.[286] Under these, it was not necessary to include a restriction clause, such as an export ban on a licensee in a patent licensing agreement; it could simply be achieved by registering the relevant patent, trade mark, or design in the member state and granting an exclusive right of use to a national licensee. Any other person importing an identical product would be in breach of that national right. Some nations had adopted certain principles of 'exhaustion of rights' or what is called the 'first sale doctrine,' so that when a product was legally placed on the market, the right owner could no longer restrict its sale in other markets. However, these principles were often vague and haphazard.[287] It was the EEC Treaty that provided a powerful impetus to the creation of IPRs on a regional rather than a national basis, in which Article 85 (now Article 101 of the TFEU) prohibited all agreements that might affect interstate trade and that have as their objective or effect on prevention, restriction or distortion of competition within the Common Market, in order to create a single, fair and competitive common market.[288] It was a fundamental aim of the EU

[286] Jonathan DC Turner, 'Competition and the Common Market after Maize Seed' (1978) 8 E L Rev 103, 109-25; Roberto Casati, 'The "Exhaustion" of Industrial Property Rights in the EEC: Exclusive Manufacturing and Sales Provisions in Patent and Know-How Licensing Agreements' (1978) 17 Colum J Transnat'l L 313, 325.

[287] The exhaustion doctrine has been recognised in the EC since the EEC Treaty was concluded to form a free movement market. Case law has also generally confirmed its use for patents. Case 24/67 *Parke Davis v Probel* [1968] ECR 55 (the holder of a Dutch pharmaceuticals patent whose products were lawfully manufactured in Italy by a third party without his consent, where the law at the time did not allow patent protection on drugs, was later successful in opposing their parallel importation into the Netherlands); Case 15/74 *Centrafarm BV v Sterling Drug* [1974] ECR 1147 (the patentee has the exclusive right to use the invention to manufacture industrial products and put them into circulation for the first time by granting licences to others, or the right to oppose infringement); Case 187/81 *Merck v Stephar* [1981] ECR 2063 (the owner of a Dutch pharmaceuticals patent who marketed the same in Italy, where the law at the time did not allow patent protection on drugs, later tried to unsuccessfully oppose their parallel importation into the Netherlands). Also, the judgement of the ECJ in *UsedSoft v Oracle* in July 2013 is a landmark one for the exhaustion doctrine in licensing software. The court ruled that a copyright-owner of software could not prevent a perpetual licensee from selling his 'used' software licence that he had downloaded from the internet. The court stated that such a perpetual licence amounted to a 'sale of a copy' of the program and therefore it could apply the exhaustion doctrine mainly based on Article 4 and Article 5 of Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the legal protection of computer programs [2009] OJ L111/16. Case C-128/11 *UsedSoft v Oracle* [2013] 3 CMLR, [2012] ECDR 19 and [2013] RPC 6.

[288] For example, it is clear that an infringement action cannot be used to prevent patent-based products from being imported by the customer of a licensee or a patentee into a Member State where the product in question has patent protection. Roberto Casati, 'The "Exhaustion" of Industrial Property Rights in the EEC: Exclusive Manufacturing and Sales Provisions in Patent and Know-How Licensing Agreements' (1978) 17 Colum J Transnat'l L 313, 326. The grounds for such an opinion by the European Court is that a patentee has obtained a monetary reward from selling or consenting to sell a patent-based product in the EEC, and so his patent rights cannot be used to prevent the importation of the patent-based product into any Member State. *Centrafarm v Sterling* [1974] ECR 1147, [1974] 2 CMLR 480; Peter Oliver, *Free*

to create a single internal market with free movement of goods and services between member states, and national IPRs, initially a major obstacle to the creation of this market. In 1962, the Commission's Christmas Message Notice[289] stipulated that some restrictions, including field of use and exclusive licence, would not fall within the scope of Article 101(1), but that other restrictions beyond the scope of patent, such as tying, price, and territorial sales restrictions were prohibited.

The attitude toward territorial restrictions was altered, from favourable to largely hostile, in *Etablissements Consten SA & Grundig-Verkaufs v Commission*.[290] Grundig, a German producer, appointed Consten, a French distributor, to act as its exclusive distributor in France, and permitted Consten to register its trade mark GINT in France through a trade mark licensing agreement that awarded Consten the exclusive right to market goods bearing that mark in France. In this way, it secured absolute territorial protection from parallel imports of Grundig's products to France through a claim for infringement of its French trade mark – even though the imported goods had been legally marketed with Grundig's authority in another EU member state; in this case, Germany itself. The court held that the licensor and licensee had attempted to isolate the French market for Grundig products under the guise of a trade mark licensing agreement, thus creating absolute territorial protection and a relevant distribution agreement that distorted competition in the common market. The agreement fell under the scope of Article 101(1) and should thus be prohibited. Consten and Grundig argued that the agreement would not restrict competition because it created a new competitor in the French market to enhance inter-brand competition. The court accepted that '[c]ompetition between producers is generally more noticeable than that between distributors'. However, 'it does not [...] follow that an agreement tending to restrict the latter kind of competition should escape the prohibition in Article 85(1) merely because it might increase the former.'[291] This highlights the strong opinion of

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Movement Of Goods In the EEC (Sweet & Maxwell 1982) 156-61. However, it is not clear if a licensee or a patentee could use a patent right to prevent a licensee from importing from another member state. John Temple Lang, 'Patent Rights and Licensing in E.E.C. Law' in GO Zacharias Sundstrom (ed), *Contributions to Community Competition Law* (University Publishers 1978) 59, 65.

[289] Commission Notice of 24 December 1962 on patent licensing agreements [1962] OJ C 139/2922.

[290] Joined Cases 56 and 58/64 [1966] ECR 299, [1966] CMLR 418.

[291] ibid [1966] ECR 299.

the court at that time regarding the restriction of competition, regardless of whether it was inter-brand or intra-brand competition. The first time that the Commission confirmed that the exclusive right granted to licensees under patents to manufacture and sell was not excluded from the prohibition of Article 101(1) was in in *Burroughs*/Delplanque,[292] which departed from the Christmas Message Notice of 1962. The prohibition would not apply in some particular cases, given that the right to manufacture in and sell from a particular territory did not restrict the free movement of goods once the good was sold anywhere in the Common Market with the consent of its owner,[293] and that it is territorial restrictions on sales rather than on manufacturing or use that might reduce the flow of interstate trade.[294] Nevertheless, the Commission held that because the licence of an exclusive territorial right would keep the licensor from accepting other applications and would limit the freedom of potential suppliers and exporters of the licensed product, agreements with exclusive territorial protection would be caught by the prohibition of Article 101(1), in so far as it had a significant influence on market conditions. In *Davidson Rubber*[295] and *Kabelmeta/Luchaire*,[296] the Commission also admitted that exclusivity was necessary to induce the licensee to invest in the manufacturing facilities for new products, as long as the exclusive territorial protection would not have significant effect on free movement. However, the exclusive licensing still infringed Article 101(1) and required exemption when the exclusive licensing provisions were available and the export bans were deleted.

Competition rules at this stage focused on the strict examination of exclusivity in license agreements, which included an automatic prohibition on exclusive territorial licences based on Article 101(1), and a requirement of notification if they wanted to apply for the exemption under Article 101(3). This implied that the policies emphasised the protection of interstate trade, and despised the effects of promoting innovation and diffusing new technologies by authorising exclusive territorial rights for

[292] [1972] OJ L13/50, [1972] CMLR D67.

[293] Friedrich-Karl Beier, 'Industrial Property and the Free Movement of Goods in the Internal Market' [1990] IIC 131, 142-45.

[294] As in the Burroughs cases, the exclusive license by Burroughs concerned only manufacture rather than sales, and the licensee held a small market share so the agreement was approved. *Burroughs/Delplanque* [1972] OJ L13/50, [1972] CMLR D67.

[295] [1972] OJ L143/31, [1972] CMLR D52.

[296] [1975] OJ L222/34, [1975] 2 CMLR D40.

manufacture throughout the common market. In general, only an exclusive manufacturing licence was allowed, and restrictions on sales for both licensee and customers of the patentee or licensees were not exempted due to the objective of pursuing an integrated market, as well as the exhaustion doctrine.[297]

In a number of cases in the early 1980s, the court held that territorial restrictions in licences did not necessarily lead to being caught by Article 101(1), because other conditions should be considered.[298] In *Nungesser v Commission,* [299] the court stated that the territorial restriction in the licence would not be prohibited under Article 101(1) if the following circumstances were present:[300] firstly, if it related to a new breed or new technology or if it was not new but there was no substitute; secondly, when the territorial protection was necessary for a licensee to take the risk and cover the development costs involved to engage in the licence, and the licence was essential for the dissemination of new technology and the promotion of inter-brand competition; and thirdly, that the licence should be an open rather than a closed exclusive licence.[301] Although *Nungesser* related to a plant breeder's rights, the reasoning was also applicable to other IPRs. Thus far, the exclusive restriction on sales related to a licence might be exempted for an open exclusive licence, but an absolute territorial licence was still undergoing hostile treatment.

6.4.3.2 Regulation in TTBER 316/2014 and its Guidelines

[297] The ECJ confirmed with the exhaustion doctrine that once the IPRs-related products had been sold or with the consent of the holder, the IPRs were exhausted and could not be adopted to exclude the product from other Member States. *Centrafarm BV v Sterling Drug* [1974] ECR 1147, [1974] 2 CMLR 480; *Merck v Stephar* [1981] ECR 2063, [1981] 3 CMLR 463. However, this is regional exhaustion and not international exhaustion, and does not apply where goods were first marketed outside the EU. *Levi Strauss v Tesco* [2002] 3 CMLR 11, [2003] RPC 18.

[298] Case 27/87 *Erauw-Jacquéry v La Hesbignonne* [1988] ECR 1919, [1988] 4 CMLR 576.

[299] Case 258/78 [1982] ECR 2015, [1983] 1 CMLR 278.

[300] Barry Hawk, 'Patents under EEC Competition Law' (1984) 53 ALJ 751, 760-66; Peter Stone, 'The E.E.C. Block Exemption for Patent Licenses-Part 1' (1985) 7 EIPR 174, 176-79.

[301] An open exclusive license restricts the IPRs owner from making direct sales to the territory of a licensee; a closed exclusive license obliges the IPRs owner to not allow other licensees or third parties to make direct sales to the territory of the licensee. The main distinction is that the restriction is only to bind the parties in the contractual relations in an open exclusive license. Barry Hawk, 'Patents under EEC Competition Law' (1984) 53 ALJ 751, 751-52. See also Steven Anderman and Hedvig Schmidt, *EU Competition Law and Intellectual Property Rights: The Regulation of Innovation* (2nd edn, Oxford University Press 2011) 273-78.

Allocation of markets is considered a hardcore restriction in TTBER 316/2014, but in some situations it can be block exempted. When below the market share threshold,[302] both the horizontal[303] and vertical[304] allocation of markets are likely legitimate. Allocation of markets can also be distinguished by restrictions imposed on the licence to manufacture products, and restrictions imposed on the sale of products embodying the licensed technology. The former mainly restrains the origin of products, and these products can be distributed to consumers with different channels, in which competition is likely available. The latter forecloses the entry to sales distribution and supra-competitive prices may be charged.[305]

For market shares above the thresholds, the allocation of markets needs to be analysed individually. Reciprocal exclusive licences between competitors are likely to be intervened by Article 101(1) of the TFEU because they may become the only source of

[302] The threshold for technology transfer agreements between competitors: 'the combined share of the relevant markets accounted for by the parties does not exceed 20%', and between non-competitors: 'the individual share of the relevant markets accounted for by each of the parties does not exceed 30%'. TTBER 316/2014, preamble (10), (11).

[303] For non-reciprocal agreements between competitors, an exclusive licence to manufacture in a certain territory or to sell in a certain territory or to a customer group that is reserved for either licensor or licensee is block exempted, while the block exemption only applies to restrictions of active sales when such restrictions exclude the territory or customers due to the reservation for third licensees. TTBER 316/2014, art 4(1)(c)(i) and (ii). For agreements between competitors, restrictions on the contract products to be only for its own use or for sales as spare parts for its own products in an after-sales stage, and restrictions on the licensee to produce contract products only in a non-reciprocal way for particular customers, aiming to generate an alternative source of supply, are block exempted. TTBER 316/2014, arts 4(1)(c)(iii), (iv). The two types of restrictions are block exempted in non-competitor agreements. TTBER 316/2014, art 4(2)(b)(iv), (v). In addition, the restrictions of sales to end-users by a wholesaler licensee and of sales to unauthorised distributors by a member of a selective distribution system are also block exempted. TTBER 316/2014, art 4(2)(b)(iv), (v).

[304] For agreements between non-competitors, within the threshold, all sales restrictions on the licensor are block exempted. Guidelines of TTBER 316/2014, para 120. Restrictions of passive sales on a licensee to a certain territory or customer group reserved for the licensor are permissible. TTBER 316/2014, art 4 (2)(b)(i). In addition, the same restrictions on territory and customer group reserved for third licensees can only be block exempted when certain duration is 'necessary for the protected licensee to penetrate a new market.' Guidelines of TTBER 316/2014, para 126. The restriction of passive sales in this situation could be block exempted during the first two years. TTBER 772/2004, art 4 (2)(b)(ii). However, the provision has been deleted in TTBER 316/2014. The essence of exempting the restriction is to consider if it is necessary for tempting a licensee to invest in and develop a new market, but this change seems to make the assessment of duration of such restriction more flexible; namely, that it should not be limited to two years but should depend on the circumstances. This also avoids the situations where there is no substantial investment, or such investment is not for establishing a new market, to be block exempted.

[305] Steven Anderman and Hedvig Schmidt, EU Competition Law and Intellectual Property Rights: The Regulation of Innovation (2nd edn, Oxford University Press 2011) 275.

output in the particular territories where third parties are all excluded.[306] For non-reciprocal exclusive licences between competitors, if the licensor has little market power or has no capacity to exploit the technology, then such licences may be justified.[307] Exclusive licences between non-competitors may be permissible because it is necessary to induce a licensee to invest in exploiting the technology to enhance inter-technology competition and the dissemination of technology.[308] The exception to this might be when the licensee acquires a dominant position, and such an exclusive licence likely constitutes a real source of competition on the market so that other competitors are foreclosed.[309]

In reciprocal agreements between competitors, restrictions on sales are deemed to be hardcore in Article 101(1) of the TFEU. They are hardly ever exempted because such market division prevents the active and passive sales of any party in question that could operate the sales without such an agreement.[310] This may lead to substantial collusion between the parties to preserve their market power or exclude other competitors from entry when it is combined with restrictions on licence. In non-reciprocal agreements, exclusive sales restrictions fall within the scope of Article 101(1), especially when the parties have strong market power. However, they may be exempted according to Article 101(3) of the TFEU, provided that either party in their territory or customer group has a weak market position so that they need a certain protection to encourage them to grant such a licence or invest to exploit the technology.[311] For agreements between non-competitors, restrictions on sales may fall outside Article 101(1), but when the restrictions are on the licensee, an intervention may be justified if the licensor has strong market power, or there are similar agreements concluded by the licensor and the cumulative effect leads the licensor to hold a strong position in the market; or when the restriction is on the licensor but the

[306] Guidelines of TTBER 316/2014, para 192.
[307] ibid para 193.
[308] ibid paras 194, 195.
[309] ibid. See also *Tetra Pak Rausing SA v Commission* [1990] ECR II-309, [1991] 4 CMLR 334, [1990] 2 CEC 409.
[310] Guidelines of TTBER 316/2014, para 198.
[311] ibid paras 199, 200.

licensor is almost the only source in the market, or other alternatives are licensed to the licensee.[312]

In terms of captive restrictions,[313] a balance needs to be found between the anti-competitive effects, such as possible restriction of intra-technology competition and the basis for imposing discriminatory royalties on different licensees, and the pro-competitive effects of inducing a licensor to grant the licence, by protecting his advantages when he is an operator in the market of components that incorporate the technology, or products that embody such components.[314]

The restriction of field of use may have pro-competitive effects by encouraging the licensor to license technology, or the licensee to invest in making use of the technology but, in agreement between competitors, the restriction may generate adverse effects. For example, in a cross-licensing agreement, the parties may limit each of them to a certain field, while without the agreement they could exploit other fields, so it may be collusion to allocate markets of certain fields to reduce or even eliminate competition in those fields. However, if the parties are allowed to engage in the same fields, it may not result in adverse effects, as the competition between the parties is still available in that limited field.[315]

6.4.3.3 Conclusion

The treatment of exclusive licence has evolved, from strict regulation after the conclusion of the EEC treaty, to relatively lenient regulation when the potential efficiency[316] was recognised. TTBER 316/2014 and its guidelines provide more freedom

[312] ibid paras 201-203.

[313] 'A captive use restriction can be defined as an obligation on the licensee to limit its production of the licensed product to the quantities required for the production of its own products and for the maintenance and repair of its own products.' ibid paras 216.

[314] ibid paras 216-20.

[315] ibid paras 213-14.

[316] Davidson Rubber [1972] OJ L143/31, [1972] CMLR D52 (the court admitted that exclusive licence was necessary to induce investments from licensees for manufacturing new products); In *Nungesser v Commission* [1982] ECR 2015, [1983] 1 CMLR 278. (The court held that territorial restriction in the licence would not be prohibited if the technology in question was new and was necessary for a licensee to engage

on exclusive licence to manufacturing than relevant restrictions on sales,[317] and this reflects the recognition of the importance of inducing a licensor to grant the technology, and of a licensee to invest in manufacturing products. However, adequate protection on the preservation of importing products from and on free-riding in other member states, at a sales rather than a manufacturing level, to encourage a licensee to invest in exploiting the technology, has been weakened by the stricter treatment of sales restrictions. It is acknowledged that it would be beneficial in the formation of the Common Market to place emphasis on competition, but the development of innovation in the EU could be impeded to a certain degree due to regulation on the exercise of IPRs to grant licences, such as exclusive licences. This may lead to R&D activities and relevant productions being operated outside the EU, and the products being distributed by a single company to the member states in order to reduce the risk of breaching Article 101(1) of the TFEU via the restrictions of the patentee or licensor. The US Antitrust Guidelines 2017 do not make a distinction between manufacture and sales, and active sales and passive sales, in an exclusive licence, which would be more attractive for innovation and relevant manufacture.

6.4.4 Proposals for China

6.4.4.1 The Current Legislation and Relevant Provisions in Some Drafts

The regulation on the allocation of markets has emerged in some rules and judicial interpretations. For instance, the licensor should not unreasonably limit the types of production by a licensee in agreements of importing technology,[318] and it has been deemed that unreasonable restrictions on types, channels of distribution, and exporting markets of products or services incorporating transferred technology will constitute an illegal monopoly of technology.[319] These provisions, involving restrictions on production as well as on sales, mainly stress the field of use and

in the licence; and the licence was essential for the dissemination of new technology and the promotion of inter-brand competition; and,that the licence should be an open rather than a closed exclusive licence).

[317] TTBER 316/2014, art 4(1)(c), (2)(b); Guidelines of TTBER 316/2014, paras 120, 126, 192-95.

[318] Regulations on the Administration of Technology Import and Export of China 2002, art 29.

[319] Interpretation of the Supreme People's Court concerning Some Issues on the Application of Laws for the Trial of Cases on Disputes regarding Technology Contracts No 20/2004, art 10(3).

channels of distribution, rather than territory. This may be because the anti-competitive effects of an exclusive territorial licence did not draw much attention from the authorities, compared with other restrictions.[320] For example, a foreign technology owner may prefer to transfer his technology to its subsidiary companies, including its wholly-owned companies or a joint venture in China, which then manufacture and market in China rather than license to different territories individually. This may reduce the problem of territorial allocation of market.[321] In addition, these restrictions mentioned in the provisions are not *per se* illegal unless they are 'unreasonable,' which is very likely based on the encouragement of transferring technologies by leaving some space for the imposition of restrictions by licensors. However, the substantial scope of 'unreasonable' restrictions has been left to authorities and courts to interpret in individual cases, which causes uncertainty and non-transparency in the law. The AML and its implementing regulations place an emphasis on horizontal restrictions of allocations of markets,[322] but the vertical restrictions are not clear.[323] The Rules only state that the exercise of IPRs should not violate Articles 13 and 14 of the AML, which relate to allocation of markets.[324]

The 5th Guidelines only stipulate a provision to prohibit 'allocations of markets of licensing IPRs or of sales markets of production incorporating licensed IPRs or of

[320] However, it did happen in China and there was a territorial restriction on franchisees in *Ruibang*.

[321] This allows for the control of the technology as well as for savings on manufacturing costs.

[322] The AML prohibits the allocation of markets of sales or of purchasing raw materials in agreements between competitors. AML, art 13(3). This allocation of markets contains: '1) allocation of territories or customers or categories or quantity of selling products; 2) allocation of territories or types of inputs including raw materials, semi-finished products, spare parts and relevant equipment; 3) allocation of suppliers of inputs including raw materials, semi-finished products, spare parts and relevant equipment.' Regulations on the Administration for Industry and Commerce concerning Prohibition of Monopoly Agreements 2011, art 5.

[323] The AML prohibits business operators from abusing their dominant position, without justifiable causes, to restrict counterparties to trading exclusively with other business operators designated by the dominant business operator. Vertical allocation of customers can to some extent be categorised under this type of anti-competitive conduct. AML, art 17 (4). The dominant business operator is also prohibited from imposing unreasonable conditions on the transaction. Unreasonable conditions may include a situation, for example, in which the licensor requests its licensees to exploit the techology within certain territories, or to certain customers or in a certain field of use, which constitutes vertical allocation of markets. AML, art 17(5). However, if further explanation of whether these provisions can apply to vertical allocation of markets is not provided, it would be unclear how the AML would deal with vertical allocation of markets.

[324] Rules, art 4.

purchasing markets of raw materials'.[325] The 7th Guidelines further provide definitions for agreements of allocation of markets between competitors[326] as well as non-competitors,[327] but the abuse of dominant position to allocate markets is not mentioned, neither do they offer gudelines for analysing specifically positive or negative effects. The New Guidelines 2017 mainly stress on how to identify 'eliminating or restricting competition' rather than 'abusing IPRs.'[328] Therefore, the current legislation and drafts are far from adequate.

6.4.4.2Anti-competitive Effects

Allocation of markets can detrimentally affect competition. This is especially the case when there are no substitutes for the patented products, and only intra-technology

[325] 5th Guidelines, art 13(3).

[326] 'Allocation of markets between competitors refers to competitors making use of IPRs-related agreements to allocate markets for licensing IPRs, or for selling commodities incoporating IPRs, or for purchasing inputs. The allocation of markets between competitors is normally subject to a territory restriction requiring competitors not to license IPRs or produce or sell or commodities incorporating IPRs or input for production in certain territories, or to remain within a certain territory for certain customers.' 7th Guidelines, art 15.

[327] 'Territory and customer restrictions between non-competitors mean that the territory or customer for the sale of commodities incorporating IPRs and manufactured by the licensee is restricted by licensors through relevant IPRs-related agreements. Territory and customer restrictions between non-competitors include direct and indirect territory and customer restrictions. Direct territory and customer include, but are not limited to, licensors requesting licensees not to sell commodities to certain customers or customers in certain territories, or requesting licensees to provide orders from these customers to other licensees; indirect territory and customer restriction mainly refers to licensors conducting territory and customer restrictions by providing financial incentives, restricting sales quantities or establishing supervising systems, etc. ' ibid art 20. According to the AML, the only vertical monopoly agreement between non-competitors that is expressly prohibited is price restriction. These guidelines apparently extend the vertical monopoly agreement to be prohibited to allocation of territory and customer. However, this provision does not clarify to what extent the vertical allocation of territory and customer violates the AML, or what factors should be considered in order to determine that a violation has taken place; for example, whether the licensor acquiring a dominant position is essential. In particular, vertical monopoly agreements normally do less anti-competitive damage than horizontal monopoly agreements; people may be misled that the vertical restriction is *per se* illegal without specific guidelines. Also see NDRC Gudelines, art 2(2)(4) (stipulating that IPRs-related agreements concluded between non-competitors may involve territory restrictions on exploiting licensed IPRs, or restrictions on selling channels, scope or counterparties of commodities incorporating IPRs.)

[328] The New Guidelines 2017 do not expressly relate to allocation of markets. They only mention that the restrictions on licence of IPRs are also available at the field of use, channels, scope and customers of sales of products incorporating IPRs, etc., which can be categorised as allocation of markets. They do not offer specific guidance of assessing the restrictions, but provide some factors for considering the effects of eliminating and restricting competition, including 1) contents, degree and implement action of restriction; 2) taking use of features of products incorporating IPRs; 3) relations between restrictions and licence of IPRs; 4) whether it has multiple restrictions; 5) whether other competitors holding substitute technologies impose same or similar restrictions. New Guidelines 2017, art 11.

competition between the sellers is available.[329] As such, the allocation of markets would absolutely eliminate the competition in a certain area. Competitors could eliminate inter-technology competition by exclusive licence in reciprocal or cross-licensing agreements, and agree not to compete in the assigned areas, thus excluding competition in those areas covered under licensing agreements. In both these situations, the patentee and licensees would very likely have a dominant position in the specific area, and be able to charge a monopoly high price, so that customers only wishing to purchase the products at a competitive price would not buy them. This may mean that some resources are allocated inefficiently, based on an incorrect demand-supply relationship that constitutes harm to productive and allocative efficiency, and also damages consumer welfare.[330] It is acknowledged that if exclusive or sole licensing has been utilised as a means of collusion to allocate markets to eliminate competition, resulting in anti-competitive effects outweighing benefits, then the licence should be prohibited. However, in practice, inter-technology competition or intra-technology competition can arise in various circumstances.

6.4.4.3 Possible Efficiency: Encouraging Innovation and Facilitating Technology Diffusion

From an economic perspective, competition law should not be implemented when the total benefit of the allocation of markets, such as encouragement of innovation and dissemination, outweigh the greatest possible amount of the total cost arising from the anti-competitive effects.[331] As discussed above, the promotion of R&D to enhance indigenous innovation and encourage technology diffusion is vital to China.[332] Achieving the two objectives should primarily be done by demonstrating the rewards

[329] Inter-technology competition is similar to inter-brand competition. Charles Baden-Fuller, 'Economic Issues Relating to Property in Trademarks: Export Bans, Differential Pricing, Restrictions on Resale and Repackaging' (1981) 6 E L Rev 162, 169.

[330] E Thomas Sullivan and Jeffrey L Harrison, *Understanding Antitrust and its Economic Implications* (6th edn, Lexis Nexis 2014) 450-51.

[331] 'Exclusive licenses are tolerated because they normally threaten competition to no greater extent than is threatened by the patent itself.' *United States v Studiengesellschaft Kohle* 670 F2d 1122, 1138 (DC Cir 1981). See also Louis Kaplow, 'The Patent-Antitrust Intersection: A Reappraisal' (1984) 97 Harv L Rev 1813, 1827.

[332] For more details, see Chapter 3 of this thesis.

to the inventors; the more reward the inventors gains from allocation of markets, the more initiatives of innovation they may obtain, and the more licences they may be willing to grant. If the owner exploits the technology in a certain territory or customer group or field of use (hereinafter referred to as a 'certain area') reserved for himself, he could increase revenue by excluding other licensees from manufacturing or sales in that certain area, so that he has a greater ability to charge a higher price. Alternatively, the patentee could license the technology to a licensee in another certain area, exclusively or solely to restrain competition from other third licensees in order to maximise the revenue based on the royalties of the licensee, especially when royalty is calculated on the basis of the licensee's revenue.

Benefit can also result from efficiency of distribution, through which the owners need not take on the risk of distribution by themselves.[333] The distribution costs may be reduced when there is only one distributor or licensee in the certain area,[334] and the possible price discrimination may maximise the income.[335] In order to attain the price discrimination, there should be a ban on sales from a certain area to another certain area, to prevent the products being sold from the low price area to the higher price area, thus the other licensees and their customers should not be allowed to sell products to the certain area. In this case, an exclusive licence keeps the licensee from other intra-technology competition. If there was no substitute in that area, the licensee would have a monopolistic position. Therefore, the restriction on licensees' or patentee's customers to sell in a certain area exclusively assigned to a licensee is very likely illegal based on the exhaustion doctrine[336] and competition law.[337]

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[333] Michael Meurer, 'An Economic Analysis of Royalty Terms in Patent Licenses' (1983) 67 Minn L Rev 1198, 1200, 1233; Brendan Fowlston, *Understand Commercial and Industrial Licensing* (Pergamon Press 1984) 35-39.

[334] Paul Demaret, *Patents, Territorial Restrictions, and EEC Law: A Legal and Economic Analysis* (Verlag Chemie 1978) 24-25.

[335] Malcolm Wheeler, 'A Reexamination of Antitrust Law and Exclusive Territorial Grants by Patentees' (1971) 119 U Pa L Rev 642, 650-56.

[336] *Centrafarm v Sterling* [1974] ECR 1147, [1974] 2 CMLR 480, CMR 8246; *Merck v Stephar* [1981] ECR 2063, [1981] 3 CMLR 463; Valentine Korah, *Intellectual Property Rights and the EC Competition Rules* (Hart 2006) 6-10. The exhaustion doctrine itself prevents customers of patentees or licensees from restrictions on purchasing patented products in one area and then selling them in another area assigned exclusively to a patentee or licensee, but does not restrict the agreement between a patentee and a licensee regarding not selling to those customers they intend to sell to in an exclusive certain area. The

In order to promote the dissemination of technology, the interests of licensees also need to be considered. Allocating a certain area exclusively to a licensee keeps him from competing with other competitors who can exploit the technology, so that the licensee is more likely to increase revenue. In particular, when the licensee needs to make a significant investment to exploit the technology and the future market of relevant products is not clear at that time, the guarantee of such a low-competition environment could induce the licensee to accept the licence.[338] The exclusive licence can avoid free-riding and encourage the licensee to put sufficient effort into promotion, advertising, and after-sales services. If there are no strict restrictions, and the customers of licensees can buy patented products from low price areas and sell in high price areas, it is difficult for exclusive licences to function and achieve the above benefits. This is normally the case only if the technology is new, there are no close substitutes, and not enough licensees would be willing to accept the risk of exploiting such a new technology.

Although some have argued that the protection of a patentee's exploitation in their certain area may not necessarily work sufficiently better to increase revenue than that without such a protection,[339] the protection could at least provide greater possibilities

former is based on a compulsory doctrine, whilst the latter relies on an automatic provision in a contract and is thus regulated by competition law.

[337] The court held that the exclusive licence that constitutes a closed licence in which patentee, other licensees, and third parties are excluded from selling into the exclusive territory assigned to a licensee would fall under Article 101(1). *Nungesser v Commission* [1982] ECR 2015, [1983] 1 CMLR 278.

[338] Some scholars argue that the investment and risk of licensees can be compensated by lower licence fees and royalty payments. Paul Demaret, *Patents, Territorial Restrictions, and EEC Law: A Legal and Economic Analysis* (Verlag Chemie 1978) 50. However, the low licence fee and royalty may not satisfy the licensor, so he may not be willing to grant such a licence. Moreover, if a licensee would like to make a large investment, he may not expect the lower costs as much as the profits from future sales in which he could control the price, and other relevant factors. Also, the profits may be beyond his expectations. Modern competition law emphasizes that 'licensees have to commit substantial investments in production assets and promotional activities in order to start up and develop a new market. The issues facing a new licensee may therefore be substantial'. Guidelines of TTBER 316/2014, para 126.

[339] Some have argued that the patentee may not lose out through competition with other licensees in the certain area because the patentee may have a better understanding of how to utilize the patented products, or if the patentee does not have such advantages he could set up a higher rate of royalty for the licensees to compensate for the possible loss from competition, or if there are close substitutes, the patentee does not need to compete with licensees but has to compete with close substitutes, which may not achieve an increase in revenue for the patentee. Dieter Hoffmann and Orlagh O'Farrell, 'The Open Exclusive Licence-Scope and Consequences' (1984) 6 EIPR 104, 108-109; Brian Cheffins, 'Exclusive

of achieving that. Therefore, when considering the necessity of promoting indigenous innovation and technology diffusion at the stage that China is currently at, if such allocation does not seriously impede competition, then it should be recognised as encouraging innovation as much as possible and competition law should not intervene.

6.4.4.4 Need for Greater Focus on Vertical Allocation of Markets in China's Legislation

China's current transformation to the innovation-based industries requires an improvement in the creation and transfer of technologies. The application of the AML should function in a manner that would realise these objectives; at the very least it should not prevent the realisation of them. However, this would not deny the fact that preventing technology multinationals' anti-competitive behaviours and promoting competition can also induce innovation. Only the most recent drafts discuss vertical allocation of markets,[340] and this reflects the fact that the AMEAs are starting to pay more attention to this vertical restriction; on the other hand, how to deal with it is still not quite clear. However, the current valid legislation does not expressly prohibit non-price related vertical monopoly agreements and conducts.[341] This indicates an attitude towards vertical restrictions in China that is even more lenient than in the EU regulations, in which the restriction of passive sales to a certain area reserved for other licensees imposed on the licensee is deemed to be a hardcore restriction.[342] However,

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Territorial Rights in Patent Licenses and Article 85 of the EEC Treaty: An Evaluation of Recent Developments in the Law' (1987) 10 BC Int'l & Comp L Rev 53, 66. However, nowadays, the patentee may know best about the patented products but may not necessarily be good at management, advertising, and distribution thus the advantages are highly doubtful. Before a licence is agreed, it would be difficult for the patentee to estimate the potential loss, and so would be difficult to request a royalty that is high enough to compensate for future loss and is accepted by the licensee. In terms of the close substitutes, it relates to inter-technology competition, but the protection in question mainly restricts intra-technology competition; they are not at the same level of discussion. In conclusion, the protection for patentees provides a stronger guarantee of increasing revenue.

[340] 7th Guidelines, art 20 (offering a definition of territory and customer restriction between non-competitors); NDRC Guidelines, art 2(2)(4) (stating that IPRs-related agreements concluded between non-competitors may involve restrictions on territory, selling channels, scope or customers).

[341] The AML and the Rules have not expressly prohibited vertical non-price restrictions between non-competitors, although these restrictions could be prohibited under the reservation provision of 'other monopoly agreements regarded by AMEAs of the State Council.' AML, art 14.

[342] This restriction was block exempted if the restriction was limited to two years in Article 4(2)(b)(ii) of TTBER 772/2004, but has since been deleted in TTBER 316/2014, where more discretion is provided for the authority to decide the term that would not affect competition.

in some situations, and only if it does not eliminate competition, such as where there are substitutes or their market shares account for a small proportion of the relevant market so as to generate inter-technology competition, the reduction of intra-technology competition will not really harm consumer welfare but instead promote the diffusion of technology.

Under certain circumstances of licensing between non-competitors, competition law may need to be applied when the restriction eliminates competition. For example, where there are no substitutes for a new technology-related product, an exclusive licence with restrictions on both active and passive sales into the territory, or customer groups reserved for other licensees, may constitute a substantially absolute allocation of markets to eliminate intra-technology competition, which may be the only market competition in that area.[343] Moreover, if the patentee has the same exclusive licensing agreement with different licensees for different areas, these parallel agreements will be equivalent to horizontal collusion to allocate markets absolutely in order to eliminate competition in those related areas. For example, in *Football Association Premier League* v *QC Leisure*,[344] the Football Association Premier League (FAPL) owned TV broadcasting rights for the professional football league competition for football clubs in England, and granted exclusive licences to broadcasters on a territorial basis. Those broadcasters were prevented from broadcasting to the public outside their licensed area, and from supplying decoding devices that could receive the TV program encrypted outside their licensed area. The ECJ held that the exclusive licence, in essence, granted an absolute territorial exclusivity to each broadcaster, and the net effect of such exclusivity was that all competition between broadcasters in regard to TV programmes was eliminated. Therefore, this had an anti-competitive objective and fell under the scope of Article 101(1) of the TFEU.[345] Even though it is a case concerning copyright, it could also be used to analyse a patent licence. In this case, the copyright holder was the only source of broadcasting for the TV programme,

[343] If a completely new product is incorporating the technology, inducing investment and the relevant risk of the licensee must be considered when granting the exclusive licence, even though the licence simultaneously has anti-competitive effects.

[344] Case C-403/08 [2012] ALL ER (EC) 629, [2012] FSR 1, [2012] Bus LR 1321, [2012] 1 CMLR 29.

[345] ibid [2012] Bus LR 1321 [142]-[145].

and the licences completely eliminated competition between territories and within each territory, but without generating efficiencies. As such, it had to be prohibited. If a similar situation arose in a patent exclusive licence, the possible efficiency would need to be considered. For example, considering the value of such a new technology,[346] and the objectives of encouraging the dissemination of new technology and of investment in producing the technology-related products, a period of time could be chosen, such as two years, to allow for such licences.[347] However, if the restriction were only imposed upon the patentee and licensees rather than upon their customers, intra-technology competition would not really be eliminated as those customers would easily perceive the difference in prices, and so licensees would purchase from the lower priced area and then sell in the higher priced area. In this case, the arrangement to allocate markets would collapse. There are some exceptions, such as when the freight to move those commodities exceeds the margin expected by those customers, or if a high price has been fixed among them, or if the production has been limited to satisfy the local demand. In these cases, those customers would not operate such a business, as there would be no margin and the competition would still be eliminated.

If this situation occurs between competitors, assuming they are the only two competitors in the relevant market, and if they conclude a reciprocal exclusive licence, it is very likely to facilitate collusion by ensuring that they are the only source of output in their assigned area.[348] This outweighs the potential benefits from the possible dissemination of technology. Moreover, consumer welfare has been harmed by the elimination of competition but does not gain any benefits. Considering that it is difficult for such licences to generate efficiencies, even if their market shares are low or there are other substitutes in the market, they should be prohibited. However, if Party A has a patentable improvement on Party B's technology, even though they are competitors, the efficiency of eliminating a block on exploiting the technology by

[346] Normally, an absence of close substitutes indicates that the technology may be unusually valuable.

[347] The time period allowed in such a situation could also be considered for evaluation based on the value of the technology itself as well as the development of the technology-related industry. If it can be demonstrated that a close substitute technology or product would likely arise in a given period, such as three years, the period allowed for such a licence should be limited to three years. In addition, if the technology is not valuable enough to be allowed such a period of time, even if the licence is approved, the adverse effect is likely to be minimal as the products may not be welcome in the market.

[348] Guidelines of TTBER 316/2014, para 192.

Party A, and the gaining of a new development that is a kind of dissemination of technology by Party B, should be considered. Although a compulsory licence may be implemented in accordance with China's patent law where the exploitation of new technology embodying 'important technical advance of considerable economic significance'[349] must rely on the previous technology, the approval of private agreements still provides benefits. This is because the improvement required in the compulsory licence must be of a high standard, and so an ordinary improvement that is useful but not valuable enough may not be applicable. The costs of private agreement are lower than administrative costs when applying for a compulsory licence. However, a reciprocal sole licence guarantees that at least one party could compete in the certain area, and a non-reciprocal exclusive licence guarantees one party could compete in an area outside the assigned area. Neither eliminates competition, so they are less harmful than reciprocal exclusive licences.[350]

6.4.4.5 Conclusion

If there are substitutes of the technology-related products, or the market power of the licensor and licensees is low, there is little reason to object to the exclusive licence because the presence of inter-technology competition would keep the supra-competitive prices from being charged by the licensor or licensees. In addition, it would induce a licensor and licensee to conclude the agreement to benefit R&D and technology diffusion, and the efficiency of distribution may be generated to reduce the costs. A restriction preventing selling into a certain area and also resale to the area could be imposed on both the licensor and licensees.[351] If there is no close substitute, or little competition in the market, or the licensor and licensee have strong market power, the exclusive licence between competitors may be the motive behind sharing the market without benefits so it should be prohibited by AML, while if the agreement

[349] It is only possible to grant a compulsory licence for the advanced technology of a new invention or utility model. Patent Law of China 1985, art 53; Patent Law of China 1993, art 53. The requirements for a new invention or utility model are stricter when granting a compulsory licence. Patent Law of China 2001, art 50; Patent Law of China 2009, art 51.

[350] Guidelines of TTBER 316/2014, paras 192-93.

[351] The Patent Law of China recognises the patent exhaustion doctrine, and so the patentee cannot rely on a patent to prevent resale into a certain area but instead must rely on agreements. Patent exhaustion doctrine in China. Patent Law of China 2009, art 96.

is between non-competitors, the AML could be observed less strictly. A similar theory could be tailored to apply to field of use.[352]

6.5 Tying

6.5.1 Introduction

Tying, in the context of technology transfer, normally refers to a technology owner transferring a technology (the tying product) to a transferee, and the transferor imposing a condition that the transferee must also accept the transfer of another technology or purchase a product, from the transferor or a third party designated by the transferor (the tied product).[353] The manner in which tying violates competition law is by the transferor leveraging its market power in a tying product market to a tied product market, to foreclose its competitors from entering the tied product market or restricting competition in the tied product market.[354] It should be proven that the transferor is dominant or has a monopoly in the tying product market, and then that the tying and the tied products are distinct and not necessarily linked. Sometimes, the tying can provide efficiencies such as better products and lower distribution costs. Therefore, competition law should weigh up the anti-competitive effects and the efficiency of tying to judge whether or not it should intervene.

6.5.2 Tying in US Law

[352] According to EU law, the field of use restriction may relate to certain groups of customers within a product market but it does not imply that the restriction is to be identified as a customer restriction. Guidelines of TTBER 316/2014, para 209. The AML does not expressly stipulate provisions regarding field of use but to some extent these two restrictions overlap and, generally, they could be analysed with the same principles and guidelines, although there should be some detailed differences.

[353] Guidelines of TTBER 316/2014, para 221. US law further states that the transferee 'at least agrees … not to purchase [or license] that [tied] products [or technologies] from any other supplier'. *Eastman Kodak v Image Technical Services* 504 US 451, 462 (1992). Cited from Antitrust Guidelines 2017, s 5.3. See also Herbert Hovenkamp, *Federal Antitrust Policy: The Law of Competition and its Practice* (4th edn, West 2011) s 10.1 ('A tie-in, or tying agreement, is a sale or lease of one product or service on the condition that the buyer take a second product or service as well.')

[354] Christopher R Leslie, 'The Commerce Requirement in Tying Law' (2015) 100 Iowa L Rev 2135, 2136 (stating that tying embodies an assumption that a firm may leverage its market power in one market in order to monopolise in a second market).

6.5.2.1 Dealing With Tying Based on IPRs Law Rather Than Antitrust Law in an Early Period

The statutory provisions used to apply antitrust law to tying in the US originated from Section 1 of the Sherman Act, which regulates contracts and conducts that restrain 'trade or commerce',[355] and Section 3 of the Clayton Act, prohibiting exclusive dealing,[356] which shares the objective of trying to exclude competitors from the market.[357]

In *Heaton-Peninsular Button-fastener v Eureka Speciality,*[358] the court supported the tying clauses, based on the reason that sales of buttons depended on the button-fastener, which was protected by a patent. A similar doctrine was followed by *Henry v AB Dick,*[359] in which the court alleged that it would not harm the purchaser when papers and ink were tied in selling mimeograph machines. This shows that at that time patent was favoured, and so tying was deemed as a justifiable way of prolonging a patent.

[355] 15 USC §1 (2012) ('Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with the foreign nations, is [...] illegal.'). Tying can also be considered a misuse of patent by the Patent Misuse Reform Act when 'the patent owner has market power in the relevant market for the patent or patented product on which the license or sale is conditioned.' 35 USC §271(d)(5) (2006).

[356] 'It shall be unlawful ... or understanding that the lessee or purchaser thereof shall not use or deal in the goods, wares, merchandise, machinery, supplies, or other commodities of a competitor or competitors of the lessor or seller...' 15 USC §14 (2012).

[357] The Supreme Court distinguishes between the Sherman Act and Clayton Act tests. Under the Sherman Act, the tying agreement is *per se* unlawful when the firm has market power in the tying product market, and has negative effects on a 'not insubstantial' amount of commerce in the tied product market. The Clayton Act applies the rule of reason to tying agreements where either the firm has market power in the tying product market, or there are negative effects on a 'not insubstantial' amount of commerce. *Times-Picayune Publ'g Co v United States* 345 US 594, 608-609 (1953) (the Supreme Court distinguished between the tests used for tying agreements by the Sherman Act and Clayton Act). See also Mark R Carter, 'Patent and Its Continuation as an Antitrust Tying Arrangement' (2013) 18 J Tec L & Pol'y 37, 52-53.

[358] 77 F 288 (6th Cir 1896).

[359] 224 US 1 (1912).

However, a shift in the lenient attitude toward tying involving patents came later in *Morton Salt v GS Suppiger.*[360] Also in *Motion Picture Patents v Universal Film,*[361] where the patentee of kinetoscope informs its purchasers that kinetoscopes should only broadcast films authorised by the patentee. The Supreme Court confirmed that the grant of a patent was limited to the invention, and did not extend the patent monopoly to materials necessary for operating the invention but not forming part of the invention.[362] It was felt that this decision injured the public interests embodied in patent law, and contributed to patent misuse,[363] while an anti-competitive analysis in light of Section 3 of the Clayton Act had been circumvented. The overall conflict between antitrust law and patent law at that time may be the reason for the courts applying the abuse of patent and public interest, rather than antitrust law, when judging tying with regard to patents after the appearance of the Clayton Act.[364]

6.5.2.2 From *Per se* to Rule of Reason under Antitrust Law

In *International Salt v United States,*[365] lessees are requested to purchase salt as well as hire patented salt processing machines from International Salt, because its salt satisfied the standard required by the machine. The Supreme Court held that it *per se*[366] violated Section 1 of the Sherman Act and Section 3 of the Clayton Act, mainly on the grounds that other competitors might be able to provide the salt that satisfied the standards of the patented machine, and the tying agreement deprived the lessees of selecting the lowest price for salt on the open market.[367] Later, tying agreements in the licence of copyrights in the film industry were judged as *per se* violations of antitrust

[360] 314 US 488 (1942). The 7th Circuit Court applied Section 3 of the Clayton Act to the case regarding a patent and tying, which was overruled by the Supreme Court that based its judgement on patent abuse and public interest. *Morton Salt v GS Suppiger* 117 F2d 968, 969 (7th Cir 1941).

[361] 243 US 502, 513 (1917).

[362] ibid.

[363] 'A restriction … would be gravely injurious to that public interest, which we have seen is more a favourite of the law than is the promotion of private fortunes.' ibid 519.

[364] Tiffany L Williams, 'Illinois Tool Works Inc. v. Independent Ink Inc.: The Intersection of Patent Law and Antitrust Law in the Context of Patent Tying Agreements' (2007) 35(6) Mercer L Rev 1035, 1043.

[365] 332 US 392 (1947).

[366] The *per se* rule can relieve the burden of the plaintiff to prove anti-competitive effects. Once the tying claim is established, the anti-competitive effects are presumed and the tying is unlawful. Hovenkamp and others, *IP and Antitrust: An Analysis of Antitrust Principles Applied to Intellectual Property Law* (2nd edn, Aspen 2010) 156-63.

[367] ibid 397-98.

law,[368] and also tying was included in the Nine No-No's[369] by the Antitrust Division of the US Department of Justice as a typical and prohibited conduct. This indicates that in this period the courts began applying the Sherman Act and the Clayton Act to tying agreements, and tying became a *per se* violation of antitrust law.

One of the reasons that tying was considered under *per se* in antitrust law was the presumption of a monopoly of patent and copyright.[370] However, since the Patent Misuse Reform Act issued in 1988, in which patent-related tying would not be illegal unless the patent owner had market power in the relevant market,[371] and which required an analysis of the market power before judging the tying, the grounds of *per se* for tying with regard to patents was destroyed, and became the rule of reason. This also showed the courts' change in attitude from 'weak patent law, strong antitrust law' to 'strong patent law, weak antitrust law'.[372] In *Atari Games v Nintendo of America,*[373] the tying in the licence of a patent did not violate antitrust law *per se*. Antitrust Guidelines 2017 confirm that IPRs will not necessarily confer market power, and that the market power in tying technology must be analysed. They also confirm that tying is illegal, as it requires the anti-competitive effects in the relevant market for the tied product to outweigh the efficiencies.[374]

[368] *United States v Lowe's* 371 US 38 (1962) (the Supreme Court held that the block booking of films, in which independent theatres had to accept the parcel of films from studios, sight unseen , to benefit studios through the more effective production and distribution of films, violated the Sherman Act); *United States v Paramount Pictures* 334 US 131 (1948) (the movie studios owned theatres and only allowed their own films to show in those theatres, the exclusive dealing of which was judged to be a violation of antitrust law).

[369] Richard Gilbert and Carl Shapiro, 'Antitrust Issues in the Licensing of Intellectual Property: The Nine No-Nos Meet the Nineties' [1997] Microecon 283.

[370] The court held that a product protected by patent or copyright would be assumed to own economic monopoly. *United States v Lowe's* 371 US 38 (1962).

[371] The misuse of a patent will not be illegal if it is 'conditioned the license of any rights to the patent or the sale of the patented product on the acquisition of a license to rights in another patent or purchase of a separate product, unless, in view of the circumstances, the patent owner has market power in the relevant market for the patent or patented product on which the license or sale is conditioned.' Patent Misuse Reform Act 1988 (35 USC § 271d(5)), and 'd(5)' was a new section in this Act.

[372] John H Barton, 'Patents and Antitrust: A Rethinking in Light of Patent Breadth and Sequential Innovation' (1997) 65(2) ALJ 449, 466-68.

[373] 897 F2d 1572, 1576 (Fed Cir 1990); 975 F2d 832, 24 USPQ 2d 1015 (1992).

[374] Antitrust Guidelines, s 5.3.

In *United States v Microsoft,*[375] the rule of reason approach was reinforced, and the four elements used to assess tying agreements were affirmed in *Eastman Kodak v Image Technology Services*.[376] The four elements:

1) Two individual 'products' are involved; 2) the defendant provides its customers no alternative but to accept the tied product in order to obtain the tying product; 3) the arrangement affects a substantial volume of interstate commerce;[377] and 4) the defendant has 'market power' in the tying product market.[378]

Microsoft was unable to argue on the last two elements and instead opted to focus on the first two. It argued that consumers could download other browsers online and install them on their PCs, so they did not restrict customer choice. However, it was proven that Microsoft installed some technological barriers to make it difficult to install other browsers, and also precluded PC manufacturers from modifying and deleting any part of the Windows operating system, including the Internet Explorer (IE) browser, unless they had an additional licence from Microsoft.[379] This showed that, to a large extent, the option of other browsers for manufacturers and consumers had been blocked. Microsoft then argued that the IE browser and Windows 95 were

[375] 87 F Supp 2d 30, 47 (DDC 2000), aff'd in part, rev'd in part, 253 F3d 34 (DC Cir 2001).

[376] 504 US 451, 461-62 (1992).

[377] Some courts recognise that the dollar volume of commerce that was used to assess whether tying has an effect on insignificant volumes of interstate commerce is a bad proxy for anti-competitive effects. After the *per se* illegal rule was abandoned for tying, it was proposed to require genuine proof of actual or likely anti-competitive effects instead of the dollar volume of commerce. Christopher R Leslie, 'The Commerce Requirement in Tying Law' (2015) 100 Iowa L Rev 2135.

[378] *United States v Microsoft* 87 F Supp 2d 30, 47 (DDC 2000), aff'd in part, rev'd in part, 253 F3d 34 (DC Cir 2001). See also *Siegel v Chicken Delight* 448 F2d 43 (9th Cir 1971) (involving the tying of cookers, fryers, packaging products, and mixes to the Chicken Delight trade mark in a restaurant franchise agreement); Christopher R Leslie, *Antitrust Law and Intellectual Property Rights* (Oxford University Press 2011) 154-65 (excerpting cases that relate to tying and applying similar text); Herbert Hovenkamp, *Antitrust* (5th edn, West Academic Publishing) 195 (stating relevant tying tests employed by courts). In addition to these elements, some courts require the proof of anti-competitive effects in the tied product market. See *Bob Maxfiled v Am Motors* 637 F2d 1033, 1037 (5th Cir 1981) (including anti-competitive effects as an element in the test for tying agreements). The Antitrust Guidelines 2017 also provide a condition under which the Agencies may challenge a tying agreement: '(1) the seller has market power in the tying product, (2) the arrangement has adverse effects on competition in the relevant market for the tied product, and (3) efficiency justifications for the arrangement do not outweigh the anticompetitive effects.' Antitrust Guidelines 2017, s 5.3.

[379] Maureen A O'Rourke, 'Striking a Delicate Balance: Intellectual Property, Antitrust, Contract, and Standardization in the Computer Industry' (1998) 12 Harv J L & Tech 1, 9.

not separate products[380] but were in fact integrated. They tried to prove that the Windows operating system would slow down and malfunction without the IE browser, but this argument failed. The court considered that there was evidence demonstrating that people preferred to have browsers separate from operating systems and other independent browser suppliers. Moreover, based on the rule of reason, they considered the function linked between the operating system and the browsers, as well as the possible efficiency of the tying, and finally decided that they were separate products, which meant that this was indeed a case of tying.

Later cases further demonstrated the attitude towards the application of the rule of reason when analysing tying. In *Illinois Tool Works v Independent Ink,*[381] Independent Ink licensed its patented printing apparatus, used to print barcodes on cupboards, to Illinois Tool Works (ITW), and required ITW to only use Independent Ink's ink. However, ITW used ink produced by itself, and then Independent Ink sued ITW for patent-infringement; ITW countersued Independent Ink for the tying violation of antitrust law. The District Court refused to apply the *per se* rule and requested an analysis of the market power of Independent Ink. Ultimately, the judgment went in favour of Independent Ink, but the Appellate Federal Circuit Court reversed most of the summary judgment and stated that the *per se* rule should be applied in this case and Independent Ink should prove it had no market power. Finally, the Supreme Court rejected the Appellate Court's decision and unanimously granted a certiorari, clarifying that there could be no presumption that a patent conferred market power, and the burden was on the party claiming an antitrust violation to show that the patent owner had market power in the market of the tying technology.[382]

6.5.2.3 Conclusion

A tying agreement was initially considered to be a justifiable exercising of IPRs. It was later recognised as a misuse of IPRs; because IPRs were deeded to be a presumption of

[380] *United States v Microsoft* 87 F Supp 2d 30, 47 (DDC 2000), aff'd in part, rev'd in part, 253 F3d 34, 48 (DC Cir 2001).
[381] 547 US 28 (2006).
[382] ibid.

granting market power, the tying was a *per se* violation of antitrust law.[383] Recently, the rule of reason has been widely applied to tying, due to the reorganisation that IPRs do not necessary grant market power,[384] and the tying violates antitrust law when its anti-competitive effects outweigh relevant efficiencies.[385] Case law concludes that four conditions amount to violation of antitrust law by tying: dominance in the tying product market, separate tying and tied products, restriction on consumer choice, and distortion of competition.

6.5.3 Tying in EU Law[386]

6.5.3.1 Relevant Regulation in Guidelines of TTBER 316/2014 and Guidance of Article 102

Both Articles 101 and 102 of the TFEU explicitly prohibit unrelated supplementary obligations imposed on the other party to the agreement.[387] This shows that tying has been regarded as a type of basic and important anti-competitive conduct in EU law. According to TTBER 316/2014 and its guidelines, tying is not considered to be a

[383] Mark R Carter, 'Patent and Its Continuation as an Antitrust Tying Arrangement' (2013) 18 J Tec L & Pol'y 37, 54 (stating that a patent traditionally grants market power, and so patent tying was deemed to constitute patent misuse and antitrust).

[384] The party claiming an antitrust violation should prove the market power. This benefits the patentee as it improves the incentive to innovate embodied in IPRs, but it may not benefit consumers as it makes it more difficult for them to emerge victorious against patent multinationals due to the need to prove market power. Kyle Friedman, 'A Rose By any Other Name: Elucidating the Intersection of Patent and Antitrust Laws in Tying Agreement Cases' (2008) 60(3) Me L Rev 259, 261-68. See also ibid 55 (stating that the court will not consider that a patent automatically grants market power in modern times).

[385] US Department of Justice and Federal Trade Commission, 'Antitrust Enforcement and Intellectual Property Rights: Promoting Innovation and Competition' (*Federal Trade Commission*, April 2007), <http://www.ftc.gov/sites/default/files/documents/reports/antitrust-enforcement-and-intellectual-property-rights-promoting-innovation-and-competition-report.s.department-justice-and-federal-trade-commission/p040101promotinginnovationandcompetitionrpt0704.pdf> accessed 12 April 2013 (the federal antitrust agencies demonstrated that they would weigh up the anti-competitive effects and positive efficiencies of a tie involving IPRs).

[386] In EU law, in addition to tying, there is another term, 'bundling,' that refers to two technologies or a technology and a product only sold together as a bundle, and the term 'tying' normally refers to both tying and bundling. Guidelines of TTBER 316/2014, para 211.

[387] TFEU, art 101 ('The following shall be prohibited [...] (e) make the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts.'); TFEU, art 102 ('Any abuse by one or more undertakings of a dominant position [...] shall be prohibited [...] Such abuse may, in particular, consist in: [...] (d) making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts.').

hardcore restriction for a technology transfer agreement when the market share of the parties is below the threshold; otherwise, it should be examined by weighing up anti-competitive effects and efficiency.[388] The primary adverse effect of tying is to foreclose competing suppliers of the tied product. In addition, tying may raise entry barriers, since new competitors have to enter more than one market in regard to tied products, as well as tying technologies at the same time, even if they only intend to enter one relevant market. When the tying and tied products are partly substitutable or are not used in fixed proportions, then tying may increase the royalties for licensors.[389] As for licensors, they must gain a significant degree of market power in the tying product, in order to restrict competition in the tied product.[390] This is confirmation that tying can generate efficiencies. Here is a non-exhaustive list of instances: firstly, quality standards require necessary tied products to satisfy technological exploitation;[391] secondly, the licensor licenses the trade mark or brand name along with technologies to the licensee, in order to ensure that the products satisfy a certain standard of quality and will not undermine the value of the technology or its reputation;[392] and thirdly, the tied products help to exploit the tying technology with significantly more efficiency.[393] Such cases with efficiency may lead to an exemption from Article 101(3) of the TFEU, although they are caught within the scope of Article 101(1) of the TFEU.

Communication from the Commission — Guidance on its enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings[394] (Guidance of Article 102), provide many systematic provisions for tying, although these are intended to deal with tying in common practice rather than being specific to the area of technology transfer. As general principles, they could be applied to the analysis of IPRs-related tying in the area of the abuse of dominant position. The Guidance of Article 102 concludes two elements, for the tying of dominant undertakings, that must be satisfied to be caught by Article 102: distinct

[388] Guidelines of TTBER 316/2014, para 222.
[389] ibid para 223.
[390] ibid.
[391] ibid para 224.
[392] ibid.
[393] ibid para 225.
[394] [2009] OJ C 45/02.

tying and tied products, and likely anti-competitive foreclosure resulting from tying.[395] The Guidance of Article 102 applies customer demand as a criterion to judge whether the products are distinct; namely, to see whether a great number of consumers would purchase the tying product without the tied product in the absence of tying.[396] Various anti-competitive effects of foreclosures exist in the tying or tied product markets, such as technical tying being costly to reverse and having greater adverse effects, and a reduction in the resale of individual components;[397] the more products in the bundle, the greater the possible anti-competitive effects;[398] the foreclosure of an entrant to the tied product market may lead to higher prices for customers in that market.[399] Also, it confirms that objective necessity and efficiency may protect tying from being dealt with by Article 102 of the TFEU.[400] For example, the savings in production and distribution generated by tying can be enjoyed by customers, or a new and individual product containing more than two products can be proven to benefit consumers to a certain degree.[401]

6.5.3.2 The Concern over the Separation of Tying and Tied Products in Case Law

In *Commission v IBM,*[402] the unnecessary tying of two software products to mainframe computer products by IBM was deemed to be a breach of Article 102 of the TFEU. In *Hilti* v *Commission,*[403] Hilti, pre-eminent in the market of the supply of patented nail guns for the construction industry, tied the patented cartridge strips to unpatented nails, and adopted a strategy of charging excessive royalties to exclude other nail manufacturers from competing. The Commission found that these practices were abusive and were an attempt to deter other competitors in the markets, which was beyond the means legitimately available to a dominant company. It was also an attempt to preserve its dominant position and led to consumers being tied in to Hilti

[395] ibid para 50.
[396] ibid para 51.
[397] ibid para 53.
[398] ibid para 54.
[399] ibid para 55.
[400] ibid paras 28-31.
[401] ibid para 62.
[402] [1984] 3 CMLR 147.
[403] Case 53/92 [1994] ECR I-667.

for both cartridges and nails for their Hilti nail guns.[404] Hilti appealed to the GC (previously know as Court of First Instance), stating that the cartridge strip, nails, and gun were an integrated and power active system, and not three separate markets, but the GC rejected the argument on the ground that the existence of independent nail manufacturers was evidence of availability of separate markets, unless there were general and binding standards and rules requiring the products to be integrated to operate.[405] The separation of markets in this case benefited the assessment of the independence of products to prove tying. However, even if products are in the same market, they may also constitute tying of substitutes. Hilti's argument that it was objectively justified for safety considerations was also rejected by the GC, as safety considerations enforced by other laws and authorities could not override Community rules on competition, and it was not the work of dominant undertakings to take actions based upon its own initiative to eliminate products that it deemed unsafe or inferior in quality to its own products.[406] The judgment was affirmed by the ECJ.[407]

In *Tetra Pak v Commission,*[408] the Commission found that Tetra Pak's tying of the sales of packaging machines to the purchase of cartons, in a market in which it had a dominant position, was abusive conduct intended to exclude competitors from the relevant market of cartons and violated Article 102.[409] Tetra Pak appealed to the GC and later to the ECJ on the grounds that the two products had a natural link and their integration was for commercial usage, while Article 102 only prohibits tying when the products have no connection with the subject of contract, either in the sense of commercial usage or by their nature. However, the ECJ confirmed the previous judgements and rejected the arguement. It stated that the existence of individual manufacturers who specialised in relevant cartons for some time, rather than machines, ruled out the commercial usage of integrating the two products, and also stated that other individual manufacturers had a legal right to produce cartons intended for use in machines made by others, unless they infringed IPRs. Article 102 is

[404] *Eurofix-Bauco/Hilti* [1988] OJ L65/19, [1989] 4 CMLR 677.
[405] Case T-30/89 *Hilti v Commission* [1991] ECR II-1439 [68].
[406] ibid [118], [119].
[407] Case 53/92 *Hilti v Commission* [1994] ECR I-667.
[408] Case C-333/94P *Tetra Pak v Commission* [1996] ECR I-5951, [1997] 4 CMLR 662.
[409] *Elopak Italian/Tetra Pak* [1991] OJ L [1992] OJ L72/1, [1992] 4 CMLR 551.

not exhaustive, and tying regarding two products that possess a natural link or involve commercial usage may still constitute a violation of Article 102.[410] In response to another argument relating to hygiene standards, the ECJ affirmed that it was not for Tetra Pak to impose measures on its own initiative based on technical considerations, product liability, protection of public health, or its reputation.[411]

The judgments of the two aforementioned leading cases indicate that, above all, the existence of independent suppliers of tied products in the market has been stressed when assessing separate products. If the products contain both IPRs-protected and unprotected components, they are very likely to be seen as separate products.[412] Although it incorporated an analysis of consumer demand, as normally where there is no demand there is no production, it may be implied that there were many more concerns about the structure of the market than the protection of consumers, especially in terms of the foreclosure from entering into the market. The considerations of safety, hygiene standards, commercial usage, natural link, and reputation were hardly an objectively justifiable ground, as they may be used to achieve the preservation of a dominant position and exclusion of competition. Also, efficiencies were not considered very important, unless they were of value and benefitted consumers to a great extent.

[410] Case T-83/91 *Tetra Pak v Commission* [1997] 4 CMLR 662 [35]-[37].
[411] ibid.
[412] ibid [83], [84].

6.5.3.3 A Typical Case for Technical Integration[413] — *Microsoft v Commission*

In *Microsoft v Commission,*[414] the Commission found that Microsoft had abused its dominant position in the PC operating system market by tying the Windows Media Player (WMP) to Windows to supply Original Equipment Manufacturers (OEMs) with computers. It provided four elements to analyse a situation where tying constituted a violation of Article 102 of the TFEU: dominance in the market, two separate products, customers having no opportunity to get the tying technology alone, and foreclosure of competition.[415] Microsoft appealed to the GC[416] and argued that Windows and WMP were not separate but in fact integrated products, and that the Commission had not properly tested whether the tying product was regularly provided without the tied product, or whether its customers wanted Windows without media functionality. The court held that consumers might want an operating system with the application software but from different resources. This is particularly applicable to this case as OEMs play an intermediary role and could choose the best streaming media player to install, thus providing consumers with a package, although the player would not necessarily be WMP.[417] There is also demand for non-media player operating systems, since some companies may not want their staff to use the computers for non-work-

[413] Tying under EU case law can be categorised as contractual tying, mixed bundling, or technological integration. Contractual tying is the normal form of tying that forces the buyer to take tied products when intending to purchase only the tying products, such as in *Hilti* and *Tetra Pak II*. Mixed bundling occurs when a company sells the tying and tied products in a bundle and separately, but the purchase of the bundle will have a financial advantage, such as a discount. Thus whilst in principle it does not coerce the customer, the financial incentive for consumers to buy the bundle rather than the separate products can lead to anti-competitive effects, as in the *Digital Undertaking* case. Digital was found to offer its software services together with hardware services in a package, of which the price was considerably cheaper than the price of purchasing them separately. The Commission indicates that where exclusionary price discounts are given to a bundle by a dominant company, if such pricing results in other competing products seeming unattractive or the discount not being proportionate to costs, then the practice may fall under the scrutiny of competition law. Technical integration refers to combining the tying and tied products into one product that, in principle, cannot be physically separated by consumers, such as *IBM*, *Microsoft*. *Digital Undertaking* Commission Press Release IP/97/868 and *XXVIIth Report on Competition Policy 1997*. Philip Andrews, 'Aftermarket Power in the Computer Services Market: The Digital Undertaking' (1998) 19(3) ECLR 176, 176-81; Steven Anderman and Hedvig Schmidt, *EU Competition Law and Intellectual Property Rights: The Regulation of Innovation* (2nd edn, Oxford University Press 2011) 128-29; Robert O'Donoghue and A Jorge Padilla, *The Law and Economics of Article 102 TFEU* (2nd edn, Hart Publishing 2013) 500.

[414] Case COMP/C-3/37.792 *Microsoft* [2005] 4 CMLR 965, aff'd, Case T-201/04 *Microsoft v Commission* [2007] ECR II-3601.

[415] ibid COMP/C-3/37.792 [2005] 4 CMLR 965.

[416] Case T-201/04 *Microsoft v Commission* [2007] ECR II-3601.

[417] ibid [922]-[923].

related purposes.[418] The court deemed the two products to be distinct in perspective of function, and stated that there were distributors focused on developing and supplying streaming media players independently from operating systems. Moreover, Microsoft supplied versions of WMP compatible with its competitor's operating systems; WMP can be downloaded independently from the internet; and there is a not insignificant number of customers acquiring streaming media players from other suppliers.[419]

Microsoft argued that there was no restriction on customer's choice, as WMP was free and customers did not have to use it. However, the court held that being free could not justify tying, and although OEMs and consumers could install and use other media players, they had little incentive to do so.[420] Further, Microsoft stated that the Commission had applied a hypothetical rather than a substantive theory to conclude that there was possible foreclosure of competition.[421] The court rejected it and held that tying deprived OEMs of the possibility of selecting other media players; allowed Microsoft to obtain unparalleled advantages in distributing media players; and ensured the ubiquity of WMP on PCs throughout the world. Therefore, other competitors were placed in a disadvantageous position. This increased the barriers to protect Windows and WMP; and also shielded Microsoft from potential competition from other media player suppliers. This resulted in a reduction in investment in R&D and harmed innovation.[422]

In this case, 'consumer demand' was a criterion of distinct tying and tied products, which is better than the previous cases in which the existence of product suppliers was the primary standard.[423] As a result of this, effects of competition will finally reflect

[418] ibid [924].
[419] Ibid [926]-[932]. The court also dismissed the arguements of technical requirement and commercial usage for the integration of two products. ibid [935]-[943].
[420] ibid [970]-[971].
[421] The Commission applied a 'highly speculative theory, relying on a prospective analysis of the possible reactions of third parties, in order to reach the conclusion that the tying at issue was likely to foreclose competition.' ibid [1032].
[422] ibid [1046]-[1090].
[423] See also Guidance of Article 102, para 51 ('Two products are distinct if, in the absence of tying or bundling, a substantial number of customers would purchase or would have purchased the tying product without also buying the tied product from the same supplier, thereby allowing stand-alone production for both the tying and the tied product.')

consumer welfare and consumer use. Restrictions on consumer choice, stressed in this case, were not a condition that amounted to illegitimate tying in the Guidance of Article 102,[424] which shows a more comprehensive and consumer-oriented method. The decision has been condemned because the severe treatment of technical integration can undermine innovation incentives, which will affect competition and consumer welfare negatively in long run.[425] The reason the US and the EU have different opinions on the case might be due to their different emphases: the US is in favour of the innovation that stems from IPRs and scale-economy, and believes the protection or reduced intervention in competition will encourage technology multinationals to invest more in R&D, whereas the EU prefers to regulate the anti-competitive tying based on the doctrine that competition will induce the innovative ability of competitors, otherwise technology multinationals may simply wish to enjoy the existing outstanding advantages rather than invest in further creation. Moreover, the EU pays more attention to analysis from the perspective of consumer welfare, even long-term welfare.[426]

6.5.3.4 Conclusion

TTBER 316/2014 and its guidelines, along with the Guidelines of Article 102, provide regulations on tying in agreements and abuse of dominant position. In case law, the concern primarily focuses on the separation of tying and tied products, and whether they can be deemed an integrated subject. Previously, the criterion concerned two

[424] The conditions that may enable the Commission to take actions on tying include: 1) dominance in the tying market; 2) tying and tied products being distinct products; 3) likely to lead to anti-competitive foreclosure. Guidance of Article 102, para 50.

[425] R Hewitt Pate, 'Issues Statement on the EC's Decision in its Microsoft Investigation' (*US Department of Justice*, 24 March 2004) <http://www.justice.gov/opa/pr/2004/March/04_at_184.htm> accessed 2 April 2013 (criticism of the decision protects competitors rather than competition, and will discourage the innovation and competition of the dominant company); Steven Anderman and Hedvig Schmidt, *EU Competition Law and Intellectual Property Rights: The Regulation of Innovation* (2nd edn, Oxford University Press 2011) 130 ('Also from the IP owners' view, a strict approach to technological integration will adversely affect their ability to develop IP protected products through technological integration, where only parts of the product are covered by an IPR or are covered by a different IPR.')

[426] For example, many consumers may have been locked into the WMP with Windows, so that at that time they may not have had a strong preference to be offered Windows without WMP, or they may even have preferred to accept Windows with WMP for convenience. However, in the long run, it should be considered that other competitors may have been excluded from the market, investment in R&D may have been reduced, and the possibility of being offered other media players of better quality was excluded, all of which could harm consumer welfare.

independent products or technologies, mainly based on the natural character of products and availability of relevant manufacturers or sellers in the market. Consumer demand has become a crucial element recently, because the consumer bears the benefits or harm that stem from tying. In addition, similarly to US law, dominance in the market, distinct tying and tied products, restriction on consumer choice, and foreclosure of competition are conditions that amount to tying and may be regulated by competition law.

6.5.4 Proposals for China

6.5.4.1 The Current Legislation and Relevant Provisions in Some Drafts

Tying is a common type of restriction in China, and some provisions exist in laws and regulations in the context of technology importing, as well as judicial interpretation concerning the monopoly of technologies.[427] However, they only provide very general provisions, rather than detailed guidance for the assessment and judgement of tying. The AML prohibits companies from abusing their dominant position to practice tying without justifiable causes.[428] Tying has been further described as 'contradicting with commercial usage and consumption habits or ignoring function of products, and compulsory sales of different products that are tied or bundled together'.[429] The description merely stresses the conduct of tying, not considering other aspects, such as an assessment of the effects of tying on competition and consumer welfare. The

[427] Foreign Trade Law of China 2004, art 30 (stipulating that if a licensor compulsorily grants a package licence that harms the competitive order of foreign trade, the authorities could take relevant action); Regulations on the Administration of Technology Import and Export of China 2002, art 29 (stipulating that the agreements on importing technologies should not contain clauses which state that the recipient must accept unnecessary tying conditions, such as the purchase of unnecessary technologies, materials, products, equipment or services); Interpretation of the Supreme People's Court concerning Some Issues on the Application of Laws for the Trial of Cases on Disputes regarding Technology Contracts No 20/2004, art 10(4) (stipulating that the requirement for recipients to accept unnecessary tying conditions, such as the purchase of unnecessary technologies, materials, products, equipment, services, or employment from an unnecessary employee constitutes the 'illegal monopoly of technology and impediment of technological development' in contract law, and so the technology contract is invalid).

[428] AML, art 17(5).

[429] Regulations on the Administration for Industry and Commerce concerning Prohibition of Abuse of Dominant Market Position 2011, art 6(1).

AML is not clear enough to apply to tying, or more specifically, to anticipate the possible results of relevant commercial activities.

The Rules and some drafts have provided conditions under which tying constitutes a violation of the AML: dominance in the market, separate tying and tied products, restriction or elimination of competition, absence of justification.[430] However, these are not sufficient; defects must be corrected, and a more systematic and detailed formula to judge tying is required, both for common practice and technology transfer.

6.5.4.2 A Developed Criterion to Identify Separation of Tying and Tied Products: Consumer Demand

It is essential to discuss how to distinguish separate tying and tied products.[431] Some drafts define tying and tied products as products that can be sold or licensed 'separately and individually and that have independent consumer demand.'[432] Other factors have been claimed to be relevant, ranging from character of products and commercial usage[433] to consumption custom,[434] but consumer demand is not mentioned in the Rules.[435]

In early cases of both the US and EU, the emphasis on the separation of tying and tied products was based on the functional links and the presence of separate suppliers in the market. Occasionally, the functional links were in conflict with consumer demand, subsequently affecting consumer welfare. For example, clothes and buttons are

[430] Rules, art 9; 5th Guidelines, art 18; 7th Guidelines, art 25; NDRC Guidelines, art 3(2)(3). New Guidelines 2017 do not provide specific factors or conditions to consider the tying. New Guidelines 2017, art 16.

[431] However, it must be borne in mind that the identification of distinct products does not necessarily amount to the definition of relevant markets because 'it is, however, not necessarily the case that the two products belong to two separate product markets. In a market with differentiated products, two products may be sufficiently differentiated that a company can be said to have tied or bundled two distinct products.' COMP/C3/37.792 *Microsoft* [2005] 4 CMLR 965 [803].

[432] 5th Guidelines, art 18; 7th Guidelines, art 25.

[433] ibid 5th Guidelines, art 18.

[434] Rules, art 9; 7th Guidelines, art 25.

[435] The draft of the Rules considers whether the tying violates the will of a counterpart, which is excluded from the Rules. Instead, the Rules contains a new criterion — consumption custom. ibid. Draft of the Rules, art 9.

distinct in function and are separate products, but from the perspective of consumer demand they are expected to be tied in a sale and are not in violation of competition law. A nails gun and nails must come together to work but consumers may buy them from different suppliers according to price and quality, so bundling them to sell may be caught by competition law.[436] Therefore, the missing criterion of consumer demand in the Rules is not consistent with the objective of protecting consumer welfare, and may also lead to the decision or judgment not benefiting consumer welfare.[437] Thus, consumer demand, recognised by the US and EU jurisdictions,[438] should be regarded as a primary standard, and the character of products and commercial usage should be relevant criteria to be considered. The evidence for consumer demand could either be direct, such as where consumers wish to gain the tying technology without tied products, given a choice,[439] or indirect where suppliers or manufacturers only sell or produce the tying technology, given that where there is no demand there is no supply.[440]

With the rapid development of technologies, the regular lives of people have rapidly altered, and much variation exists surrounding the standard of consumer needs and what really benefits consumers. Therefore, there are different opinions on consumer demand. In *Microsoft* on tying IE, the US court believed that if the product was a 'valid,

[436] *Hilti v Commission* [1994] ECR I-667. The ECJ held that 'even where tied sales of two products are in accordance with commercial usage or there is a natural link between the two products in question [therefore they are single products in the sense of consumer demand], such sales may still constitute abuse with the meaning of Article [82] unless they are objectively justifiable.' Case C-333/94 *Tetra Pak v Commission* [1996] ECR I-5951 [37]. Also in another case the court held that: 'We have often found arrangements involving functionally linked products, at least one of which is useless without the other, to be prohibited tying devices.' *Eastman Kodak v Image Technical Service* 504 US 451, 463 (1992).

[437] In the formal regulations, 'consumption habits' have been a factor for consideration when deciding whether or not the tying is in violation of the AML. Regulations on the Administration for Industry and Commerce concerning Prohibition of Abuse of Dominant Market Position 2011, art 6(1). Although habit is not the same as demand, the consumer, as the most important factor, has at least been considered. Therefore, the entire anti-monopoly law system is far more logical and systematic when consumer demand is included in the Rules.

[438] *Jefferson Parish Hospital Dist No 2 v Hyde* 466 US 2, 12-13 (1984) (The court clearly held that 'separate consumer demand,' rather than functional relationship, was the appropriate method for identifying whether or not the products were separated). See also Case COMP/C-3/37.792 *Microsoft* [2005] 4 CMLR 965, aff'd, Case T-201/04 *Microsoft v Commission* [2007] ECR II-3601.

[439] Both the 5th Guidelines and the Rules state that a requirement for licensing or buying extra technology or products in tying is against the wishes of consumers. However, more emphasis should be placed on consumer demand as a primary criteria for distinguishing tying and tied products.

[440] Guidance of Article 102, para 51.

not insignificant and technological' development on the prior products, the product could be deemed as a whole new product, despite the existence of individual consumer demand for different parts of the product.[441] This reflects the opinion that technological progress will not affect the identification of a new product containing a prior product as well as a newly developed part, and also that the integration of individual products will provide better benefits than their separation could achieve, such as benefits to consumers. However, the EU court held a strict criterion on the identification of a single product, so that only if there is a separate consumer demand should there be separate tying and tied products. Thus, the tying of WMP to Windows violates competition law,[442] even though the court noted that with the development of technologies and communications, separate products might become unified.[443]

It is necessary to consider that the current consumer demand may be the result of lock-in effect; for example, some consumers do not mind Windows being offered with WMP, but this may be because Microsoft had been implementing the tying for a long time to create the consumer demand or commercial usage, based on its absolute dominant position in the operating system market. Courts should protect consumers from this, rather than continue to allow unjustifiable consumer demand or commercial usage, based on the concept that more competition in the media player market will promote better quality products. Generally, the US focuses more on the innovation that stems from IPRs and has tried to not discourage incentives for the creation of technological multinationals, while the EU relies more on competition to encourage investment in R&D by competitors.

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[441] *United States v Microsoft* 87 F Supp 2d 30, 47 (DDC 2000), aff'd in part, rev'd in part, 253 F3d 34 (DC Cir 2001).

[442] The GC held that the distinct products test 'has to be assessed by reference to customer demand', and 'in the absence of independent demand for the allegedly tied product, there can be no question of separate products and no abusive tying.' *Microsoft v Commission* [2007] ECR II-3601 [917], [918]. While the Commission placed the supply side of the tied product's market on equivalent footing with consumer demand after confirming the consumer demand test, the Commission also emphasised that '[t]he fact that the market provides media players separately is evidence for separate consumer demand for media players, distinguishable from the demand for client PC operating systems. There is, therefore, a separate market for these products. There are vendors who develop and supply media players on a stand-alone basis, separate from PC operating systems.' *Microsoft* [2005] 4 CMLR 965 [803], [804].

[443] The court accepted that 'consumers want to find a media player pre-installed on their computers' but 'from different sources'. ibid [2007] ECR II-3601 [913], [914], [922].

In addition to the different legal cultures and opinions, the national or regional interests will be a factor in the different judgments. As developed countries own most advanced technologies, and Chinese companies mainly import rather than export advanced technologies, a strict understanding of consumer demand, such as that found in the EU, is more consistent with the interests of China, since it could improve innovation through the enhancement of competition in China, and Chinese recipients could have more choice with tied products. By contrast, the US approach mainly encourages IPRs owners to innovate. From China's perspective, the US approach will encourage foreign IPRs owners to innovate, but the consequence of tying will not really allow Chinese consumers to enjoy the benefits that result from such innovation. In terms of the inactive domestic technology licensing market, although the strict method may not encourage technology owners to grant licences, the lenient approach will not only be in favour of sustaining the dominant position in the tying technology market, but also extend it to another tied market. The anti-competitive effects involving the two markets are severe and may outweigh the efficiency of the dissemination of technology.

6.5.4.3 Anti-competitive Effects in Markets

Both the Rules and some drafts state that tying leverages the dominant position of the transferor in the tying technology market to the tied products market, and eliminates or restricts competition from other competitors in the tying and tied products market.[444] Anti-competitive effects include exclusion of others' business opportunities in the tied products market, increases in the licensing fee for tied products and harm to consumer choice.[445] However, further specific guidelines have not been provided. The primary adverse effect is foreclosure of competitors in the tied products market, as they will be excluded due to the compulsory tying provided by the tying technology transferor.[446] In addition, when the tying and tied products are complementary, the

[444] Rules, art 9; 5th Guidelines, art18; 7th Guidelines, art 25.
[445] ibid.
[446] In EU case law, the threshold for foreclosing competition does not require proof of the existence of such effects or the exclusion of all competition, rather it requires the capability of having or the potential to have an anti-competitive effect that may amount to a violation of competition law. Case 311/84 *Centre*

entrant has to enter both markets at the same time. This raises the barrier to enter the tied products market.[447] Accordingly, the less competition in the tied market, the fewer competitors in the market, the fewer consumers interested in buying the tied product alone, and the higher the price that those consumers may face for the tied market.

Tying can be used to sustain market power as well as to restrict competition in the tying technology market. This is because the reduction of tied product suppliers may lead to the reduction of tying product suppliers; the lock-in effect or commercial usage created by the dominant tying technology transferor will especially strengthen such effects, and a barrier to entering the tying technology market would arise by requiring entry into both the tying and tied technology markets simultaneously. In addition, if the tying technology transferor faces price competition from competitors, they could compensate for the loss by reducing the price of the tying technology whilst increasing the price of tied products. This would make it difficult for consumers to switch to other tying technology competitors.

The emphasis on the leverage from one market to another in the the Rules and some drafts ignores the exceptional case in which the tying and tied products are substitutes or partial substitutes. It is apparent that the conducts should be regulated, but the requirement of the availability of two markets is not necessary to provide a logical and legal basis to regulate such behaviour. Generally, the adverse effect could also be analysed from other perspectives, including the motive behind the tying; the character, links, and the commercial usage of the tying and tied products; the scope of influence

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Belge d' Etudes du Marché-Télémarketing v Compagnie Luxembourgeoise de Télédiffusion SA and Information Publicité Benelux SA [1985] ECR 3261, [1986] 2 CMLR 558, [27] (the court held that the tying conduct could result in the 'possibility of eliminating all competition' in the ancillary market); *Hilti v Commission* [1994] ECR I-667 (the conduct was abusive, although there was no real evidence of existing anti-competitive effects).

[447] The court applied an anticompetitive foreclosure test to bundled rebates, a specific type of tying, and said that 'the principal anticompetitive effect … is that when offered by a monopolist they may foreclose portions of the market to a potential competitor who does not manufacture an equally diverse group of products and who therefore cannot make a comparable offer.' *LePage's v 3M* 324 F3d 141, 155 (3d Cir 2003).

of the tying; and the actual ability of the dominant company to operate the business.[448]

Another anti-competitive effect of tying is the restriction on consumer choice that has been regarded as a necessary element for identifying unlawful tying in both US and EU law.[449] However, in the guidelines for authorities to assess the tying, neither country makes restriction on the choice of consumer an important criterion.[450] The difference in approach between the courts and authorities may be because the primary function of authorities is to regulate the anti-competitive practices in the market, therefore they place emphasis directly on the market rather than on indirect effects on consumers, while the court normally places more emphasis on consumer welfare. Consumer demand has been regarded as a criterion to identify the independence of tying and tied products by authorities, and this indicates that the authorities have noted the effects on consumers.

In the drafts, the elements for application of the AML to tying[451] do not include adverse effects on consumers. However, the same article mentions that the negative

[448] 5th Guidelines, art 18.

[449] *Eastman Kodak v Image Technology Services* 504 US 451, 461-62 (1992); *Microsoft v Commission* [2007] ECR II-3601.

[450] 'The Commission will normally take action under Article 82 where an undertaking is dominant in the tying market and where, in addition, the following conditions are fulfilled: (i) the tying and tied products are distinct products, and (ii) the tying practice is likely to lead to anti-competitive foreclosure.' Guidance of Article 102, para 50. 'The Agencies would be likely to challenge a tying arrangement if: (1) the seller has market power in the tying product, (2) the arrangement has an adverse effect on competition in the relevant market for the tying product or the tied product, and (3) efficiency justifications for the arrangement do not outweigh the anticompetitive effects.' Antitrust Guidelines 2017, s 5.3.

[451] 7th Guidelines, art 25 ('When business operators acquiring a dominant market position exploit IPRs, if their tying conducts, without justifiable causes, satisfy the following conditions simultaneously, this will exclude or restrict competition in the relevant market: (1) breaking commercial usage, consumption custom or ignoring the function of commodity and technology, tying or bundling compulsorily different and independent commodities or technologies to sell; (2) the dominant position of business operators in the tying products market has been leveraged to the tied products market by performing tying conducts, which exclude or restrict competition from other business operators in the tying or tied products market.') 5th Guidelines, art 18 ('When the following conditions are satisfied, the tying will be prohibited [...]: (1) IPRs owners acquire a dominant position in the tying products market; (2) tying and tied products are separate commodities according to their characteristics and transaction customs; (3) tying has substantial impacts in the tied product market, leveraging the dominant position of IPRs owners in the tying product market to the tied product market and eliminating and restricting the competition of other business operators in the tied product market.')

effects of tying can be reflected in harm to consumer choice.[452] This causes confusion, as it is unclear whether the harm to consumer choice is a necessary condition for violating the AML. The Rules do not mention consumer choice.[453] Therefore, restriction on consumer choice should be a condition for assessing the legitimacy of tying in China.

6.5.4.4 Assessment of Objective Justification in Tying — *TSUM v Sony*, and *Qihoo v Tencent*

Tying is not *per se* illegal, and it may be exempted from the scrutiny of competition law when it has objective justification, especially when the efficiency outweighs negative effects. The Rules do not specify a justifiable cause, and the drafts mention some benefits of tying, including decreasing the costs of sales and management,[454] guaranteeing the quality and safety of products, and increasing sales.[455] Moreover, tying can save production or distribution costs,[456] and it should be proven that consumers have enjoyed those benefits. Tying may increase the ability to bring a product to the market to the benefit of consumers,[457] or the tied product may be necessary for a satisfactory exploitation of the licensed technology or for ensuring that relevant products satisfy quality standards.[458] In the franchising business, the licensor has a legitimate interest in the use of tying to ensure that the quality of the products

[452] 7th Guidelines, art 25 ('IPRs-related tying will or may have adverse effects on competition in the relevant market, mainly including exclusion of the transactional opportunities of other suppliers in the tied products market, increases in the licensing fee for tied products, and harm to consumer choice.') 5th Guidelines, art 18 ('The adverse effects on competition in the relevant market resulting or likely resulting from tying primarily reflect on excluding the competition of other suppliers in the tied product market and harming consumer choice.')

[453] 'Undertakings with dominant market positions shall not, in the course of exercising their intellectual property rights, engage without justifications in tying behaviours to eliminate or restrict competition satisfying the following conditions simultaneously: (1) tying or bundling different products to be together to sell, which is against trade practice and consumption custom or ignores function of products; (2) the tying behaviour enables such undertakings to extend their dominant positions in the tying product market to the tied product market, thereby restricting or eliminating the abilities of other undertakings to compete in the tying or tied product market.' Rules, art 9.

[454] 5th Guidelines, art 18; 7th Guidelines, art 25; NDRC Guidelines, art 3(2)(3).

[455] 7th Guidelines, art 25. See also NDRC Guidelines, art 3(2)(3) (stating that it needs to consider whether the tying is necessary for technology compatibility, safety or certain feature of products).

[456] Guidance of Article 102, para 62.

[457] ibid.

[458] Guidelines of TTBER 316/2014, para 224.

will not undermine the value of their own technology, and subsequently commercial reputation.[459] The US possesses a relatively lenient attitude towards objective justification, whilst the EU treats it much more strictly.[460]

The case of *TSUM v Sony*,[461] which occurred in China, can be used as an example to analyse objective justification in tying. Sony asserted that its use of a digital key was to report smoke, explosions, and burning that resulted from using non-Sony batteries in Sony's digital cameras and camcorders, as well as to show battery power consumption and the time remaining for use. The exploitation of the digital key, which incorporated patented InfoLithium technology, was protected by IPRs without intervention by competition law. Assuming that Sony holds a dominant position in the digital camera markets, the camera and batteries are separate products, the necessary requirement of using Sony batteries in a Sony camera by making use of the digital key may constitute 'technical tying'[462] to foreclose competition in the battery market. Can Sony successfully defend, on the justification of exercising IPRs, and technical and safety advantage, the reporting function of the digital key?

China is finding it difficult to judge whether the defence is objective justification, because the laws and regulations have not contained relevant provisions. It is worth

[459] ibid. See also Erik B Wulff and Scott A Mclntosh, 'The Separate Product Test in Franchise Tying Cases: Through the "Microsoft" Lens of Reason' (2011) 21(2) Franchise LJ 70, 71.

[460] Objective justification is difficult to be accepted in EU case law. *Hilti v Commission* [1994] ECR I-667, [118]-[119] (In terms of the safety considerations argued by Hilti, the court held that it was 'clearly not the task of an undertaking in a dominant position to take steps on its own initiative to eliminate products which, rightly or wrongly, it regards as dangerous or at least inferior in quality to ties own products'). *Tetra Pak v Commission* [1996] ECR I-5951, [1997] 4 CMLR 662 [138]-[140] (the court held that Tetra Pak should not engage in tying for its own initiative based on technical considerations, product liability, public health, or its own reputation, as this would extend beyond their 'ostensible purpose' and be excessive for the purpose of protecting public health); *Microsoft v Commission* [2007] ECR II-3601 [956]-[958], [963] (The court held that the arguements for reducing time and confusion for customers and saving distribution costs for the two products would not be accepted because other WMP can also benefit customers and the reduction of transactional costs were insufficient to outweigh the anti-competitive effects. In addition, Microsoft did not demonstrate that the tying could lead to 'superior technical product performance'.)

[461] (2004) Shanghai No 1 Intermediate People's Court No 223/2004 ((2004) 沪一中民五(知)初字第 223 号 (2004) Hu Yi Zhong Min Wu (Zhi) Chu Zi Di 223 Hao). For the detailed introduction of the case, see Section 3.2.2 of Chapter 3 of this thesis.

[462] 'Technical tying occurs when the tying product is designed in such a way that it only works properly with the tied product (and not the alternatives offered by competitors)'. Guidance of Article 102, para 48 footnote 2. See also Guidance of Article 102, para 53.

invoking some of the lessons from the US and EU. The US courts can, based on the rule of reason, consider the patent of the technology and the incentive of innovation of Sony as a patentee,[463] and then if TSUM cannot provide clear evidence to show that the foreclosure of competition was happening in the tied battery market, and that competitors could manufacture batteries to be compatible with the Sony camera, the technological and safety advantages could be considered from the perspective of consumer welfare.

For its part, the EU court may require Sony to bear the burden of proving objective justifications for its conduct.[464] The court may not accept the defence of safety, as in *Hilti* where the court rejected the safety standards as a justification for tying nails to its patented nail cartridges, and clarified that it was not the task of the dominant undertaking to take actions on its own initiative to restrict competition in the tied market.[465] It is other laws and regulations regarding consumer protection and quality of products, rather than competition law, that regulate the safety and technical standards. In the case of *Tetra Pak,* the court rejected the defence of hygiene when less exclusionary methods of improving safety existed.[466] In the EU, the health and safety reasons could be considered, but it also needs to be taken into account that it should be the public authorities that set and enforce public and safety standards, rather than the dominant company taking actions on its own initiative to exclude relevant competitive products.[467] Sony might be required to prove that other batteries were all unsafe and that other less exclusionary methods of sustaining safety were not available. This is especially pertinent, as according to Sony's announcement to Chinese consumers,[468] only a few consumers had experienced the safety problem, so tying may

[463] R Hewitt Pate, 'Issues Statement on the EC's Decision in its Microsoft Investigation' (*US Department of Justice*, 24 March 2004) <http://www.justice.gov/opa/pr/2004/March/04_at_184.htm> accessed 2 April 2013; *United States v Microsoft* 87 F Supp 2d 30, 47 (DDC 2000), aff'd in part, rev'd in part, 253 F3d 34 (DC Cir 2001).

[464] *Microsoft v Commission* [2007] ECR II-3601 [1144].

[465] *Hilti v Commission* [1994] ECR I-667.

[466] *Tetra Pak v Commission* [1996] ECR I-5951, [1997] 4 CMLR 662.

[467] 'It is not the task of a dominant undertaking to take steps on its own initiative to exclude products which it regards, rightly or wrongly, as dangerous or inferior to its own product.' Guidance of Article 102, art 29.

[468] Sony, 'Announcement' (*PConline*, January 2005) <http://news.pconline.com.cn/gnyj/0501/539458.html> accessed 2 April 2013.

harm the consumer welfare of the majority by distorting competition. Also, the safety problem resulted from counterfeit Sony batteries, rather than all other non-Sony batteries. It was not therefore justified to restrict competition from other battery suppliers, whose batteries were not proven to have safety problems. On this point, it is very difficult for the court to support the defence of safety.

The EU approach is more suitable than the US approach for China. Other laws can deal with the safety and hygiene issues, and it is not necessary to extend competition law to these areas.[469] China is mainly employing a role of importing high technology, thus a strict enforcement of competition law can facilitate technology diffusion[470] and promote competition. Accordingly, Chinese consumers can benefit from competitive pricing and more choice in the market.

In *Qihoo v Tencent*,[471] Qihoo claimed that Tencent had abused its dominant position in a relevant instant messenger market to tie QQ Manager, which had an antivirus function primarily for QQ Messenger.[472] Although both the initial and final judgments denied the precondition for acquiring dominant position,[473] the courts did provide a brief opinion on the conduct of tying. The courts concluded with some primary elements of tying that may amount to a violation of competition law: independent tying and tied products; dominant position in the tying products market; improper

[469] In the specific safety or hygiene sectors, there would be experts available to evaluate and judge the issues. Comparatively, it may be difficult for AMEAs to find accurate information with regard to whether a safety function is a necessity or significant, due to a lack of intellectuals in these specific areas. Although the recent Chinese drafts further request that the effects of tying on quality and safety of products should be observed, these factors can not be considered alone, and instead it should consider other negative effects on competition and consumers as well as the necessity and extent to achieve quality and safety by employing an effects-based approach.

[470] The application of competition law provides an opportunity for the tying technology and tied technology or product embodying technology to be licensed or sold separately, which will make the licences and transactions more acceptable and affordable.

[471] For the detailed introduction of the cases, see Section 3.3 of Chapter 3 of this thesis.

[472] (2011) Guangdong High People's Court No 2/2011 ((2011) 粤高法民三初字第 2 号 (2011) Yue Gao Fa Min San Chu Zi Di 2 Hao), aff'd, (2013) Supreme People's Court No 4/2013 ((2013) 民三终字第 4 号 (2013) Min San Zhong Zi Di 4 Hao). Normally, when consumers download QQ from the internet, the software package contains various pieces of software, such as QQ Messenger, QQ Music, QQ Entertainment, and QQ Manager.

[473] ibid.

and non-commercial-usage conducts; tying against the wishes of consumers; and the existence of anti-competitive effects.[474]

Tencent's main defence was that both QQ Messenger and QQ Manager were free to download and easy to uninstall. As it is not compulsory for consumers and does not prevent consumers from installing and using other similar software, then it does not restrain competition.[475] Both courts strongly agreed with the defence, and held that although QQ Manager would be automatically downloaded and installed without notice when QQ Messenger was downloaded and installed, the tied QQ Manager could be uninstalled later. The exploitation of QQ Manager was not a pre-condition for using QQ Messenger, and so it was not compulsory for consumers to use QQ Manager.[476] When QQ Doctor, which was the precursor of QQ Manager, was updated to QQ Manager, consumers were offered a choice whether or not to continue the update and use QQ Manager.[477] However, a similar excuse of a free service and the possibility of uninstalling software had already been refused by the EU court in *Microsoft,*[478] where the competitors also provided a free downloading service. Once the tied software had been installed, consumers might have fewer incentives to uninstall it and install another.[479] In this respect, Tencent may need to prove that a great number of consumers installed and used competitive antivirus software after installing the QQ Manager, to indicate that consumer choice had not been restricted and the competition of competitors had not been restrained, or to demonstrate the outstanding advantages of QQ Manager in relation to other competitive antivirus software, so as to imply that consumers have no incentive to switch to competitors.

Competition law may favour the protection of more efficient competitors.[480] This may be especially the case in the current information age, when technologies update very

[474] ibid.
[475] ibid.
[476] ibid.
[477] ibid.
[478] *Microsoft v Commission* [2007] ECR II-3601.
[479] ibid.
[480] This may be a controversial point. Some advocated the 'efficient components pricing rule' to determine prices for components in systems so as to keep inefficient entrants out of the market. Robert D Willig, 'The Theory of Network Access Pricing' in Harry M Trebing (ed), *Issues in Public Utility*

quickly and some technologies can create outstanding advantages that could be the most important capital for competition. In other situations, technologies function in the same way, and so competitiveness will rely more on an advantage of lead time, which is entry into the market as early as possible to develop consumer habits of using the products, or to establish a lock-in effect[481] so that consumers cannot or will rarely switch to other competitors. Moreover, tying provides other competitors with more opportunity costs. This may impede competition, and may also discourage other potential entrants from investing in innovation and trying to enter the antivirus market. Therefore, the tying of QQ Manager might not restrict consumer choice directly, but consumers are discouraged from exercising choice when two antivirus products have no clear differences. This places a competitive disadvantage on other competitors, and may affect competition in the antivirus software market.

Both the initial and final courts concluded that as far as economic and safety justifications were concerned, the download and installation of both QQ Messenger and QQ Manager simultaneously was an integration of functions, which benefited consumers in better managing QQ Messenger by securing consumer accounts of QQ

Regulation: Proceedings of the Institute of Public Utilities Tenth Annual Conference (Michigan State University 1979) 109; William J Baumol, 'Some Subtle Pricing Issues in Railroad Regulation' (1983) 10 Int'l J Transport Econ 24, 35-37. Later, others stated that the existence of a less efficient competitor in a market, or their entry into a market, could lead to lower prices. Jonathan B Baker, 'Predatory Pricing After Brooke Group: An Economic Perspective' (1994) 62 ALJ 585, 591 (allowing an inefficient entrant to enter the market has been proven to increase consumers' surplus because it reduces prices and also reduces the allocative inefficiency of monopoly); Nicholas Economides and Lawrence J White, 'Access and Interconnection Pricing: How Efficient Is the "Efficient Component Pricing Rule"?' (1995) 40 Antitrust Bull 557, 581-83; Nicholas Economides and Lawrence J White, 'The Inefficiency of the ECPR Yet Again: A Reply to Larson' (1998) 43 Antitrust Bull 429, 436-39; Nicholas Economides, 'The Tragic Inefficiency of M-ECPR' in Allan L Shampine (ed), *Down To The Wire: Studies in the Diffusion and Regulation of Telecommunications Technologies* (Nova Biomedical 2003) 142. The US Ninth Circuit Court held that if the effect of the exclusion of a less efficient competitor would be to extend or to maintain the market power, this might lead to the application of Section 2 of the Sherman Act. *Cascade Health Solutions v PeaceHealth* 515 F3d 903, 903-10 (9th Cir 2008). 'In certain circumstance a less efficient competitor may also exert a constraint which should be taken into account when considering whether a particular price-based conduct leads to anticompetitive foreclosure.' Guidance of Article 102, para 24. However, in China, innovation has an important value for the progress of technology and for the purpose of establishing a relatively high level and more active technology market. Further, to enhance benefits to consumers, competition law may not need to intervene in the exclusion of a less efficient competitor from a market. However, if such an exclusion involves the abuse of dominant position in a relevant market and leads to a high degree of anti-competition, competition law should analyse the adverse and positive effects and then decide whether or not the exclusion should be regulated.

[481] *IMS Health v NDC Health* [2004] ECR I-5039.

Messenger. This also improved the value and function of QQ Messenger.[482] However, the validity of this opinion held by the courts can be doubted. Firstly, QQ Messenger and QQ Manager have been identified as being independent of each other and belong to two different relevant markets, so the rationale of better functionality is not a necessary condition for the tying. Secondly, the primary function of QQ Manager is an antivirus, not only for QQ Messenger but also for the user's PC. Therefore, QQ Manager could be used instead of other antivirus software, unless Tencent could prove that QQ Manager had other unique functions, especially relating to QQ, and that other software could not provide the same or similar functions. A similar requirement was provided in *Broadcast Music*,[483] and the court accepted that the efficiencies of avoiding significant inconvenience and saving huge transactional costs of negotiating with individual music copyright owners justified the package licence and price-fixing by an industrial association. The music package licence created sufficient efficiencies in *Broadcast Music,* while the QQ Messenger and QQ Manager package did not offer such important value and there was other substitute software that could offer the security functions. Therefore, unless evidence was available to prove there were significant security problems in QQ Messenger when QQ Manager was not provided alongside it, the courts should not confirm the necessity and value of QQ Manager. Also, both in *Hilti*[484] and *Tetra Pak,*[485] the EU courts did not accept similar safety reasons and held that there should be another authority to regulate the safety problems. Chinese courts exploited a US-like approach that is partial to the inventor acquiring dominant position in the tying product market. This is not consistent with China's interests to promote competition and immediate consumer welfare by applying competition law. The judgement will restrict competition in both the tying instant messenger market and the tied antivirus market in China, and also discourages the innovation of small and medium enterprises (SEMs) in these markets. Therefore, the EU approach is more favourable for China.

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[482] (2011) Guangdong High People's Court No 2/2011 ((2011) 粤高法民三初字第 2 号 (2011) Yue Gao Fa Min San Chu Zi Di 2 Hao), aff'd, (2013) Supreme People's Court No 4/2013 ((2013) 民三终字第 4 号 (2013) Min San Zhong Zi Di 4 Hao).

[483] 441 US 1 (1979).

[484] *Hilti v Commission* [1994] ECR I-667.

[485] *Tetra Pak v Commission* [1996] ECR I-5951, [1997] 4 CMLR 662.

6.5.4.5 Conclusion

The AML's implementing regulations, the Rules and some drafts, have a little more detail in relation to tying than most other anti-competitive conducts which provide very few explanations, but they are still insufficient. Especially when assessing tying, the effects on consumers in China should be stressed, such as consumer demand and consumer choice. This is not only consistent with the ultimate objective of competition law, but is also an important criterion to assess tying under the condition that rapid development in technology has changed the old standard of product functions to a large extent. Also, the possible justification and relevant analysis should be specified. When the tied product is necessary for the use of the licensed technology so that technological requirements are satisfied or quantity standards conformed to, especially when the trade mark or brand name is also licensed and a certain quality of product is required so as not to lessen the value and reputation,[486] or the tied product can significantly improve the exploitation of the licensed technology,[487] the tying may be exempted from competition law. The court or AMEAs could make different decisions, depending on whether they will follow the US or EU approach. This is evident in the analysis of *TSUM* and *Qihoo*. Especially with *Qihoo*, the court employed the US approach, which leads to adverse effects on competition and innovation. Therefore, the EU approach is recommended for China.

6.6 Grant-Back

6.6.1 Introduction

A grant-back is an arrangement under which a licensee agrees to extend to the licensor of intellectual property right to use the licensee's improvements to the licensed technology'.[488] It is a typical kind of restriction in technology transfer[489] and

[486] Guidelines of TTBER 316/2014, para 224.
[487] ibid 225.
[488] Antitrust Guidelines 2017, s 5.6.
[489] In common practice, products are normally sold to purchasers, and so the seller rarely imposes any restrictions on the improvement of the products. However, when IPRs are licensed in technology transfer,

can be divided into several types. Exclusive grant-back requests the licensee to transfer[490] the improvement of the licensed technology to the licensor only, and the licensee cannot exploit the improvement nor transfer it to a third party.[491] Non-exclusive grant-back allows licensees to transfer the improvement to third parties as well as the licensor, or exploit it themselves. Exclusive grant-back limits the potential reward that licensees could gain from the transfer to third parties or their own exploitation, so the incentive of R&D will be heavily reduced and will restrict the competition resulting from the creation of new competitors. By contrast, the non-exclusive grant-back does not greatly impede the potential rewards, so intervention by competition law will not be necessary. In addition, there is reciprocal grant-back, which refers to both the licensor and the licensee being obliged to transfer the improvement of the licensed technology to the other party; and non-reciprocal grant-back, which normally only imposes such an obligation on one of the parties, normally on the transferee. Some grant-backs request the transfer of the improvement for free, while others do not. Grant-back is considered as both beneficial and detrimental to competition and innovation.[492]

6.6.2 Grant-Back in US Law

The Patent Misuse Reform Act provision for tying also applies to grant-back,[493] and a proof of market power is necessary for antitrust claim on grant-back.[494] In US case law,

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the IPRs owner may still own and exploit the technology, and so they can impose restrictions on the licensee's exploitation of the technology after the licence, including a restriction on the improvement of the technology developed by the licensee. See also John M Murray, 'Antitrust and Patent License Agreements: A New Look at the Grantback Clause in High Technology Markets' (2012) 3 Case W Res J L Tech & Internet 299, 300 (considering grant-back as a tool for protecting patent rights because it allows 'licensors to prevent licensees from displacing their patents from the market place through improvements that the licensee may independently practice').

[490] The improvement can be licensed or assigned to the licensor.

[491] Guidelines of TTBER 316/2014, para 129.

[492] John M Murray, 'Antitrust and Patent License Agreements: A New Look at the Grantback Clause in High Technology Markets' (2012) 3 Case W Res J L Tech & Internet 299, 306.

[493] A conduct of 'condition[ing] the license of any rights to the patent [...] on the acquisition of a licence to rights in another patent[...]' will be unlawful only if 'the patent owner has market power in the relevant market for the patent or patented product on which the licence or sale is conditioned'. 35 USC § 271(d)(5) (2012).

[494] Herbert Hovenkamp, 'Antitrust and the Patent System: A Reexamination' (2015) 76(3) Ohio St L J 467, 537 (stating that the Supreme Court's requirement for proof of market power for antitrust claims of unlawful tying should be applied to grant-back).

grant-back was not deemed illegal before 1945.[495] In *Hartford-Empire v United States,*[496] the Supreme Court imposed a limited prohibition on grant-back, based on the consideration of the harm to the incentive of innovation for the licensor that resulted from the general prohibition. In *Transparent-Wrap Machine v Stokes & Smith,*[497] Transparent-Wrap Machine (TWM) granted an exclusive licence to Stokes & Smith (S&S) to produce and sell patented machines making transparent packages, with the condition that the licensee should assign to the licensor improvements applicable to the machine. However, TWM later found that S&S had omitted to assign some improvements to TWM, and so terminated the licence. S&S brought a suit to the court because the grant-back provision constituted a violation of competition law.[498] The Supreme Court held that the grant-back was not *per se* illegal because it might create the licensor's right to exploit the improvement after the expiry of the original patent, and this is a way of extending one legal monopoly right to another legal monopoly right; this differs from tying, which extends a legal monopoly to an illegal monopoly.[499] In a case where the two parties are not competitors, and the licensee can exploit its improvement and is also entitled to exploit the licensor's improvement for free, then such flexible circulation and non-exclusivity offset the anti-competitive effects.[500] This classic case has been an important base for the Antitrust Guidelines 2017 to apply the rule of reason to grant-back. In *United States v General Electric,*[501] the court indicated that the exclusive grant-back may have more anti-competitive effects than non-exclusive ones, and the requirement of the licensee to grant-back all future patents in a field violated Section 2 of the Sherman Act.[502] The court affirmed that the non-exclusive grant-back in patent licensing did not violate antitrust law in *Duplan v Deering Milliken*[503] or in *SCM v Xerox,*[504]except for some special situations.[505]

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[495] *Allbright-Nell v Stanley Hiller* 72 F2d 392 (7th Cir 1934); *Gasoline Products v Champlin Refining* 46 F2d 511 (DC Me 1931); *Bunker v Stevens* 26 F 245 (CC NJ 1885); *American Refining v Gasoline Products* 294 SW 967 (Tex Civ App 1927).

[496] 323 US 386, clarified, 324 US 570 (1945).

[497] 329 US 637 (1947).

[498] ibid.

[499] ibid 645-58.

[500] ibid.

[501] 82 F Supp 753, 816 (DNJ 1949).

[502] General Electric was also found to have used its basic patent to funnel all industry patents to it. *United States v General Electric* 115 F Supp 835 (DC NY 1953).

[503] 444 F Supp 648 (DSC 1977), 594 F2d 979 (1979).

In the 1970s, the Antitrust Division of the US Department of Justice regarded the exclusive grant-back as *per se* illegal in the 'Nine No-No's'.[506] However, in light of the Antitrust Guidelines 2017, a grant-back provision will be examined under the rule of reason, because grant-back enables the licensor and licensee to share risks and rewards of further innovation, in order to promote R&D and also to promote the subsequent licensing of further innovation. However, it may reduce the incentive of a licensee to operate R&D, so that competition in the innovation market may be restricted.[507] A non-exclusive grant-back may be requested by a licensor to avoid being restricted from effective competition when the improvement has more advantages, and it leaves a licensee free to manage the improvement, so has less anti-competitive effects than exclusive grant-back.[508]

According to the Antitrust Guidelines 2017, the market power of a licensor in a relevant technology or innovation market will be heavily scrutinised,[509] because the grant-back may enhance the market power of the licensor and may reduce competition in the market. If there is a strong adverse effect of reducing the incentive

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[504] 463 F Supp 983 (D Conn 1978).

[505] According to the district court, when General Electric licenses a large number of licensees to produce electric lamps and requests them to grant back their improvements non-exclusively to General Electric, it generates competitive harm by creating a patent aggregation monopoly – General Electric will be the only holder of all existing technology. *United States v General Electric* 80 F Supp 989, 995, 1016 (SDNY 1948).

[506] In the 1970s, the Antitrust Division of the Department of Justice released a 'watch list' of nine specified licensing practices that the division viewed as anti-competitive restraints of trade in licensing agreements. The list soon came to be known as the 'Nine No-No's.' They consisted of the following: 1) royalties not reasonably related to sales of the patented products; 2) restraints on licensees' commerce outside the scope of the patent (tie-outs); 3) requiring the licensee to purchase unpatented materials from the licensor (tie-ins); 4) mandatory package licensing; 5) requiring the licensee to assign to the patentee patents that may be issued to the licensee after the licensing arrangement is executed (exclusive grant-backs); 6) prohibiting a licensor from granting further licences; 7) restraints on sales of unpatented products made with a patented process; 8) post-sale restraints on resale; and 9) setting minimum prices on resale of the patent products. Joseph P Griffin, 'Special Considerations concerning International Patent and Know-How Licensing, and Joint Research and Development Activities: Problems raised by Various Types of Restrictive Clauses' (1981) 50 ALJ 499, 517-19; Richard Gilbert and Carl Shapiro, 'Antitrust Issues in the Licensing of Intellectual Property: The Nine No-Nos Meet the Nineties' [1997] Microecon 283.

[507] Antitrust Guidelines 2017, s 5.6.

[508] ibid.

[509] ibid.

of a licensee to R&D, then the pro-competitive effects may be affected,[510] including the promotion of the incentive of the licensor to grant a licence, the increase in the dissemination of improvements, and the increase in competition and output in a relevant technology or innovation market.

6.6.3 Grant-Back in EU Law

Both Articles 101(1) and 102(1) of the TFEU contain prohibitions on the limitation of technical development,[511] so that the grant-back, which potentially reduces the incentive of innovation and restricts competition, constitutes a violation of competition law.

In *Raymond/Nagoya,*[512] the Commission confirmed that restrictions of non-exclusive grant-back on any patented improvement by the licensee, regardless of whether it was or was not related to the licensed patent, did not violate Article 101(1) because the non-exclusive grant-back would not prevent the licensee from granting other licences in the EU. In *Kabel/Luchaire,*[513] the licensor added a clause, reserving a right to sub-license the improvements of a licensee to others, to a non-exclusive grant-back. The Commission had reservations about it because it would reduce the incentive of a licensee as it takes the exploitation of the improvement out of the control of the licensee. However, in this case it was decided that the agreement did not substantially restrict competition.[514] Block exemption in Commission Regulation (EC) No 240/96 of

[510] ibid. In addition, US lower courts have developed for consideration a list of other factors besides the exclusivity of grant-back: 1) the ability of the licensee to exploit the improvements; 2) the licensor's right to grant to other licensees; 3) the duration of the grant-back; 4) the consideration of the grant-back; 5) the market power of relevant parties; 6) the relationship among the parties; 7) the scope of the grant-back; 8) the effect of the grant-back clause on the incentive to innovate, both for the licensor and the licensee. Richard Gilbert and Carl Shapiro, 'Antitrust Issues in the Licensing of Intellectual Property: The Nine No-Nos Meet the Nineties' [1997] Microecon 283, 285.

[511] 'The following shall be prohibited … (b) limit or control production, markets, technical development, or investment'. TFEU, art 101(1)(b). 'Any abuse by one or more undertakings of a dominant position … shall be prohibited … Such abuse may, in particular, consist in: (b) limiting production, markets or technical development to the prejudice of consumers'. TFEU, art 102(1)(b).

[512] [1972] OJ L 143/31, [1972] CMLR D45.

[513] [1975] OJ L 222/34, [1975] 2 CMLR D40.

[514] The Commission proposed that the licensee should maintain the right to freely license its severable improvements as long as the licensed technology remains valid so as not to reduce competition. *Delta Chimie/DDD* [1988] OJ L 309/34, [1989] 4 CMLR 535, [1989] CMR 95014.

31 January 1996 on the application of Article 85 (3) of the Treaty to certain categories of technology transfer agreements [1996] OJ L031 (TTBER 240/1996) required that a grant-back should be both non-exclusive and reciprocal, considering that non-reciprocity may reduce the incentive of a licensee, and the non-severable grant-back was excluded from block exemption.[515]

In Commission Regulation (EC) No 772/2004 of 27 April 2004 on the application of Article 81(3) of the Treaty to categories of technology transfer agreements [2004] OJ L123/11 (TTBER 772/2004), the exclusive grant-back, either licence or assignment, of severable improvements[516] was excluded from block exemption and required individual examination.[517] However, the reference to severability of improvements has been removed in TTBER 316/2014, meaning that no exclusive grant-backs will benefit from the block exemption.[518] The primary adverse effects of exclusive grant-back are restricting the incentive of licensees to invest in R&D and restricting competition, because it prevents them from gaining rewards by exploiting the improvement themselves or licensing to third parties.[519] Thus, the more severe limitation on the licensor to impose grant-back in TTBER 316/2014 indicates the intention of the Commission to encourage licensees to innovate and develop new technologies to a greater extent.[520] Accordingly, the block exemption covers non-exclusive grant-back

[515] TTBER 240/1996, art 1(4). The Commission has considered the extent to which the exclusion of non-reciprocal grant-back is indispensable to protect the incentive of a licensee to innovate, and whether certain exclusive grant-backs may benefit from block exemption. European Commission, Commission Evaluation Report on the Transfer of Technology Block Exemption No 240/96 (*European Commission*, 20 December 2001), <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2001:0786:FIN:EN:PDF> accessed 12 January 2013. However, in both TTBER 772/2004 and TTBER 316/2014, the non-reciprocal grant-back has been block exempted when it is non-exclusive.

[516] A severable improvement refers to an improvement that can be exploited without infringing upon the licensed technology. TTBER 772/2004, art 1(1)(n).

[517] TTBER 772/2004, art 5(1)(a)(b).

[518] TTBER 316/2014, art 5(1)(a).

[519] Guidelines of TTBER 316/2014, para 129. Steven Anderman and Hedvig Schmidt, *EU Competition Law and Intellectual Property Rights: The Regulation of Innovation* (2nd edn, Oxford University Press 2011) 284 (outlining that licensors may be reluctant to allow licensees to exploit the improvement themselves or allow them to license to third parties due to concern about creating extra competitors).

[520] This amendment has been questioned. Firstly, investment in R&D is considerable in some sectors, and grant-back creates an incentive for licensors to collaborate with third parties. Secondly, such a change indicates that the Commission assumes the licensor to be larger and more powerful than the licensee, but often the reverse is true and the licensee can look after their own interests during negotiations. Thirdly, the licensor may be discouraged from granting a licence without exclusive grant-back as the licensor may

because the licensee has more freedom to exploit the improvement. Even in non-reciprocal grant-back, the freedom of the licensor over his improvement may promote innovation and the dissemination of new technology.[521]

Whether or not the licensor pays a consideration will not affect the exclusion of block exemption, but such a payment may reduce the adverse effects on the incentive of the licensee, and the emphasis on the importance of analysing the market power of the licensor[522] is the same as in the Antitrust Guidelines 2017. In addition, sharing all improvements between competitors in cross-licensing may reduce competition by preventing each party from getting a competitive lead advantage. This may not be the case when the purpose of the licence is for them to develop their respective technologies, and the licence does not lead them to use the same technological base on the design of their products.[523]

In *Rich Products/Jus Rol*,[524] the Commission agreed that both the licensor and licensee should retain the right to decide the original technology and severable improvements at the expiry of the main licensing agreement. As such, the licensor may need to pay a

lose their leading competitiveness after the improvement has been created. Edwards Wildman, 'Revised European Technology Block Exemption Regulation Enters Into Force' (*Edwards Wildman*, May 2014) <http://www.edwardswildman.com/edwards-wildman-client-advisory-revised-european-technology-transfer-block-exemption-regulation-enters-into-force-05-01-2014/> accessed 2 January 2014; Wragge & Co LLP, 'Wragge & Co LLP's Response to DG Competition's Draft Proposal for a Revised Block Exemption for Technology Transfer Agreements and for Revised Guidelines' (*European Commission*, 2013) <http://ec.europa.eu/competition/consultations/2013_technology_transfer/wragge_en.pdf> accessed 2 January 2014. One concern raised is that the change does not eliminate the grant-back term, but instead restricts the exclusive grant-back so that the non-exclusive grant-back can also function to facilitate the licensors' incentive to cooperate with other parties. Another point is that even though the licensee is a powerful multinational and the licensor is an individual inventor, discouragement of the licensee's innovation through exclusive grant-back should also be prevented if possible. The disincentive of a licensor to grant a licence can be analysed in a specific case by weighing up the positive and adverse effects of the exclusive grant-back. See also Pierre Regibeau and Katharine Rockett, 'Assessment of Potential Anticompetitive Conduct in the Field of Intellectual Property Rights and Assessment of the Interplay between Competition Policy and IPR Protection' (2011) European Commission Working Paper COMP/2010/16 <http://ec.europa.eu/competition/consultations/2012_technology_transfer/study_ipr_en.pdf> accessed 1 February 2013. See also ibid Steven Anderman and Hedvig Schmidt 284 (stating that the Commission paid more attention to the stimulus for innovation provided by improvements than they did to freedom of contract, and held that the unilateral control of strong licensors over improvements must be curtailed in order to promote the development and diffusion of technology).

[521] Guidelines of TTBER 316/2014, para 131.

[522] ibid para 130.

[523] ibid para 132.

[524] [1988] 4 CMLR 527.

consideration for the continual exploitation of the severable improvement. Even for an exclusive grant-back, it would be a potential incentive for the licensee in this case, and this may offset any adverse effects. However, considering the rapid development of new technologies, this benefit may be practical only in a short-term agreement or in an industry in which the pace of development is slow. For non-severable improvements, in *Boussois/Interpane*[525] the Commission agreed definite exploitation of licensor or licensee to the other party's improvement, because in such a reciprocal agreement the danger that the licensee could not use non-severable know-how at the expiry time of the agreement can be avoided.

6.6.4 Proposals for China

6.6.4.1 Current Legislation and Relevant Provisions in Some Drafts

Nowadays, technologies in many industries have been developed to a certain level and it is difficult to create a completely new technology.[526] Therefore, follow-on innovation based on the existing technology is very important and suitable for the development of technology in China. Compared with many other restrictions that directly affect the competition of products, grant-back, which directly influences the innovation market and the technology markets and indirectly affects the product market, may not attract enough attention in China, although grant-back is a widely used clause in licensing agreements.[527]

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[525] [1987] OJ L 50/30, [1988] 4 CMLR 124.

[526] The US economy has reached a historic technological plateau, and one reason for this is innovation pessimism over a long period. Tyler Cowen, *The Great Stagnation: How America Ate All the Low-Hanging Fruit of Modern History, Got Sick, and Will (Eventually) Feel Better* (E P Dutton 2012) Ch 3. See also Irving Wladawsky Berger, 'Innovation may be Slowing, Threatening Great Stagnation' (*The Wall Street Journal*, 27 January 2013) <http://blogs.wsj.com/cio/2013/01/27/innovation-may-be-slowing-threatening-great-stagnation/> accessed 5 April 2013 (providing examples proving that innovation is tailing off by examining current productivity statistics and comparing the massive changes that took place in the early and mid-20th century to the changes that have taken place since then); Dan Robinson, 'Innovation Stagnation or the Future Cometh' (*The Wharton Journal*, 19 March 2013) <http://whartonjournal.com/2013/03/19/innovation-stagnation-or-the-future-cometh/> accessed 5 April 2013 (offering comments on innovation pessimism by observing the development of some innovations since the 20th century).

[527] An investigation has shown that approx. 43% of licensing agreements contain grant-back provisions. Iain M. Cockburn, 'Is the Market for Technology Working? Obstacles to Licensing Inventions, and Ways to Licensing Inventions and Ways to Reduce Them' (Conference on Economics of Technology Policy,

Some scattered provisions exist across laws and regulations in China. From the perspective of the authorities, a contract for importing technology should not contain provisions 'restricting the recipient to develop the licensed technology or to exploit the improvement of the licensed technology';[528] otherwise, the authorities would not approve such a contract.[529] Also, the authorities could take necessary actions to settle harm if an 'IPRs owner ... sets provisions of exclusive grant-back in a licensing agreement, which imperils the order of competition of foreign trade.'[530] According to the Supreme People's Court, clauses of technology transfer agreements that contain the following will constitute 'illegal monopoly of technologies and impediment of technological progress' and be invalid: restricting one party to develop new technology based on the licensed technology or to exploit the developed technology; requesting non-reciprocal exchange of improvement of technology, including requesting one party to provide their improvements to the other party for free; requesting the exchange under a non-mutually beneficial condition; or requesting to exclusively acquire or share the improvement for free.[531]

This judicial interpretation, which *per se* prohibits grant-back that is without consideration, non-reciprocal grant-back, or exclusive, is far stricter than in US and EU legislation and case law. The Supreme Court might assume that most recipients in foreign-related technology transfer are Chinese companies, so they have enacted a provision to offer some protection to licensees against more powerful multinational technology owners. However, the provision does less for efficiency on incentives for licensors to grant a licence, and it ignores the market share of the parties to the agreement. Moreover, it does not provide a ground for an effects-oriented analysis of individual cases.

Monte Verita, 25 June 2007) <https://faculty.fuqua.duke.edu/~charlesw/s591/Bocconi-Duke/Bocconi/S2_2008_02_11_MFT/Cockburn_- _Is_the_Market_for_Technology_Working.pdf > accessed 2 March 2012.

[528] Regulations on Administration of Technology Imports and Exports 2002, art 29.

[529] ibid.

[530] Foreign Trade Law of China 2004, art 30.

[531] Interpretation of the Supreme People's Court concerning Some Issues on the Application of Laws for the Trial of Cases on Disputes regarding Technology Contracts No 20/2004.

In Article 13 of the AML, which relates to monopoly agreements, restrictions on developing new technology and purchasing new products have been combined into a single provision.[532] The restriction on the development of new technology could be imposed, either directly, by not allowing any exploration of the licensed technology or only allowing development[533] in a certain field or to a certain degree, or indirectly, by discouraging licensees to conduct new development through the imposition of restrictions, such as grant-back.[534] Article 17 of the AML stipulates that undertakings that acquire a dominant position should be prohibited from imposing unreasonable conditions for transactions,[535] exclusive grant-back is deemed as an unreasonable condition in the technology transfer.[536] This approach is very close to that of TTBER 316/2014, which excludes exclusive grant-back from block exemption and is relatively lenient compared with previous Chinese legislation, which took a conduct-oriented approach and considered certain types of grant-back, such as exclusive and non-reciprocal, as *per se* unlawful.

The 7th Guidelines further define exclusive grant-back and state that relevant agreements can be concluded between competitors as well as non-competitors,[537]

[532] 'Competing undertakings shall be prohibited from entering into any monopoly agreements that will: ... 4. Impose restrictions on the purchase of new technology or new equipment, or restrictions on the development of new technology or new products...' AML, art 13. It seems that lawmakers, with a basis on the principle of being 'new', merge the development of technology and the purchase of products into a single provision for convenience from a literal context perspective. However, they are different categories. Restrictions on the development of technology are serious, as they not only restrict the development of a completely new technology, but they also limit follow-on innovation based upon the technology in the licence, which is a crucial dynamic efficiency for competition and technological progress in a new economic era, and so directly affect competition in the innovation market. They further hamper the competition in technology markets and products markets. Restrictions on purchasing new technology or new products could limit the competition of third parties in the technology market or product market, as well as limit the competition of a party to the agreement that could exploit the new technology or new products to reduce costs, to increase output, or to improve the quality. Therefore, the two categories of restriction have distinct natures and different impacts on competition, and such a model of legislation may allow people to ignore the differences between the two categories, potentially resulting in misunderstandings and misleading information regarding the provision's application.

[533] 'Development' has been extended to 'investment in development'. Regulations on the Administration for Industry and Commerce concerning Prohibition of Monopoly Agreements 2011, art 6(3).

[534] ibid art 6(4).

[535] AML, art 17.

[536] Rules, art 10(1). Some drafts have the same provisions. 5th Guidelines, art 19(1); 7th Guidelines, art 26 (1); NDRC Guidelines, art 3(2)(4).

[537] 7th Guidelines, art 18 ('Exclusive grant-back refers to that licensors request licensees, though IPRs-related agreements, to exclusively license or assign their follow-on improvements or new developments

which implies that grant-back can be considered under both the section on monopoly agreement and the section on abuse of dominant position in the AML.[538] The New Guidelines 2017 list some factors of assessing effects of exclusion and restrictions on the market: whether the lincensor offers substantial fee for the exclusive grant-back; whether both licensor and licensee requests exclusive grant-back for each other in cross-licence; whether the exclusive grant-back leads the concentration of developed or new products to a single operator and enables him to get or increase his market power; wether the exclusive grant-back results of harms on the licensee's incentive of developing technologies.[539] Without further guidance, these four factos are difficult to be analysed. Whilst, neither the AML and its implementing regulations, nor other drafts contain explicit provisions regarding grant-back. They are therefore not adequate for analysing efficiency and negative effects in individual cases.

6.6.4.2Proposals for China

The rule of reason[540] should be applied to the analysis of the legitimacy of grant-back. Compared with original innovation, follow-on innovation may be a more efficient approach for improving China's technology level, thus the legislation should encourage follow-on innovation. It is essential to consider the efficiency of

invented by exploiting the licensed IPRs to the licensors or other parties designated by the licensors. Exclusive grant-back [agreements] can be concluded between either competitors or non-competitors. Comparing with exclusive grant-back [agreements] conclude between non-competitors, [the agreements] concluded between competitors have more serious damage on competition.')

[538] Some authors do not believe that the AML addresses grant-back based on the literature and wording of the AML, which stems from different understandings and from the unclear legislation. Daniel CK Chow, 'A Comparison of EU and China Competition Laws that Apply to Technology Transfer Agreements' (2014) 9(3) ISJLP 497, 518 (believing that '[t]he AML is silent on the issue of grant-back clauses'). However, the drafts aim to confirm that grant-back falls within the scope of the AML.

[539] New Guidelines 2017, art 8.

[540] The traditional *per se* rule and rule of reason are condemned as not being fit for the current high technology market. This is a new approach, based on distinguishing between the upstream market that focuses purely on R&D and where the grant-back has inherently less anti-competition, and the downstream market that concentrates on production and where the grant-back more easily catalyses patent-holding monopolies. John M Murray, 'Antitrust and Patent License Agreements: A New Look at the Grantback Clause in High Technology Markets' (2012) 3 Case W Res J L Tech & Internet 299. However, this new approach is within the scope of the rule of reason, where the background of the grant-back, the degree of monopoly, the market share, and the motives of the parties to the licence shall be considered.

incentivizing the dissemination of technology,[541] and to encourage licensor's innovation.[542]

The primary assessment approaches for grant-back in China are as follows. The most important approach is that the licensor's market power in the technology market should be examined. If the licensor acquires a strong market share and is an important resource in the market, exclusive grant-back may have strong anti-competitive effects because such grant-back may increase the market power of the licensor, potentially excluding other competitors, and the licensor may charge a supra-competitive price in the market. By contrast, if the licensor acquires a very small market share or there are a number of substitutes in the market, the restriction of grant-back affects the market very little and should be exempted, unless there is evidence to demonstrate a substantial anti-competitive effect.

Secondly, exclusive grant-back may result in severe adverse effects, compared to other types of grant-back,[543] especially in reducing the incentive of licensees to conduct R&D and in preventing third parties from accessing the improvements. However, exclusive grant-back is not necessarily anti-competitive.[544] It may secure the incentive of the

[541] Jay Pil Choi, 'A Dynamic Analysis of Licensing: The "Boomerang Effect" and Grant-Back Clauses' (2002) 43(3) Int'l Econ Rev 803, 826-29 (stating that technology owners eagerly make use of the grant-back to prevent the potential loss of a licensor's competitive position, which results from the licensee's learning and follow-on invention effects); Herbert Hovenkamp, 'Antitrust and the Patent System: A Reexamination' (2015) 76(3) Ohio St L J 467, 536 (stating that a grant-back clause may be a precondition for licensing a patent, otherwise the patentee may refuse to grant the license over concern about being threatened with obsolescence in the market they have developed); William C Holmes, Intellectual Property and Antitrust Law (Thomson Reuters 2015) s 23 (stating that without a grant-back clause, 'patent owners may be justifiably reluctant to license their patented technology to firms that can then develop and exclusively retain improvement technology made possible by the licenses[...] By removing this risk, reasonable grant-back provisions enhance the patentee's incentive to license, thus opening up the patented technology to additional firms').

[542] Phillip E Areeda and Herbert Hovenkamp, Antitrust Law (4th edn, Wolters Kluwer Law and Business 2013) 1782 (stating that the grant-back clause allows the licensor to 'share in the value of ...future innovation to which it has contributed by providing access to its innovation').

[543] It is well acknowledged that non-exclusive grant-backs are more likely to be pro-competitive than exclusive, since the latter may decrease licensee's incentive and ability for innovation. Herbert Hovenkam and others, *IP and Antitrust: An Analysis of Antitrust Principles Applied to Intellectual Property Law* (2nd edn, Aspen 2010) s 25.3.

[544] *Transparent-Wrap Machine Corp v Stokes & Smith Co* 329 US 637 (1947) (the exclusive grant-back restriction was not *per se* unlawful).

licensor to grant a licence to increase competition and technology dissemination.[545] Additionally, permission of the licensor to sub-license to other licensees, or payment of proper consideration to the licensee, can offset the adverse effects.

Thirdly, a non-reciprocal grant-back should not be *per se* illegal, especially if it is combined with a feed-on clause to sub-license the improvement to other licensees, and it promotes competition and the dissemination of technology. Grant-back imposed on the licensee may reduce the licensee's incentive to innovate, while reciprocal grant-back may reduce the incentive of both parties, especially when their improvements are free and not complementary.[546] The provision in China's judicial interpretation that prohibits non-reciprocal agreements may be intended to protect a Chinese recipient company's benefit in foreign technology transfer. In other words, it ensures that the Chinese licensee will not be disadvantaged through being deprived of the opportunity to benefit from technological improvement made by the licensor, who is entitled to exploit the licensee's improvement on the licensed technology. However, the licensor may refuse to license core technology to the licensee, or may request a super high consideration unless the non-reciprocal grant-back imposed on the licensee is agreed to secure the licensor's advantage, [547] even after the licence. Thus the non-reciprocal grant-back encourages granting a licence. It is beneficial for the dissemination of technology, innovation, and competition in China if a foreign licensor sub-licenses to other licensees in China the improvement developed by the

[545] *Int'l Norcent Tech v Koninklijke Philips Elecs* NV 2007 US Dist LEXIS 89946 (CD Cal 2007) ('ensure that the licensor is not prevented from effectively competing because it is denied access to improvements developed with the aid of its own technology'); *Santa Fe-Pomeroy v P&Z* 569 F2d 1084, 1102 (9th Cir 1978) ('[i]n relation to the licensee the licensor is entitled to some protection for its original investment in research and [...] a grantback is a reasonable device through which to seek such protection').

[546] Pierre Regibeau and Katharine Rockett, 'Assessment of Potential Anticompetitive Conduct in the Field of Intellectual Property Rights and Assessment of the Interplay between Competition Policy and IPR Protection' (2011) European Commission Working Paper COMP/2010/16 <http://ec.europa.eu/competition/consultations/2012_technology_transfer/study_ipr_en.pdf> accessed 1 February 2013. The one way in which reciprocal grant-back may in fact lead to more investment in innovation in through the presence of an incomplete licensing agreement. Jay Pil Choi, 'A Dynamic Analysis of Licensing: The "Boomerang Effect" and Grant-Back Clauses' (2002) 43(3) Int'l Econ Rev 803, 826-29. A lower proportion of research employees were found in the parties that concluded mutual grant-back agreements. *United States v Aluminium Company of America* 91 F Supp 333, 409, 411 (SD NY 1950). This may reflect the reduction in innovation of both parties due to the reciprocal grant-back.

[547] Steven Anderman and Hedvig Schmidt, *EU Competition Law and Intellectual Property Rights: The Regulation of Innovation* (2nd edn, Oxford University Press 2011) 283 (stating that licensors typically request a right to disclose and use the licensee's improvements).

licensee. Especially for high technology that has few substitutes, the adverse effect may be more acceptable than the Chinese company's loss of importing the technology. Therefore, the non-reciprocal grant-back should not be *per se* unlawful.

Fourthly, free consideration on its own should not automatically invalidate the grant-back.[548] For example, if both parties work free-of-charge on the improvement in a reciprocal grant-back, the free *quid pro quo* itself does not reduce the incentive, and so it should be analysed alongside other factors. However, proper consideration in certain cases, even in exclusive grant-back, could limit some disincentives of the R&D of the licensee. Some argue that it would be difficult to set up a proper *quid pro quo* in practice because the value of the improvement is hard to evaluate *ex ante*.[549] If the agreement is examined before the transaction of the improvement and it contains a general statement like 'the licensor should pay a proper consideration for the grant-back from the licensee', although there is no specific amount, this offers the licensee an opportunity to request consideration. The payment should be 'proper,' implying that if the payment is not proper then the licensee may refuse the grant-back. Therefore, a non-specific paid grant-back clause is much better than a free grant-back to incentivise the licensee to innovate. In addition, there are other factors that may affect the assessment of the grant-back, such as the relationship between the parties to the agreement,[550] and the scheme of royalties.[551]

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[548] The NDRC made a decision and ordered that 'Qualcomm should cease imposing grant-back conditions on wireless communication terminal manufactures in China to force them to cross-license their patents to Qualcomm for free without paying reasonable considerations.' *Qualcomm Inc* Administrative Penalty Decision by the NDRC — Fa Gai Ban Jia Jian Chu Fa No 1/2015 (国家发展和改革委员会行政处罚决定书 — 发改办价监督处罚(2015)1 号 Guojia Fazhan He Gaige Weiyuan Hui Xingzheng Chufa Jueding Shu—Fa Gai Ban Jia Jian Chu Fa (2015) 1 Hao).

[549] Pierre Regibeau and Katharine Rockett, 'Assessment of Potential Anticompetitive Conduct in the Field of Intellectual Property Rights and Assessment of the Interplay between Competition Policy and IPR Protection' (2011) European Commission Working Paper COMP/2010/16 <http://ec.europa.eu/competition/consultations/2012_technology_transfer/study_ipr_en.pdf> accessed 1 February 2013.

[550] An empirical study of 113 licensing contracts indicated that grant-back clauses are more likely to be contained in the licensing agreements between actual or potential competitors in the technology or products market. Keld Laursen and others, 'Cooperation or Competition: Grant-Back Clauses in Technology Licensing Contracts' (DRUID Conference, Copenhagen, 19-21 June 2012) <http://druid8.sit.aau.dk/acc_papers/flxv20vbg6hajpvtoeu6ldrog30b.pdf> accessed 1 February 2013.

[551] For example, if the licensor charges royalties on the basis of output or sales, even in the absence of grant-back, the licensor may increase its revenue from an extension of the licensee's output or sales resulting from improvements.

6.7 Conclusion

The current anti-competitive provisions scattered throughout laws and regulations, the AML, even some new drafts, are not adequate to provide proper guidelines to tackle anti-competitive issues in technology transfer in China.[552] Therefore, it is important to provide comprehensive proposals for China to enhance the necessary merits of the guidelines for technology transfer within the scope of competition law, and to ensure legal certainty and foreseeability.

In addition to the consideration of the effects of competition law and IPRs on competition, innovation, and consumer welfare,[553] it is necessary for the proposed guidelines to consist with the background and objectives of competition law in China. The relatively inactive technology transfer market[554] and the relatively low level of indigenous innovation of high technology[555] in China must be taken into account, because this is very different to the situation in developed countries.[556] As such, the competition law should promote technology transfer and improve the level of

[552] For more details, see Chapter 3, 4 and 5 of this thesis.

[553] For more details, see Chapter 2 of this thesis.

[554] The domestic technology transfer market is relatively stagnant, considering the large number of business operators in the Chinese market. This is due to a lack of sufficient high-value technologies for the purpose of transferring, and the owners of such technologies preferring to sustain their competitive advantages by reserving the technologies for themselves rather than transferring to others who may be potential competitors. Local technology owners also prefer assignment to licence as the predominant method of transferring technology, possibly because they fear infringement of IPRs. Foreign advanced technologies have been transferred to China as a result of the lower manufacturing costs and the large market, as well as the high demand of Chinese companies. Thus, the anti-competitive issues arising in the foreign-related technology transfer have drawn much attention. For more details, see Chapter 3 of this thesis.

[555] Chih-Hai Yang and others, Intellectual Property Rights and Patenting in China's High-technology Industries: Does Ownership Matter? (2011) 19 (5) China & World Econ 102, 120-22 (the empirical study shows relatively low R&D productivity for China's high-technology industries, compared with OECD countries).

[556] The differences lie in: firstly, Chinese companies would currently and primarily be transferees rather than transferors of high technologies; secondly, China requires the import of more high technologies from abroad; thirdly, it is also important to promote the abilities of Chinese companies to develop follow-on innovation on imported technologies, as well as indigenous innovation. The incentive for transferring high technologies and the regulation of the severe anti-competitive issues during such transfers must be considered when making detailed proposals for China. As developed countries primarily own high technologies and their economies have reached a certain threshold, there may be less pressure on the introduction of high technologies from abroad, compared with China, and their competition laws may pursue some other values, such as immediate consumer welfare.

technology in the industry,[557] while enhancing R&D spillovers and the living standard of Chinese people.[558]

Firstly, guidelines should consider the incentive of a technology owner to grant a transfer. As a result of the relatively low level of creativity, advanced technologies are strongly considered to play a vital role in the technological improvement of China, as well as in a commercial respect, and the domestic technology owner may be unwilling to transfer out the technology due to a reluctance to surrender technological advantage. If the AML restricts to an unnecessary extent the technology owner's strategy regarding the licence, the owner may simply reserve the technology for himself/herself rather than transfer it to others.[559] Secondly, the incentive of the transferee to accept and invest in the transferred technology is another factor. It is currently apparent that advanced technology transfer in China is a transferor's market. Where there is an advanced technology with a commercial value, there is always someone who would like to take it, even at a huge cost.[560] From this perspective, the incentive of a transferee to take a licence may be less important than the incentive of a technology owner in China, but it should not be ignored.[561] Thirdly, once it has been agreed to transfer the technology, unjustifiable restrictions will not only impede

[557] Daniel CK Chow, 'A Comparison of EU and China Competition Laws that Apply to Technology Transfer Agreements' (2014) 9(3) ISJLP 497, 505 (illustrating that competitiveness is directly linked to the level of technology, so that developing countries expect to import cutting edge or the most advanced technology).

[558] For more details, see Section 2.4.2 of Chapter 2 of this thesis.

[559] Although refusals to license can be intervened by competition law and result in a requirement to license compulsorily, refusals to license embody the fundamental principle of 'freedom of contract,' as well as the exercise of IPRs. Therefore, there is a very high threshold for applying competition law to refusals to license. This could not be relied upon as a primary method of promoting the dissemination of technologies; rather, it is merely a method of rectification when there is no other solution. See also Daniel CK Chow, 'A Comparison of EU and China Competition Laws that Apply to Technology Transfer Agreements' (2014) 9(3) ISJLP 497, 505-506 (stating that multinationals may be reluctant to license or may limit the use of the licence of their most advance or core technology because it is a crucial business asset and they are concerned with the licensed technology being misappropriated or stolen).

[560] Nyree Stewart, 'Chinese Growth Driving Global Technology Demand' (*FT Adviser*, 29 October 2012) <http://www.ftadviser.com/2012/10/29/investments/equities/chinese-growth-driving-global-technology-demand-Gv24yHK11p05z6Bj2x7OSP/article.html> accessed 2 June 2014; Kenneth Jarrett and Amy Wendholt, 'Transferring Technology to Transform China — Is It Worth It' (*China Business Review*, 1 March 2010) <http://www.chinabusinessreview.com/transferring-technology-to-transform-china-is-it-worth-it/> accessed 2 June 2014.

[561] For example, when a technology is new and requires a large sum of investment for manufacturing relevant products, and there is uncertainty relating to the acceptance of products by consumers, the licensee is thus confronted with a great risk. An exclusive licence may be justifiable because it relieves the licensee's concern.

competition and harm consumer welfare, but also restrain the degree of technology diffusion and the effects of R&D spillovers.[562] Competition law should then be applied to address such problems. Fourthly, indigenous innovation is emphasised in China as a fundamental method for development.[563] Therefore the proposed guidelines shall consider the promotion of innovation through the exercise of IPRs and the application of competition law to facilitate follow-on innovation.

Price-related restrictions are easy to employ, and directly affect competition in the market as well as consumer welfare. In the US, price fixing has generally been deemed as *per se* illegal, both in common practice[564] and IPRs-related conducts,[565] while in the EU, justification can be considered.[566] Neither the AML, its relevant regulations, nor the drafts state the manner in which to access and weigh up the anti-competitive effects and efficiencies of price fixing. In particular, price fixing is the only vertical

[562] Even if a technology transfer agreement has been concluded, in which the anti-competitive restrictions could result in that the benefits gained by the transferee being heavily outweighed by the loss of such a transfer. Moreover, the restrictions may harm consumer welfare. In these cases, there is very little value to encouraging technology diffusion, unless the adverse impacts can be rectified through competition law.

[563] Current anti-competitive issues that have drawn much attention are conducted by foreign multinationals. From the perspective of the protection of Chinese interests and companies, this likely enables an emphasis to be placed upon preserving the domestic transferees. More specifically, competition law should regulate exercise of IPRs by transferors to a greater extent despite of the efficiency embodied in IPRs system. However, competition law should apply to domestic companies as well as to foreign companies in China, without discrimination. Therefore it also needs to consider that whether the transferee-protection-oriented principle would be beneficial for promoting indigenous innovation when the principle applies to technology transfer between domestic transferors and transferees. China expects some Chinese technology-based companies to develop so as to they are strong enough to compete with foreign multinationals, so a transferor-protection-oriented principle may be helpful to achieve this objective when Chinese companies are transferors. This principle also promote indigenous innovation, which is a long-term strategy for China's technology innovation and development, rather than technology transfer, which is a relatively short-term conduct.

[564] Price fixing has been considered to be *per se* illegal in the US because it doesn't generate efficiencies. *United States v Socony-Vacuum Oil* 310 US 150, 218 (1940) (confirmed that price fixing is *per se* unlawful under the Sherman Act); *United States v Trenton Potteries* 273 US 392 (1927) (the defence of reasonableness and not harming consumers was not accepted by courts); *United States v Trans Missouri Freight Association* 166 US 290 (1897) (the defence of avoiding ruinous competition in price was rejected by courts).

[565] Antitrust Guidelines 2017, s 5.1; *Mallinckrodt v Medipart* 976 F2d 700 (Fed Cir 1992) (the court held that the patentee could freely impose restrictions on post-sales, and that only price fixing and tying should be dealt with by the *per se* illegal rule).

[566] Price fixing has been regarded as a hardcore restriction in TTBER 316/2014 as well as in Article 101 of the TFEU; however, not *per se* illegal. TTBER 316/2014 and its guidelines apply the rule of reason approach, and price fixing can be exempted from the scope of competition law in some exceptional cases, such as maximum sale price or the recommendation of a sale price in an agreement between non-competitors. TTBER 316/2014, art 4(2)(a).

restriction agreement that is clearly stipulated in the AML,[567] which implies that anxiety in relation to price fixing is much greater than with other restrictions. The scheme of the AML embodies the rule of reason approach for anti-competitive issues, including price fixing.[568] The judgment of *Ruibang* has been analysed to understand how to judge anti-monopoly cases, especially resale price fixing in China. Although this case is not directly related to technology transfer, the principle and method employed in the trial and judgment have offered a very important reference for studying the same problem in technology transfer. Further more, the proposed potential efficiencies to be considered when assessing price fixing include reducing the costs of the organised management of IPRs,[569] manufacturing new products by gathering together resources in the form of a joint venture, the promotion of technology dissemination, the avoidance of products being sold at an unfairly low price, and prevention from charging unfairly high prices by fixing the maximum price.

Compared with price fixing, price discrimination is more complex because it involves two line injuries. The discussions regarding both *Kam Hing* and *Huawei* reflect the absence of and demand for detailed guidelines and regulations for price discrimination in technology transfer in China. The proposals for China can draw on the experiences of the US and EU. A lower royalty or a discount offered to selected customers, such as competitors' customers, is very likely to drive the competitors out of market. Therefore it may fall under the scrutiny of competition law. A selectively high royalty can place licensees in the downstream market at a competitive disadvantage. Price discrimination always signifies the abuse of dominant position; therefore dominance in the market should be identified. At least the possibility of exclusion from the same or from a downstream market must be proven in order to claim a violation of competition law. However, it should not be ignored that the high

[567] Agreements between non-competitors for fixing the price of resale to a third party or for restricting the minimum price of resale to a third party are prohibited. AML, art 14. Moreover, agreements between competitors for fixing or changing the prices of commodities are prohibited. AML, art 13.

[568] Anti-competitive restrictions could be exempted if they satisfy certain conditions in the AML. ibid, art 15.

[569] *Broadcast Music v CBS* 441 US 1 (1979).

sunk costs in R&D may require a differential price to maximise income and recoup the costs, thus promoting innovation.[570]

The allocation of markets is commonly used to restrict or eliminate competition. US law applies *per se* illegal to the horizontal allocation of markets,[571] unless there is justification and a more lenient treatment of vertical restrictions on the post-sale of patented products,[572] while EU law evolves from a strict level[573] to a more lenient level,[574] analysing both adverse and positive effects. There are very few detailed guidelines for this type of restriction in China. Considering the objective of promoting indigenous innovation and encouraging technology transfer in China, the allocation of markets should be regulated by the rule of reason, although such allocation is very likely to eliminate competition in certain territories, field of use, computer groups, etc. Relevant efficiencies include the incentive of granting a licence and the encouragement of investment in exploiting a new technology by a licensee to bring new and better products to consumers, which can enhance welfare and promote technology dissemination. The vertical allocation of markets should not be ignored

[570] This is vital to promote the incentive for investment in R&D. William J Baumol and Daniel G Swanson, 'The New Economy and Ubiquitous Competitive Price Discrimination: Identifying Defensible Criteria of Market Power, Symposium on Competitive Price Discrimination' (2003) 70 ALJ 661.

[571] '[...] some restraints may merit *per se* treatment, including price fixing, allocation of markets or customers, agreement to reduce output, and certain group boycotts.' Antitrust Guidelines 2017, s 5.1. 'Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is declared to be illegal.' 15 USC § 1 (2006) (Sherman Act). *United States v Topco Associates* 319 F Supp 1031 (ND III 1970), 405 US 596 (1972) (the Supreme Court confirmed that the horizontal territorial restriction was *per se* illegal).

[572] US law primarily applies the rule of reason combined with the exhaustion doctrine to the vertical allocation of markets. Antitrust Guidelines 2017, s 2.3, example 1 (field of use and territorial limitations); s 4.1.2, example 8 (exclusive license and exclusive dealing). *Continental TV v GTE Sylvania* 433 US 36 (1977) (the Supreme Court confirmed that the rule of reason should be applied to territorial restrictions); *Mallinckrodt v Medipart* 976 F2d 700 (Fed Cir 1992) (the Federal Circuit Court confirmed that the absolute *per se* rule is only applied to price fixing and tying in post-sale restrictions); *Quanta Computer v LG Electronics* 553 US 617 (2008) (the courts did not apply the *per se* rule to a field of use restriction of post-sale).

[573] Joined Cases 56 and 58/64 *Etablissements Consten SA & Grundig-Verkaufs v Commission* [1966] ECR 299, [1966] CMLR 418 (the court held that the restriction on intra-brand competition should be prohibited, despite the possibility that it could increase inter-brand competition); *Burroughs/Delplanque* [1972] OJ L13/50, [1972] CMLR D67 (the Commission confirmed that the exclusive licence of a patent should be prohibited by Article 101(1)).

[574] The allocation of markets is considered to be a hardcore restriction in TTBER 316/2014, but it can be exempted in some situations. See Section 6.4.3.2 in this Chapter of this thesis. Case 258/78 *Nungesser v Commission* [1982] ECR 2015, [1983] 1 CMLR 278 (the court stated that in some circumstances, the territorial restriction of licence would not be prohibited under Article 101(1)).

because they may generate strong anti-competitive effects under certain circumstances.

The treatment of tying has evolved from a *per se* unlawful approach[575] to the application of the rule of reason[576] in the US, while EU Law has consistently applied the rule of reason to tying.[577] China's current legislation and some drafts offer a number of conditions for application of the AML to tying in technology transfer: dominance in the market, separate tying and tied products, restriction or elimination of competition, and lack of justification.[578] However, there are no precise guidelines to indicate how to assess tying in individual cases, so the provisions remain insufficient. The following elements are proposed for consideration. Firstly, in addition to commercial usage, consumer habits, and the function of products, which are traditional criteria, consumer demand, as a more consumer welfare-oriented element, should be given greater emphasis.[579] Secondly, the competition in markets of tying products and/or tied products is foreclosed, and the tying and tied products are likely to be in the same relevant market when they are substitutes. Thirdly, restriction on consumer choice is an important form of adverse effect, as it immediately harms

[575] Tying is one of the restrictions deemed to be *per se* unlawful in the Nine No-No's. *United States v Lowe's* 371 US 38 (1962) (the Supreme Court held that block booking of films, in which independent theatres had to accept the parcel of films from the studios, sight unseen,, to benefit studios through the more effective production and distribution of films, violated the Sherman Act); *United States v Paramount Pictures* 334 US 131 (1948) (the movie studios owned theatres and only allowed their own films to show in those theatres, the exclusive dealing of which was judged to be a violation of antitrust law); *International Salt v United States* 332 US 392 (1947) (the Supreme Court held that the tying agreement eliminated the selective supply in the market, and so it was *per se* illegal according to Section 1 of the Sherman Act and Section 3 of the Clayton Act). One of the reasons for the hostile treatment of tying in technology transfer was the presumption of a monopoly of a patent or copyright. *United States v Lowe's* 371 US 38 (1962) (the court held that a product protected by patent or copyright would be assumed to own an economic monopoly).

[576] Antitrust Guidelines 2017, s 5.3 ('[a]lthough tying agreements may result in anticompetitive effects, such arrangements can also result in significant efficiencies and precompetitive benefits'); *United States v Microsoft* 87 F Supp 2d 30, 47 (DDC 2000), aff'd in part, rev'd in part, 253 F3d 34 (DC Cir 2001) (the court considered the possible efficiencies of tying); *Atari Games v Nintendo of America* 897 F2d 1572, 1576 (Fed Cir 1990); 975 F2d 832, 24 USPQ 2d 1015 (1992) (tying in a patent licence did not violate antitrust law *per se*).

[577] Guidelines of TTBER 316/2014, paras 221-25. Guidance of Article 102, paras 28-31, 50-55.

[578] 5th Guidelines, art18; Rules, art 9.

[579] It should be clear that consumer habit is different to consumer demand. The former is normally established on the grounds of past experience and activities, and also possibly based on the lock-in effect that stems from the dominance of a certain market actor. On the other hand, the latter is more objective for judging what exactly consumers need and, if there is a habit, whether such a habit has any justification; if there is no justification, whether breaking the habit will bring more welfare to consumers.

consumer welfare.[580] Fourthly, the efficiencies of tying lie with the necessity of saving the costs of production, sales, and management,[581] and also of bringing new products to consumers,[582] and maintaining quality standards and commercial reputation.[583] Finally, based on the case study of *TSUM* and *Qihoo* that arose in China, safety and hygiene reasons may not be accepted as objective justification to exempt tying from constituting a violation of competition law, unless the company conducting the tying can prove it is necessary to do so.[584]

Grant-back predominantly jeopardises the incentive of the licensee to invest in follow-on innovation. It was not always unlawful in the US.[585] Although exclusive grant-back was regarded as *per se* illegal in the Nine No-No's, the Antitrust Guidelines 2017 confirmed that it should be examined under the rule of reason.[586] Both the adverse and positive effects of grant-back are assessed under EU competition law.[587] The judicial interpretation in China applies *per se* unlawful to grant-back, which is too severe and will impede the encouragement of technology diffusion.[588] Therefore, a relatively lenient treatment for grant-back is encouraged. Above all, the market power

[580] Courts in both the US and EU considered the restriction on consumer choice as a necessary element for amounting to unlawful tying. *Eastman Kodak v Image Technology Services* 504 US 451, 461-62 (1992); *Microsoft v Commission* [2007] ECR II-3601.

[581] 5th Guidelines, art 18.

[582] Guidance of Article 102, para 62.

[583] Guidelines of TTBER 316/2014, para 224.

[584] The US and EU may have distinct opinions on the reasons for safety or technological requirement. The US is very likely to accept these justifications in order to promote the incentive of the technology owner, while the EU may refuse these reasons unless proven necessary, so that consumer welfare can be increased by the application of competition law. It is proposed that it would be more suitable for China to adopt a relatively strict attitude towards defence and in line with the EU approach, such as with regard to safety and hygiene, because it may benefit the creation of a more competitive market to encourage innovation as well as competition in China.

[585] *Transparent-Wrap Machine v Stokes & Smith* 329 US 637 (1947) (the Supreme Court held that grant-back is not *per se* illegal because it might create the licensor's right to exploit the improvement after the expiry of the original patent).

[586] It may enable the licensor and licensee to share risks and rewards in further innovation in order to promote R&D and also to promote the subsequent licensing of further innovation. Antitrust Guidelines 2017, s 5.6.

[587] Guidelines of TTBER 316/2014, paras 129-32.

[588] The judicial interpretation prohibits grant-back when it is without consideration, non-reciprocal, or exclusive, and this may restrict the possible efficiency embodied within these types of grant-back. The market share or dominant position of the party that imposes the grant-back should at least be considered. Regulations on Administration of Technology Imports and Exports 2002, art 29.

of the party imposing the restriction should be examined.[589] Exclusive grant-back should then be paid sufficient attention as it deprives the licensee of the opportunity to exploit and control the improvements; the licensee is therefore reluctant to conduct innovation. Non-reciprocal grant-back should not be *per se* illegal, but should be assessed on the basis of adverse effects and positive efficiencies.[590] Free consideration should not necessarily invalidate a relevant grant-back, especially when it relates to reciprocal grant-back, as it will not be necessary to reduce the incentive to innovation. The primary efficiency of grant-back is the facilitation of technology dissemination.[591]

[589] If the party does not have dominant position, even it imposes such a restriction, it does not result in any substantial anti-competitive effects to the market, and so competition law should not intervene.

[590] If it is combined with a feed-on clause to sub-license the improvement to other licensees, it may promote the competition and dissemination of technology.

[591] For example, it may secure the incentive of the licensor to grant a licence to increase competition and technology dissemination, or allow the licensor to sub-license to other licensees which may limit the anti-competitive effects, or it may pay proper consideration to the licensee to keep his incentive. *Int'l Norcent Tech v Koninklijke Philips Elecs* NV 2007 US Dist LEXIS 89946 (CD Cal 2007) ('ensure that the licensor is not prevented from effectively competing because it is denied access to improvements developed with the aid of its own technology'); *Santa Fe-Pomeroy v P&Z* 569 F2d 1084, 1102 (9th Cir 1978) ('[i]n relation to the licensee the licensor is entitled to some protection for its original investment in research and [...] a grantback is a reasonable device through which to seek such protection').

CHAPTER 7. PROPOSALS FOR DEALING WITH REFUSALS TO TRANSFER TECHNOLOGY IN CHINA: THE EXPERIENCES OF THE US AND THE EU

7.1 Introduction

In a market with effective competition, regardless of whether or not the company is dominant, companies are free to choose trading partners on the basis of various criteria, such as competitive relationship, market strategy, technical advantages, and even credit reputation. Intellectual property rights (IPRs) owners can freely exercise the exclusive rights themselves; for instance, they can refuse to grant an assignment or licence to another party if it is in their interest to do so.[1] Refusals to license only minimally affect competition and consumer welfare because refused parties can switch to other competing licensors. Thus, in order to safeguard the mechanism for inducing the incentive for innovation that is embodied in IPRs, competition law would not normally impose a compulsory access to the assets, including intellectual properties protected by IPRs, which contribute to competitive advantages.[2]

However, when a company has exclusive control over IPRs, or IPRs are mixed with other tangibles or infrastructure, the access of which is indispensable to compete in a certain market or in a separate but closely related market, the company can take advantage of such a strategic position and employs it with the intention of preserving or strengthening its dominant position in that market, or acquiring it in the second related market, to refuse to license the IPRs to other companies.[3] This damages the

[1] Jennifer E Sturiale, 'Compulsory Licensing of Intellectual Property as Merger Remedy: A Decision-Theoretical Approach' (2012) 72(3) La L Rev 605, 608 (stating that a duty should not be imposed on IPRs holders and that a refusal to license their IPRs to a competitor is 'virtually privileged').

[2] *Verizon Communications v Trinko* 540 US 398, 407 (2004) ('The opportunity to charge monopoly prices — at least for a short period — is what attracts "business acumen" in the first place; it induces risk taking that produces innovation and economic growth. To safeguard the incentive to innovate, the possession of monopoly power will not be found unlawful unless it is accompanied by an element of anticompetitive conduct.')

[3] Emanuela Arezzo, 'Intellectual Property Rights at the Crossroad between Monopolisation and Abuse of Dominant Position: American and European Approaches Compared' (2006) 24(3) J Marshall J Computer & Info L 455, 458.

competitive market structure, ultimately harming consumer welfare, and so competition law may intervene.[4] The function of IPRs is mainly to protect innovators from competition resulting from imitation by free-riders but not from competition resulting from substitution,[5] and the possible costs of damaging static efficiency by IPRs should be limited to the scope embodied in the IPRs paradigm. Meanwhile, caution should be exercised because the imposition on the company of a compulsory obligation to license can undermine the basic principle of freedom of contract and the company's incentives to innovate. An unjustifiable compulsory licence will harm consumer welfare in the long run. [6]

7.2 Refusals to Transfer in US Law

The United States (US) antitrust law deals with refusals in two main categories: a company refusing to allow others to enter the very market where it has a monopoly power;[7] and a company being active in more than one market segment and its refusal demonstrates its intention to monopolise the market where it has no position of dominance.[8]

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[4] *Verizon Communications v Trinko* 540 US 398, 407 (2004). Herbert Hovenkamp, Mark D Janis and Mark A Lemley, 'Unilateral Refusals to License' (2006) 2 J Comp L & Econ 1, 2 (stating that the unilateral refusal to license involves the heart of IPRs owners' right to exclude others from exploiting the intellectual property, so that the application of antitrust law should come under special scrutiny).

[5] Joseph Drexl and others, 'Comments of the Max Planck Institute for Intellectual Property, Competition and Tax Law, (Munich) on the Directorate General Competition Discussion Paper of December 2005 on the Application of Article 82 of the EC Treaty to Exclusionary Abuses' (2006) 37(5) IIC 558.

[6] Communication from the Commission — Guidance on its Enforcement Priorities in Applying Article 82 of the EC Treaty to Abusive Exclusionary Conduct by Dominant Undertakings [2009] OJ C 45/02 (Guidance of Article 102), para 75.

[7] This conduct is often framed as monopolisation. According to Section 2 of the Sherman Act, the following conducts will be punished due to anti-competition: 'every person who shall monopolise, or attempt to monopolise, or combine or conspire with another person, to monopolise any part of the trade or commerce among the several States'. Therefore, monopolisation and attempts at monopolisation are the two objectives to be punished. The offence of creating a monopoly has two elements: '(1) the possession of monopoly power in the relevant market, and (2) the wilful acquisition or maintenance of the power as distinguished from growth of or development as a consequence of a superior product, business acumen or historic accident.' *United States v Grinnell* 384 US 563, 570-71 (1966); *Aspen Skiing v Aspen Highlands Skiing* 472 US 585, 595-96 (1985); *Data Genera v Grumman System Support* 36 F3d 1147 (1st Cir 1994).

[8] This conduct is often seen as an attempt at monopolisation. For example, a company produces both printers and compatible cartridges, and its conduct of refusal has the aim of achieving monopoly power in the cartridges market where it does not have market power. Therefore, its attempt should be judged by elements other than market power in the cartridges market to assess antitrust under Section 2 of the

7.2.1 Justification by IPRs of Refusals to License: from Absolute to Presumptive

Historically, the refusal to license was justified absolutely through the exercise of IPRs. In *Heaton-Peninsular Button-Fastener v Eureka Specialty,*[9] the court held that the patentee was entitled to reserve the exploitation of the invention for itself, the right of which is exclusive and clear in light of provisions regarding the private property of constitution. Therefore, neither does the patentee have to use it itself, nor is the patentee obliged to transfer it to others.[10] The courts in both *Continental Paper Bag v Eastern Paper Bag*[11] and *Hartford-Empire v United States*[12] confirmed this, and Congress has codified that a refusal to license a patent shall not be viewed as being guilty of misuse.[13] In *Berkey Photo v Eastman Kodak* (Kodak I),[14] the court stated that the incentive for innovation would be heavily reduced if the inventor investing in research and development (R&D) and taking the associated risks was requested at any time to share the invention with competitors.[15] In *United States v Westinghouse Electricity,*[16] Westinghouse licensed IPRs to selected companies but refused to license to other companies in the same industry, and so was taken to court by the US

Sherman Act. *Image Technical Service v Eastman Kodak* 125 F3d 1195 (9th Cir 1997); *CSU v Xerox* 203 F3d 1322 (Fed Cir 2000). An attempt to monopolise is more difficult to analyse as it relates to assessing behaviours that suggest undertakings intend to achieve monopoly power. However, almost every undertaking aims to take actions to achieve a position of strength in the market. American jurisprudence has created standards to evaluate such attempts: 1) a predatory or anti-competitive behaviour; 2) a specific intent to monopolise; 3) a dangerous probability of success. Herbert Hovenkamp, *Federal Antitrust Policy: The Law of Competition and Its Practice* (4th edn, West 2011) 274.

[9] 77 F 288 (6th Cir 1896).

[10] ibid.

[11] Eastern sued Continental for an infringement of Eastern's patent for a 'self-opening' bag by exploiting it without consent. Continental defended that Eastern had not used the patent but merely intended to suppress competition. The Supreme Court held that '[a]n inventor receives from a patent the right to exclude others from its use for the time prescribed in the statute, and this right is not dependent on his using the device or affected by his non-use thereof, and, except in a case where the public interest is involved, the remedy of injunction to prevent infringement of his patent will not be denied merely on the ground of nonuser of the invention.' 210 US 407 (1908).

[12] 323 US 386, 428-32 (1945) (the Supreme Court held that although the patentee 'accumulate[s] patents merely for the purpose of protecting [its] general industries and shutting out competitors [...] such exclusion may be said to have been the very essence of the right conferred by the patent, as it is the privilege of any owner of property to use or not use it, without question of motive.').

[13] 35 USC § 271(d)(4) (2006) Patent Misuse Reform Act.

[14] 603 F2d 263 (2nd Cir 1979).

[15] ibid.

[16] 471 F Supp 532 (ND Cal 1978), aff'd, 648 F2d (9th Cir 1981).

government who claimed that it was trying to monopolise the market. The court discussed the possible conflict between IPRs and competition law, and held that the decision regarding whether or not to grant an exclusive licence is a right of IPRs owners and cannot be restricted. Furthermore, it stated that no court would agree to remove the exclusive right of IPRs-owners because of antitrust law.[17] This demonstrates that courts during this period used the exclusivity of IPRs and the incentive to innovate to justify refusals to license.

In *Data General v Grumman System Support,*[18] Data General (DG) was a computer manufacturer that also provided software maintenance. It held approximately 90% of the market share of software maintenance, a market in which Grumman System Support Corporation (GSS) held approximately 3% of the share. GSS used to receive the copyrighted software from DG in order to provide a maintenance service, but later, in order to extend its business, DG implemented a strict licensing policy and only licensed its software copyright to its own staff and to limited repair staff. As such, GSS had been refused a license for the software but continued to use it. DG filed an infringement lawsuit, while GSS alleged that the refusal violated antitrust law. The court did not follow the previous doctrine of using IPRs to absolutely justify refusals to license, but instead introduced a principle where the refusal to license IPRs is a presumptively valid business justification, even if it is conducted by a monopolist or may result in immediate harm to consumers.[19] The court also pointed out that there were some minor exceptions in which 'imposing antitrust liability is unlikely to frustrate the objectives of Copyright Act',[20] and so demonstrating that the monopolist

[17] ibid.

[18] 36 F3d 1184 (1st Cir 1994).

[19] The First Circuit found that copyright may influence consumers over a short period and favour the establishment or strengthening of monopoly power, but it may not be appropriate to 'judge the effect of the use of a copyright by looking only at one market or one time period'. The Court stressed that copyright law generates the incentive to innovate that will benefit consumers, and so should be preserved. ibid 1184. In addition, the Court of Appeal also considered that it would be impractical to request the right-owner as an anti-competitive defendant to prove 'the merits of this legislative assumption in every case where a refusal to license a copyrighted work comes under attack', and then a presumptive justification for the exercise of copyright, including refusal to license the copyright, is required to establish. ibid 1187.

[20] ibid.

acquires IPRs in an unlawful manner[21] could rebut the presumptive legality of IPRs. The doctrine of presumptive justification of refusals to license IPRs was confirmed by the court in *Tricom v Electronic Data System,*[22] where the request for the licensing of copyright software to provide a maintenance service was also refused. This demonstrates the change in attitude of the courts, from a previous absolute exemption based on IPRs, to a slight reservation of the application of antitrust law. However, the exact situations in which to utilise the antitrust responsibility have not been stated.

7.2.2 Illegality of Refusals to License — an Exceptional Case of *Kodak II*

Courts rarely apply antitrust law to refusals to license, but did in the case of *Image Technical Service v Eastman Kodak*[23] (Kodak II), where the court explored the area in which IPRs could not exempt anti-competitive responsibilities. In this case, Kodak manufactured copying and micrographic equipment, and provided relevant replacement parts and repair services. A few independent service organisations (ISOs), including Image, had provided repair services for Kodak's products since the 1980s. Kodak began limiting the replacement parts provided to the ISOs because it wished to take over the maintenance market of its products. As a result, the ISOs sued Kodak, as its refusal constituted a violation of Sections 1 and 2 of the Sherman Act. The district court granted Kodak's motion for summary judgment because of the small market share. However, this was reversed by the Court of Appeals, and so Kodak appealed to the Supreme Court. The Supreme Court requested a retrial,[24] and eventually the ISOs won the case. In the appeal, Kodak argued that its refusal was based on patent protection and was thus legal. However, the appellate court held that only 65 of more than 1000 parts were protected by patents and Kodak had not invoked the patents in almost ten years of litigation, proving in this case the pretextual nature of the allegation of patent protection. In other words, the subjective intent of anti-

[21] The court did not find evidence in this case to rebut the presumptive justification, as the service market had been non-competitive, the copyrights were valid, and the software was innovative. ibid 1188.
[22] 902 F Supp 741 (ED Mich 1995).
[23] 125 F3d 1195 (9th Cir 1997).
[24] 504 US 451 (1992).

competition was indicated in the refusal to license.[25] In addition, antitrust law also regulates IPRs owners, and IPRs would not necessarily exempt the refusal. This was especially so in this case, where the service market and the market for replacement parts protected by IPRs were separate, suggesting that the aim was to control the service market by refusing to provide replacement parts. In other words, the extension of special protection from IPRs in the replacement parts market to the service market went beyond the necessary scope of IPRs and was not legal. By contrast, if the IPRs market contained a replacement parts market as well as a service market, such as a patented repairing technology, the refusal would not be illegal.[26] This demonstrates that the court extended the presumption doctrine from copyright to patents,[27] and managed to identify the scope of IPRs protection so as to clarify the situation in which refusals to license or supply could be exempted from antitrust examination, and to describe the illegality of leveraging protection in an IPRs-protected market to another non-IPRS-protected market. Such an indirect protection of IPRs could be deemed an attempt to cover up anti-competitive objective in the name of IPRs protection.[28]

7.2.3 Reaffirming Justification of IPRs to Refusals to License

In *CSU v Xerox,*[29] the cause of action presented was very similar to that in the case of *Kodak II*. Xerox, a manufacturer of copying equipment and printers that also provided maintenance services, refused to supply copyrighted and patented replacements to ISOs, including CSU which ran a relevant business in the maintenance service. The Federal Circuit Court invoked a presumption doctrine in precedent[30] to judge refusals

[25] 125 F3d 1218 (9th Cir 1997).

[26] ibid 1195.

[27] The court relied on a previous precedent that affirmed an exception for patents in antitrust law. The precedent was *Data General v Grumman System Support* 36 F36 1147, 1184-86 (1st Cir 1994).

[28] The appellate court held that 'neither the aims of intellectual property law, nor the antitrust laws justify allowing a monopolist to rely upon a pretextual business justification to mask anticompetitive conduct'. 125 F3d 1218 (9th Cir 1997). However, the emphasis of the court on anti-competitive intent was criticised, since more consideration may have been required on the conduct and extent of anti-competition in the outcome. Herbert Hovenkamp, Mark D Janis and Mark A Lemley, 'Unilateral Refusals to License in the US' in François Lévêque and Howard Shelanski (eds), *Antitrust, Patents and Copyright* (Edward Elgar 2005) 12.

[29] 203 F3d 1322 (Fed Cir 2000).

[30] *Data General v Grumman System Support* 36 F36 1147, 1184-86 (1st Cir 1994).

to license copyright,[31] and affirmed that a patentee is entitled, in light of patent law, to exclude others from manufacturing, exploiting, and selling patented technologies and products. The court also affirmed that the premise for justification should not be departed from or reshaped, and the principle of presumption for justification could be rebutted only by proving that IPRs had been gained through unlawful means, sham litigation, or illegal tying.[32] The court reaffirmed that the essence of patent law and copyright law is to promote innovation which benefits consumers in the long run, which is based on the economics theory that the protection of individual interests stimulates the individual incentive of creation in science or arts, and ultimately enhances public interest.

7.2.4 Essential Facilities Doctrine

The essential facilities doctrine is a crucial basis on which to judge refusals.[33] The first case of the doctrine in common practice was *United States v Terminal Railroad Association of St Louis.*[34] More recently, in *MCI Communications v AT&T,*[35] a formulation was devised for application of the doctrine: 1) a monopolist controls essential facilities; 2) a competitor cannot practically or reasonably duplicate the essential facilities; 3) a refusal to supply the essential facilities to a competitor; 4) the feasibility of supplying the essential facilities.[36] In *BellSouth Advert & Publishing v Donnelley Info Publishing*,[37] in terms of a refusal to supply business information for a

[31] *CSU v Xerox* 203 F3d 1322, 1329 (Fed Cir 2000).

[32] ibid 1327.

[33] Herbert Hovenkamp, Mark D Janis and Mark A Lemley, 'Unilateral Refusals to License' (2006) 2 J Comp L & Econ 1,7 (stating '[o]utside the intellectual property context, unilateral refusals to deal with specific customers on non-discriminatory terms are generally illegal only if the subject of refusal is an "essential facility"').

[34] 224 US 383 (1912). US Department of Justice, 'Competition and Monopoly: Single-Firm Conduct under Section 2 of the Sherman Act' (*US Department of Justice*, September 2008) <www.usdoj.gov/atr/public/reports/236681.htm> accessed 15 March 2013.

[35] 708 F2d 1081, 1132-33 (7th Cir 1983), *cert denied*, 464 US 891 (1983).

[36] ibid 708 F2d 1081, 1132-33 (7th Cir 1983). The formulation has been approved by courts in other cases. *Aspen Highlands Skiing v Aspen Skiing* 738 F2d 1509 (10th Cir 1984), aff'd on other grounds, 472 US 585 (1985); *Ferguson v Greater Pocatello Chamber of Commerce* 848 F2d 976 (9th Cir 1988); *Consolidated Gas v City Gas* 665 F Supp 1493 (SD Fla 1987), aff'd, 880 F2d 297 (11th Cir 1989), reinstated on reh'g, 912 F2d 1262 (11th Cir 1990), vacated as moot, 499 US 915 (1991); *City of Anaheim v Southern Cal Edison* 955 F2d 1373 (9th Cir 1992); *Delaware Health Care v MCD Holding* 893 F Supp 1279 (D Del 1995).

[37] 719 F Supp 1551 (SD Fla 1988), aff'd, 933 F2d 952 (11th Cir 1991), vacated, 977 F2d 1435 (1992), rev'd on other grounds, 999 F2d 1436 (11th Cir 1993).

directory, the court held that the essential facilities doctrine could be applied to intangible property, such as information, as well as to tangible property.[38] In *Intergraph v Intel,*[39] Intel was a manufacturer of high performance computer microprocessors that were sold to producers, including Intergraph, which integrated the microprocessor into their products. Intergraph had owned Clipper technologies, but since 1993 Intergraph had discontinued the use of Clipper technologies-based microprocessors and instead switched to Intel's microprocessor. However, Intergraph later sued Intel for infringing the Clipper technologies and refused different arrangements for licensing the Clipper technologies to Intel. Then, Intel withheld providing proprietary information and relevant samples to Intergraph, so Intergraph sued Intel's for their refusal, claiming that it was a violation of antitrust law. The district court held that Intel was a monopolist and, based on the essential facilities doctrine,[40] issued a preliminary injunction including the requirement for Intel to continue to supply information and products to Intergraph. However, the appellate court revised the judgment and alleged that Intel had not violated antitrust law. It also held that the essential facilities doctrine requires the plaintiff and defendant to compete in the same market so that 'a monopolist extends its monopoly to the downstream market by refusing access to the facility it controls'.[41] The absence in this case of a downstream market in which Intel and Intergraph had a competitive

[38] The Court held that '[a]lthough the doctrine of essential facilities has been applied predominantly to tangible assets, there is no reason why it could not apply, as in this case, to information wrongly withheld. The effect in both situations is the same: a party is prevented from sharing in something essential to compete.' ibid 999 F2d 1436 (11th Cir 1993). See also *GTE New Media Serves v Ameritech* 21 F Supp 2d 27 (DDC 1998) (this involved refusal to supply 'essential Internet access points' to competitors, from which the national Internet yellow pages market was allocated by several Bell operating company subsidiaries); *MCAR v Realty Photo Master* 878 F Supp 804 (1995), aff'd, 91 F3d 132 (4th Cir 1996) (the Court considered the essential facilities claim in relation to copyrighted real estate listing services, but the plaintiff was dismissed due to the failure to prove that the service constituted an essential facility).

[39] 195 F3d 1346 (Fed Cir 1999).

[40] The district court held that the advanced technique information and Chip samples were essential for Intergraph to compete in its market, and that the antitrust law imposes on essential facilities holders the responsibility to provide the facility on a non-discriminatory basis. ibid para 37.

[41] The court acknowledged that the refusal to license may 'raise antitrust concerns when the refusal is directed against competition and the purpose is to create, maintain, or enlarge a monopoly. If they are not in the same market and it is absent of anti-competitive purpose, 'the Sherman Act does not restrict the long-recognised right of a trader or manufacturer engaged in an entirely private business, freely to exercise his own independent discretion as to parties with whom he will deal.' ibid 1358.

relationship meant that the doctrine could not be applied in order to support the claim of a violation of the Sherman Act.[42]

In *Verizon Communications v Trinko,*[43] it was stated that, in accordance with the 1996 Telecommunications Act and related regulations, incumbent local exchange carriers should provide certain interconnection services and facilities to rivals at cost-based rates. The Federal Communications Commission and the New York Public Service Commission launched an investigation to discover whether Verizon discriminated against its rivals when providing required services and facilities, and Verizon finally agreed to a consent decree regarding relevant obligations. Trinko, as a client of AT&T, filed a lawsuit after the decree was entered, and claimed that Verizon exercised a scheme that included failing to properly provide an interconnection service, and discouraged customers from switching to or remaining the customers of its rivals, including AT&T, thus impeding the entry of competitors to the local telephone services market. This constituted a violation of Section 2 of the Sherman Act.[44] During the proceedings, it was claimed that the interconnection service was an essential facility that Verizon was responsible for providing to its rivals. In 2004, the Supreme Court made a final decision, in which it stated that courts should treat an essential facilities doctrine claim very cautiously because a monopolist can generally choose parties to trade and so the doctrine can only be applied in exceptional cases.[45] The court also emphasised that the exception of the essential facilities doctrine, crafted by some lower courts through precedents, such as *Aspen Skiing v Aspen Highlands Skiing*[46] and *MCI Communications v AT&T,*[47] was 'at or near the outer boundary of Section two liability'[48] and that the court had 'never recognised' the doctrine.[49] It appears that the court denied that the essential facilities doctrine had been accepted in the past as firm ground to judge the cases of US courts. However, the court also

[42] ibid para 42.
[43] 540 US 398 (2004).
[44] ibid.
[45] ibid 408.
[46] 738 F2d 1509 (10th Cir 1984), aff'd on other grounds, 472 US 585 (1985).
[47] 708 F2d 1081 (7th Cir 1983), *cert denied*, 464 US 891 (1983).
[48] *Verizon Communications v Trinko* 540 US 409, 410 (2004).
[49] ibid 411.

found 'no need either to recognise it or to repudiate it here',[50] and then explained immediately that 'the indispensable requirement for invoking the doctrine is the unavailability of access to the "essential facilities"; where access exists, the doctrine serves no purpose'.[51] This implies that the court was attempting to explain the standards and requirements for applying the essential facilities doctrine; in other words, the court was not completely ignoring the doctrine and may even consider applying it. At the very minimum, this suggests that the court treated the essential facilities doctrine with great scepticism. The court held that the mere acquisition of monopoly power and the relevant charging of a monopoly price in the short term are necessary for promoting the incentive to innovate,[52] and that compulsory trade will only impede such an incentive for both incumbents and competitors.[53] Moreover, the IPRs system embodies a greater promotion of innovation than of physical infrastructure, and so the doctrine should be more cautious in its application to avoid impeding the dynamic efficiency.

7.2.5 Conclusion

The treatment of refusals to license may involve one of two approaches in the US. The first approach is mainly on the basis of a violation of Section 2 of the Sherman Act, which declares that an undertaking should not monopolise or attempt to monopolise

[50] ibid. In addition, the court also emphasised four risks of a compulsory deal: 1) the undertaking in question has no responsibility to assist its competitors according to traditional antitrust law; 2) a compulsory deal is not the function of courts to exercise; 3) it may lead to collusion if the undertaking is required to enter into a compulsory deal; and 4) it breaks the principle of freedom of concluding a contract.

[51] ibid. In the case, the court held that the 'respondent believes that the existence of sharing duties under the 1996 Act supports its case. We think the opposite: The 1996 Act's extensive provision for access makes it unnecessary to impose a judicial doctrine of forced access.' This means that there are other regulations creating a ground to offer the service, so it is not an 'unavailability of access' to the facilities, and the essential facilities doctrine should not be invoked.

[52] 'The mere possession of monopoly power, and the concomitant charging of monopoly prices, is not only not unlawful; it is an important element of the free-market system. The opportunity to charge monopoly prices – at least for a short period – is what attracts "business acumen" in the first place; it induces risk taking that produces innovation and economic growth. To safeguard the incentive to innovate, the possession of monopoly power will not be found unlawful unless it is accompanied by an element of anticompetitive conduct.' ibid 414.

[53] 'Compelling such firms to share the source of their advantage is in some tension with the underlying purpose of antitrust law since it may lessen the incentive for the monopolist, the rival, or both to invest in those economically beneficial facilities.' ibid 415.

a market, while the second approach is primarily dependent on the essential facilities doctrine. In relation to the first approach, the Ninth Circuit Court in *Kodak II* held that although IPRs owners could make a presumption that a refusal to license was motivated by a desire to protect IPRs, the presumption can be rebutted as a pretext for concealing an attempt to monopolise.[54] Based upon this, the refusal to license was ruled to be a violation of antitrust law. However, the judgments in most other cases went in favour of IPRs owners, and concluded that a refusal to license through the normal exercise of IPRs would not violate antitrust law. Unless there is an indication of illegal tying or fraud in the Patent and Trade Mark Office or a sham litigation, 'the patent holder may enforce the statutory right to exclude others from making, using or selling the claimed invention free from liability under the antitrust laws'.[55] Therefore, the legality of refusals to license IPRs is typically dependant on the legality of the acquisition of the IPRs, and whether or not the exercise of the IPRs is combined with other anti-competitive conducts, such as price fixing or tying. A refusal to continue licensing IPRs to an existing customer without objective justification may also violate antitrust law.[56]

Regarding the application of the essential facilities doctrine, in 2004 the Supreme Court clearly indicated its great scepticism and reluctant attitude towards application of the doctrine and declared that it was only applicable applied in exceptional circumstances,[57] especially as it would generate a high degree of conflict with the core right of exclusivity embodied within IPRs.[58] However, the doctrine has not been outright denied by the court, which may allow some discretion for specific exceptions.

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[54] *Image Technical Service v Eastman Kodak* 125 F3d 1195, 1220 (9th Cir 1997).

[55] *CSU v Xerox* 203 F3d 1322, 1327 (Fed Cir 2000).

[56] Herbert Hovenkamp, 'Antitrust and the Patent System: A Reexamination' (2015) 76(3) Ohio St LJ 467, 553 (stating that 'a firm acting unilaterally has no general duty to deal with a rival, [n]evertheless, an unjustifiable or unexplained withdrawal from a previous cooperative agreement may have "evidentiary significance" entitling a jury to condemn the withdrawal.').

[57] *Verizon Communications v Trinko* 540 US 398, 411 (2004) (the Supreme Court held that it had 'never recognised such a doctrine'.).

[58] Some prominent antitrust scholars have argued to abolish the doctrine. Phillip Areeda, 'Essential Facilities: An Epithet in Need of Limiting Principles' (1989) 58 ALJ 841; Herbert Hovenkamp, *Federal Antitrust Policy: The Law of Competition and its Practice* (4th edn, West 2011) s 7.7 ('The so-called facility doctrine is one of the most troublesome, incoherent and unmanageable for Sherman §2 liability. The antitrust world would almost certainly be a better place if it were jettisoned'). Others favour the application of the doctrine only in rare cases. See Mark A Lemley, 'Antitrust and the Internet Standardisation Problem' (1996) 28 Conn L Rev 1041, 1085-86.

Case law indicates that the US courts have not applied the doctrine to refusals to license because the monopolistic position may encourage innovation and because of the consideration of the core right of exclusivity that is embodied within IPRs benefits consumers in the long run.

7.3 Refusals to License in EU Law

7.3.1 Overview of Refusals to Supply and to License in EU Law

Refusals to supply are regulated by Article 102 of the Treaty on the Functioning of the European Union in 2012 (TFEU) on the abuse of dominant position.[59] According to the Commission, refusals to license IPRs are included in refusals to supply,[60] thus the

[59] According to case law regarding refusals to supply, courts held that where the refusal of a dominant company drives an existing customer out of business on an ancillary market, due to the intention of the dominant company to vertically integrate into the ancillary market, it will be viewed as an abuse of dominant position under Article 102, unless there is objective cause. The abuse is an extreme form of discriminatory treatment that is placed as competitive disadvantage under Article 102(c). Joined Cases 6 and 7/73 *Commercial Solvents v Commission* [1974] ECR 223, [1974] 1 CMLR 309 (the court held that the plan of a company, that is dominant in the upstream raw material market, to enter the downstream market does not itself justify its refusal to continue to offer raw material to its long-standing customer, even though they would become competitors. This is because the refusal would restrict or eliminate competition by driving the customer, who was a manufacturer in the downstream market, from the market.) See also Case 311/84 *Centre Belge d' Etudes du Marché-Télémarketing v Compagnie Luxembourgeoise de Télédiffusion SA and Information Publicité Benelux SA* [1985] ECR 3261, [1986] 2 CMLR 558 (the court held that the refusal to supply by a dominant company may constitute an abuse of dominant position under competition law, if the company reserves to itself 'an ancillary activity which might be carried out by another undertaking as part of its activities on a neighbouring but separate market, with the possibility of eliminating all competition from such undertaking.').

[60] Communication from the Commission — Guidance on its Enforcement Priorities in Applying Article 82 of the EC Treaty to Abusive Exclusionary Conduct by Dominant Undertakings [2009] OJ C 45/02 (Guidance of Article 102), para 78. See also Joined Cases 6 and 7/73 *Commercial Solvents v Commission* [1974] ECR 223, [1974] 1 CMLR 309 (refusals to supply products to existing or new customers); *RTE v Commission* [1995] ECR 743, *IMS Health v NDC Health* [2004] ECR I-5039 (refusals to license IPRs); *Microsoft v Commission* [2007] ECR II-3601 (refusals to license necessary interface information); Case IV/34.689 *Sea Containers/Stena Sealink* [1994] OJ L15/8, [1995] 4 CMLR 84, Case IV/33.544 *British Midland/Aer Lingus* [1992] OJ L 96/34 (refusals to grant access to an essential facility or a network). There are still differing opinions regarding whether or not the exercise of intangible property rights, such as IPRs, should be treated in the same manner as 'refusals to supply'. Some scholars have stated that tangible and intangible property should be treated equally, as the key point is the character of the property, such as the indispensability, rather than whether or not it is tangible. Moreover, the distinct treatments for the two types of property do not have a legal basis, and may induce dominant undertakings to intentionally incorporate IPRs into essential facilities if intangible property will result in a more lenient scrutiny by competition law. Furthermore, if applying a compulsory licence to IPRs is easier than applying a compulsory deal to a physical facility, then it will be a more efficient way to achieve the objective of competition law. Cyril Ritter, 'Refusal to Deal and "Essential facilities": Does Intellectual Property Require Special Deference Compared to Tangible Property?' (2005) 28(3) W Comp 281, 291. However,

general principles for dealing with refusals to supply could also be applied to refusals to license IPRs, although courts may consider the characteristics of IPRs. The products refused may have been traded as well as potentially demanded, ultimately preventing new competitors from entering the market. The abusive conduct is not limited to actual refusals but includes constructive refusals that seriously affect the provision of products, such as unduly delaying or degrading the supply of the product, or imposing unreasonable conditions in return for supply.[61] A dominant company may adopt the measure of margin squeeze, i.e. charging a higher price in an upstream market so as not to allow an equally efficient competitor from trading profitably in the downstream market.[62] As with refusals to supply, this may result in the outcome of driving existing competitors out of the market or preventing new competitors from entering the market. The Commission considers three principles when defining abusive conduct: whether or not the products or services being refused are objectively necessary for competing in a downstream market; whether or not the refusal might eliminate effective competition in a downstream market; and whether or not the refusal could result in consumer harm.[63]

The judgment of *Volvo v Veng*[64] implies that conduct relating to IPRs-protected products in the primary market would not normally be viewed as abuse due to the respect held for IPRs. However, if the dominant position in the primary market was

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other opinions state that IP should be treated in a special manner, as an IPRs value is seriously damaged once it has been disclosed, and this discourages innovation. Abbott B Lipsky and J Gregory Sidak, 'Essential Facilities' (1995) 51(5) Stan L Rev 1188, 1218-19.

[61] Guidance of Article 102, para 79.

[62] ibid para 80.

[63] ibid para 81.

[64] Case 238/87 [1988] ECR 6211. Veng argued that Volvo's refusal to grant Veng a license to supply spare parts for Volvo cars constituted an abuse of domination under Article 102. The Court of Justice identified three markets: 'the market for cars, the market for Volvo spare parts and the market for repair and maintenance of Volvo cars'. Volvo was not dominant in the car market, but was in the spare parts market for Volvo front wing panels. Volvo had a dominant position in the primary market due to a design right, and the court continually held that this should be respected for the purpose of IPRs protection. A refusal to license cannot itself be viewed as an abuse of dominant position. However, Volvo could neither refuse to supply competitors in the secondary market: maintenance market, nor set an excessively high price to prevent the protected spare parts from being accessed in the secondary market. Moreover, the court gave three samples, but not an exhaustive list, of abuse of dominant position: 1) if the IPRs holder 'arbitrarily' refuses to offer spare parts to independent customers to provide a repair service; 2) if the fixed prices for spare parts are set at an unfair or excessively high level; 3) if it decides no longer to produce spare parts for a particular model, even though many cars of that model are still in use.

leveraged in a secondary market to exclude existing competitors or to impede the access of new entrants to that market, then such conduct could constitute abusive conduct, and accordingly, the compulsory supply or licence of an IPRs protected product can be imposed under Article 102. The court does not entirely exempt IPRs owners from competition law in a primary market where it holds a dominant position.[65] In *IBM v Commission,*[66] IBM delayed the disclosure of the interface information relating to the new IBM 375 mainframe computers, which created an artificial advantage for its own applications for the computers and impeded the ability of competitors to adapt their applications to the computers. IBM's conduct could thus be viewed as abusive under Article 102. This indicates that the refusal of a company, that holds a dominant position in a market where the relevant product is indispensible to the downstream market, may breach Article 102 if the refusal excludes or distorts competition in the downstream market.

7.3.2 Basic Conditions of the Essential Facilities Doctrine

The essential facilities doctrine imposes upon a dominant company an obligation to trade with its customers or competitors if it possesses an indispensable facility that makes it impossible or extremely difficult for an actual or potential competitor to compete with the dominant company without access to the facility.[67] The doctrine was initiated in the European Union (EU) in *Commercial Solvents v Commission,*[68] in which the European Court of Justice (ECJ) held that a company with a dominant

[65] For instance, the acquisition of a dominant company by another company in order to gain control over a potentially competing innovative technology may be considered to be an abusive conduct, because such conduct would foreclose access to the competing technology in that market. Case T-83/91 *Tetra Pak (Tetra Pak II) v Commission* [1994] ECR II-755, [1997] 4 CMLR 726. The regulation on excessive or unfair pricing in Article 102(a) TFEU can also be applied to the primary market.

[66] [1981]ECR 2639, [1984] 3CMLR 147.

[67] Ali A Massadeh, 'The Essential Facilities Doctrine Under Scrutiny: EU and US Perspective' (2011) UEA Law Working Paper No 2011-AM-1 <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1738326> accessed 2 May 2012. From the traditional legal point of view, a case of refusal to supply is different to an essential facilities case. Whilst the former refers to a dominant undertaking terminating a previous business relationship with a competitor, the latter involves a dominant undertaking refusing to allow a new competitor with whom it has no previous relationship to access an indispensable facility. Cyril Ritter, 'Refusal to Deal and "Essential Facilities": Does Intellectual Property Require Special Deference Compared to Tangible Property?' (2005) 28(3) W Comp 281, 282. In the thesis, the two types of case will be considered in the same way.

[68] *Commercial Solvents v Commission* [1974] ECR 223.

position in the raw material market risks eliminating all competition when it reserves the raw material to produce its own products but refuses to supply any other customers that has been provided the raw material for some time previously. As such, this constitutes an abuse of dominant position under Article 102 of the TFEU.[69] Later, the Commission implemented the doctrine to impose obligations on companies that owned natural infrastructure, such as ports, harbours, and tunnels, in order to prevent the companies from impeding competition in the downstream market.[70] For example, in *Sea Containers v Stena Sealink*,[71] the first case that explicitly mentioned the doctrine, the Commission stressed several elements that violated Article 102: dominant position; essential facility; non-objective justification; to supply in a discriminatory way or refusal to supply; a refusal that prevented the growth of competition.[72]

In *RTE v Commission*[73] (Magill), three TV companies in Britain and Ireland published weekly listings of their individual TV programmes that were protected by Irish copyright law. They refused to license their programme listings to Magill TV Guide Ltd so that it could publish a comprehensive weekly listings guide combining the TV programmes of all three companies. Magill complained to the Commission, alleging the abuse of dominant position. The Commission's decision went in favour of Magill,[74] and was ultimately confirmed by the ECJ.[75] The ECJ clarified that the exclusivity of IPRs does not necessarily grant dominance,[76] and that a refusal to license does not

[69] ibid [25].

[70] Case IV/34.174 *B&I/Sealink* [1992] 5 CMLR 255; Case COMP/IV/34.689 *Sea Containers/Stena Sealink* [1994] OJ L15/8; Case IV/31.900 *Port of Rodeby* [1994] OJ L 55/52, [1994] 5 CMLR 457; Case IV/ 32.490 *Eurotunnel* [1994] OJ L 354/66.

[71] Stena Sealink, the owner of the port of Holyhead, refused to grant access to the port to Sea Containers, who intended to introduce a high-speed catamaran ferry service from Holyhead to Ireland, because Stena Sealink feared it would be a new competitor for its existing ferry service on the same route. However, the port was the only port in the UK offering a service for Ireland in the market for the transport of passengers and cars on the central corridor route. *Sea Containers v Stena Sealink* (1994) OJ L15/8.

[72] This is the case when it 'occupies a dominant position in the provision of an essential facility and itself uses that facility (i.e. a facility or infrastructure without access to which competitors cannot provide services to their customers) and which refuses other companies access to that facility without objective justification or grants access to competitors only on terms less favourable than those which it gives to its own services, infringes [Article 102] if the other conditions for applying that Article are met.' ibid [15], [65]-[66].

[73] Joined Cases C-241/91P and C-242/91 *RTE v Commission* [1995] ECR I-743.

[74] Case 88/589 *Magill TV Guide/ITP, BBC&RTE* [1998] OJ L78/43, [1989] 4 CMLR 757.

[75] Joined Cases C-241 and 242/91P *RTE v Commission* [1995] ECR I-743.

[76] However, in this case, the Commission had proved the dominant positions of the three TV companies in the TV listings market. ibid [46], [47].

necessarily constitute abuse, although it could in exceptional circumstances.[77] The court stipulated three conditions under which a refusal to license constitutes the abuse of dominant position. Firstly, when a refusal to license prevents the emergence of new products. In this case, the refusal to license prevented the emergence of a comprehensive weekly TV programme listing, which was potentially demanded by consumers and was not provided by others.[78] Secondly, when a refusal to licence has no objective justification. Such justification for the refusal is neither available in the activity of TV broadcasting nor in that of publishing TV magazines, and the copyright itself cannot justify the refusal. Thirdly, when a refusal excludes competition. The licence was indispensable for Magill to enter the secondary market of the weekly TV guide. The TV companies made use of their *de facto* monopoly positions with regard to the essential facility in the primary market to reserve for themselves the secondary market by refusing the license, and thus restricting access to the secondary market. The refusal therefore excluded all competition in the secondary market.[79]

In *Tierce Ladbroke SA v Commission,*[80] the court affirmed the requirement of the appearance of new products and added a new condition of 'essentiality', i.e. that the company requiring the licence had no substantial or potential substitutes of the required supply for operating the business.[81] In *Oscar Bronner v Mediaprint,*[82] the court clearly confirmed the necessary conditions: 1) the refusal would eliminate all competition in the secondary market; 2) no objective justification; and 3) indispensability. However, the 'new product' was not mentioned, and this may be because it is not relevant to IPRs.

[77] ibid [49], [50].

[78] The refusal can be viewed as abusive under Article 102(b) - 'limiting production, markets or technical development to the prejudice of the consumer.' ibid [54].

[79] ibid [53]-[56].

[80] Case T-504/93 [1997] ECR II-923, [1997] 5 CMLR 309.

[81] Some believed that if either the 'new products' or 'essentiality' requirement was satisfied then the conduct would constitute abuse. In other words, that once deemed to be essential, no matter whether the product or service is for producing existing or new products or services, the refusal would constitute abuse. Estelle Derclaye, 'The IMS Health Decision and the Reconciliation of Copyright and Competition Law' (2004) 29(5) E L Rev 687, 690; Estelle Derclaye, 'The IMS Health Decision: A Triple Victory' (2004) 27(3) W Comp 397, 400.

[82] Case 7/97 [1998] ECR I-7791, [1999] 4 CMLR 112.

7.3.3 Confirmed but Relaxed Condition of 'New Products' — *IMS*

The conditions for applying the essential facilities doctrine to refusals to license were further developed in *IMS Health v NDC Health,*[83] despite being based on *Magill*.[84] IMS developed the '1860 brick structure,' protected by German copyright law, for tracking sales of pharmaceutical products in Germany. NDC, a competitor in the data sales market, was sued for infringing IMS's copyright by using a brick structure derived from the 1860 brick structure. The defendant stated that they had tried to develop other brick structures but most customers were not willing to pay the large cost of switching to a new brick structure. Further, most of their business had been set up on the basis of the 1860 brick structure, so they had no choice but to use the brick structure derived from it. The brick structure became a substantial market standard. The German court referred questions to the ECJ, namely whether the refusal of a dominant undertaking to license the use of a database protected by copyright to an undertaking targeting the same geographical and product market, in which customers refused to accept any new product, would fall within the scope of Article 102.[85] The ECJ decided that the refusal to license constituted an abuse of dominant position on the grounds of three main elements: appearance of new products, absence of objective presumption, and elimination of competition.[86] This reaffirmed the three elements set out in *Magill*.

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[83] Case C-418/01 [2004] ECR I-5039, [2004] 4 CMLR 1453.

[84] IMS alleged that the three conditions, including the appearance of new products mentioned in *Magill*, were necessary. In this case, NDC's product was based on the 1860 brick structure, and so would have been almost the same as IMS's product. This did not qualify as a 'new product,' and so the refusal did not constitute an abuse of dominant position. NDC argued that they would provide new products. The Commission stated that the conditions in *Magill* were selective rather than necessary, the 1860 brick structure was indispensable to enter the market, and that the refusal may have eliminated competition in the secondary market, and so an abuse of dominant position was being committed. ibid [27]-[31].

[85] ibid [7]-[10].

[86] '[T]he refusal by an undertaking which holds a dominant position and owns an intellectual property right in a brick structure indispensable to the presentation of regional sales data on pharmaceutical products in a Member State to grant a licence to use that structure to another undertaking which also wishes to provide such data in the same Member State constitutes an abuse of a dominant position within the meaning of [Article 102 TEFU] where the following conditions are fulfilled:

—the undertaking which requested the licence intends to offer, on the market for the supply of the data in question, new products or services not offered by the owner of the intellectual property right and for which there is a potential consumer demand;

—the refusal is not justified by objective considerations;

Firstly, the appearance of new products coincides with the innovation embodied in IPRs. IPRs grant an exclusive right to innovators to promote an incentive for innovation, even avoiding competition to some extent. Therefore, the mere promotion of static competition[87] does not necessarily justify a compulsory licence.[88] However, if the exercise of IPRs prevents further innovation stemming from competition, the intervention may facilitate dynamic competition, which is consistent with the aim of IPRs, as well as promoting static competition.[89] *Magill* provides a comparative approach for identifying new products, namely whether the blocked product was sufficiently differentiable from the existing product in the market; the blocked weekly TV guides were easily identified as being different from the pre-existing guides of each TV company and as being 'new'. However, it was unclear how new the 'new products' were required to be. In *IMS,* the copyrighted '1860 brick structure' formed a *de facto* industry standard[90] as potential clients would 'reject any product which does not make use of the databank protected by copyright,'[91] and so the NDC had to imitate it to enter the market. Does the partial imitation embodied within the product deny it the status of 'new product'? The court did not clarify this matter, but did state that a refusal to license IPRs would constitute an abuse of dominant position when the company requesting the licence,

> 'does not intend to limit itself *essentially* to duplicating the goods or services already offered on the secondary market by the owner of the intellectual property

—the refusal is such as to reserve to the owner of the intellectual property right the market for the supply of data on sales of pharmaceutical products in the Member State concerned by eliminating all competition on that market." ibid [52].

[87] For more details regarding the economic perspective of competition law and IPRs, see Section 2.2 of Chapter 2 of the thesis.

[88] Giorgio Monti, *EC Competition Law* (Cambridge University Press 2007) 229.

[89] Philip Lowe and Lucas Peeperkorn, 'Intellectual Property: How Special is its Competition Case?' in Claus-Dieter Ehlermann and Isabela Atanasiu (eds), *European Competition Law Annual 2005: The Relationship between Competition Law and Intellectual Property Law* (Hart Publishing 2007) 653. See also Steven Anderman and Hedvig Schmidt, *EU Competition Law and Intellectual Property Rights: The Regulation of Innovation* (2nd edn, Oxford University Press 2011) 109 (stating that the 'exceptional circumstance' test to deal with refusals to licence can be seen as offering in its own right a reconciliation between competition law and IPRs based on their mutual interest in innovation by stressing that the "exceptional circumstances" for a compulsory licence for new entrants to a market is limited only to cases of new products or 'follow up' innovation and not 'me too' competition.)

[90] [2004] ECR I-5039, [2004] 4 CMLR 1453 [6].

[91] ibid [17].

right, but intends to produce new goods or services not offered by the owner of the right and for which there is a potential consumer demand.'[92]

The word 'essentially' indicates that partial imitation is likely to amount to the required newness, but only if the product is not a complete imitation;[93] thus, it provides a flexible definition for 'new products'. Therefore, the NDC service that was derived from the copyrighted block structure can be identified as a new product for application of the compulsory licence. This demonstrates the relaxed interpretation of the term 'new products'.

Secondly, whilst objective justification has not been clearly identified, it should vary with the circumstances of individual cases.[94] Thirdly, the court affirmed the requirement, provided in *Oscar Bronner*, which 'distinguish[es] an upstream market ... and a downstream market'[95] and for the requirement to be 'sufficient that a potential market or even hypothetical market can be identified'.[96] It was proven that the competition in the downstream market was eliminated, owing to the refusal to license.[97]

7.3.4 Some Change of Conditions for Applying the Essential Facilities Doctrine — *Microsoft*

[92] Case C-418/01 *IMS Health v NDC Health* [2004] ECR I-5039, [2004] 4 CMLR 1453 [49].

[93] Rita Coco, 'Antitrust Liability for Refusal to License Intellectual Property: A Comparative Analysis and the International Setting' (2008) 12(1) Marq Intell Prop L Rev 1, 16.

[94] Steven Anderman and Hedvig Schmidt, *EU Competition Law and Intellectual Property Rights: The Regulation of Innovation* (2nd edn, Oxford University Press 2011) 104 (stating that 'the mere possession of the IPR is not an objective justification for exclusionary conduct' and there should be 'some other objective justifying factor such as poor creditworthiness, safety, etc.').

[95] Case C-418/01 *IMS Health v NDC Health* [2004] ECR I-5039, [2004] 4 CMLR 1453 [42].

[96] ibid [44], [45]. The court in IMS mentioned that 'in order for the refusal ... to be treated as abusive, it is sufficient that three cumulative conditions be satisfied, namely, the refusal is preventing the emergence of a new product for which there is a potential consumer demand, that is unjustifiable and such as to exclude any competition on a second market'. Case C-418/01 *IMS Health v NDC Health* [2004] ECR I-5039, [2004] 4 CMLR 1453, [58].

[97] The division of the separate markets may help to demonstrate the leverage of the dominant undertaking from the upstream market to the downstream market. However, the court neither gave any exact interpretation on how to define the two markets criterion nor showed how to apply it in practice.

In *Microsoft v Commission,*[98] Sun Microsystems complained to the Commission that Microsoft had abused its dominant position by refusing to disclose information pertaining to interface codes on which other work group server operating systems (WGSOSs) relied upon in order to interact with Microsoft's Personal Computer (PC) operating systems. Following a five-year investigation, the Commission made a decision[99] that Microsoft had broken EU competition law by leveraging its near monopoly[100] in the PC operating system market to the markets of WGSOSs and media players.[101] It required Microsoft to disclose the interoperability information to competitors, and to offer a version of the Windows operating system without Windows Media Player. In March 2004 the Commission issued Microsoft with a fine of EUR 497 million (GBP 387.66 million).[102] The decision has created much debate. Two criticisms are that the criterion of 'new products' has not been fulfilled, and that the decision would impede innovation and competition.[103] However, the General Court (GC) upheld the decision in 2007.[104]

According to the Commission, the refusal of Microsoft could breach Article 102 in exceptional circumstances.[105] The exceptional circumstances outlined in the *Magill*

[98] Case T-201/04 [2007] ECR II-3601, [2007] 5 CMLR 11.

[99] Case COMP/C-3/37.792 [2005] 4 CMLR 965.

[100] Microsoft's operating system acquired a market share of more than 95% of the world's personal computers. European Commission, 'Commission Concludes on Microsoft Investigation, Imposes Conduct Remedies and a Fine (IP/04/382)' (*European Commission*, 24 March 2004) <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/04/382&format=HTML&aged=1&language=EN&guiLanguage=en> accessed 1 July 2012.

[101] The Commission not only dealt with the refusal to disclose interoperability information in this case, but also the matter of bundling by Microsoft's incorporation of its Windows Media Player software in its PC operating system products. However, this thesis focuses only on the former.

[102] Commission, 'Commission Concludes on Microsoft Investigation, Imposes Conduct Remedies and a Fine (IP/04/382)' (*European Commission*, 2004) <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/04/382&format=HTML&aged=1&language=EN&guiLanguage=en> accessed 1st July 2012.

[103] David S Evans and A Jorge Padilla, 'Tying under Article 82 EC and the Microsoft Decision: A Comment on Dolmans and Graf' (2004) 27(4) W Comp 503, 505-10. See also David Ellis, 'Microsoft is Dealt a Severe Blow by EU' (*CNN*, 17 September 2007) <http://money.cnn.com/2007/09/17/news/international/microsoft_ruling/?postversion=2007091712> accessed 16 August 2013.

[104] Case T-201/04 *Microsoft v Commission* [2007] ECR II-3601, [2007] 5 CMLR 11.

[105] The Commission recognised that disclosing information may restrict the exercise of IPRs by Microsoft, and as per *Magill*, the refusal to license IPRs by a dominant undertaking cannot itself constitute an abuse of dominant position. COMP/C3/37.792 *Microsoft* [2005] 4 CMLR 965 [546], [550].

case were not exhaustive so the Commission would not be limited to the list.[106] Rather, the Commission could take account of all the circumstances of the case in question and then make a decision.[107] Therefore, the exceptional circumstances in previous case law were sufficient but not necessary, and the GC confirmed this opinion.[108] The bold interpretation of case law with regard to the scope of application of Article 102 demonstrates that the EU has applied a novel, flexible approach to cases relating to the abuse of dominant position.

The Commission and the GC examined whether the competitors' operating systems needed to access Windows domain architecture, to which the interoperability information was indispensable, in order to remain viable on the market.[109] However, Microsoft argued that the indispensability defined by the Commission with economic viability had not been applied by the Community courts, and that other substituted methods were available to achieve the interoperability, and so Microsoft's interoperability information did not amount to indispensable information.[110] The GC held that the substituted methods were inefficient, merely allowing competitors to achieve *de minimis* competition in the market, which was insufficient to ensure effective market structure or to put necessary competitive pressure on the dominant undertaking.[111] The assessment of indispensability had been developed only by identification of whether or not alternatives were available, in order to evaluate the value of the alternatives and the competitive power they could bring to the market, as well as the degree of pressure they could place on the dominant undertaking.

[106] The Commission stated that '[o]n a general note, there is no persuasiveness to an approach that would advocate the existence of an exhaustive checklist of exceptional circumstances and would have the Commission disregard a limited other circumstances of an exceptional character that may deserve to be taken into account when assessing a refusal to supply.' ibid [555].

[107] ibid [558].

[108] Case T-201/04 *Microsoft v Commission* [2007] ECR II-3601, [2007] 5 CMLR 11 [316], [332].

[109] The Commission adopted a two-stage approach in determining whether the information at issue was indispensable. It first examined the degree of interoperability with the Windows domain architecture that the work group server operating systems supplied by Microsoft's competitors must achieve in order for those competitors to be able to viably remain on the market. It then proceeded to determine whether the interoperability information, to which Microsoft refused access, was indispensable to the attainment of that degree of interoperability. ibid [207].

[110] ibid [114].

[111] ibid [355].

Microsoft complained that the Commission had wrongly defined a downstream market where it held a dominant position. The GC disagreed and stated that Microsoft leveraged 'its quasi-monopoly on the client PC operating systems market to influence the work group server operating systems market,' and said that even if the Commission had incorrectly considered the dominant position in the second market, 'that would not therefore of itself suffice to support a finding' that the conclusion of the abuse of a dominant position by Microsoft was wrong.[112] This implies that dominance on a downstream market is not a necessary condition to fulfil the requirement of eliminating competition in a downstream market. The GC further stated that '[Article 102 of the TFEU] does not apply only from the time when there is no more, or practically no more, competition on the market'[113] as it may be too late to reverse the damage at that time. The existence of competitors who retain a marginal presence in certain niches in the downstream market is not a sufficient defence to the condition of elimination of competition.[114] Provided that a dominant company has been found to be dominant also in the downstream market, this suggests an absence of effective competition in the downstream market, and there is no requirement to prove that the remaining competition has been eliminated in order to apply Article 102. However, the dominance on the downstream market is not necessarily established, because the identification of a dominant position normally requires a sufficient period of time, and the authority are required to intervene in a timely manner when a refusal has an immediate negative effect on the downstream market. This shows that the GC adopted a more lax standard, namely the elimination of effective competition, rather than stricter standards such as the elimination of all competition and the existence of dominance in the downstream market.

The Commission continued by stating that Microsoft's refusal to disclose interoperability information to competitors had prevented the development of compatible WGSOSs.[115] The Commission agreed that if the product contained substantial elements stemming from the licensee then it could qualify as a new

[112] ibid [559].
[113] ibid [561].
[114] ibid [563].
[115] COMP/C3/37.792 *Microsoft* [2005] 4 CMLR 965.

product.[116] The GC affirmed the opinion of the Commission and suggested that the parameters for defining the emergence of a new product should not be limited to the circumstances envisaged in *Magill* and *IMS*, especially as Article 102(b) states that the circumstances should include technology development as well as new production and market.[117] In this case, Microsoft's refusal to disclose interoperability information prevented competitors in the downstream market using different technologies, some of which may have been more advanced, from developing better technologies, thus depriving consumers of the chance to enjoy better potential technologies.[118]

In terms of the criterion of objective justification, the GC stated that the ownership of IPRs could not in itself justify refusals to license because, logically, the exceptional circumstances established by case law were made on the basis of recognition of IPRs.[119] The fact that it was secret technology would not in itself require stricter protection.[120] In addition to this, Microsoft failed to prove that the disclosure of the information would have a negative impact on its incentive for innovation, since the licensees were not seeking to clone Microsoft's products.[121]

In addition to the above conditions, other circumstances were considered. A disruption of previous supply levels of interoperability information was stressed, due to the fact that Microsoft had been disclosing the interoperability information for other companies, such as UNIX vendors and Novell, which were initial developers with success in distinct advanced technology. Based on this, customers had built

[116] ibid.

[117] Case T-201/04 *Microsoft v Commission* [2007] ECR II-3601, [2007] 5 CMLR 11 [647], [648]. See also Case C-418/01 *IMS Health v NDC Health* [2004] ECR I-5039, [2004] 4 CMLR 1453 [107] (the ECJ said that the facts of *Magill* were 'sufficient' to meet the exceptional circumstance test, implying they were not 'necessary' and that other circumstances were available); Mauro Squitieri, 'Refusals to License under European Union Competition Law after Microsoft' (2012) 11 J Int'l Bus & L 65, 81-82 (stating that '[t]he adjective "new," in fact, is to be intended in terms of innovative technology [in *Microsoft*] rather than in terms of a novel product [in *Magill* and *IMS*]' and this is an appropriate development on the criterion to refusal to license in EU case laws.).

[118] ibid *Microsoft v Commission* [79] (the Solaris workgroup servers provided better functions, such as the reliability and availability of the network and security, than Microsoft workgroup servers offered.). See also Steven Anderman and Hedvig Schmidt, *EU Competition Law and Intellectual Property Rights: The Regulation of Innovation* (2nd edn, Oxford University Press 2011) 113.

[119] Case T-201/04 *Microsoft v Commission* [2007] ECR II-3601, [2007] 5 CMLR 11 [690].

[120] ibid [694].

[121] ibid [698].

Work-group networks containing non-Microsoft work group servers in the area, but Microsoft had tried to prevent the disclosure of interoperability information with Windows 2000 as Microsoft had successfully entered the work group server market by that time.[122] Although the disruption of previous supply was not regarded as a crucial criterion in the tests of *Magill* or *IMS*, it was recognised in *Commercial Solvents*[123] by the ECJ, and this reflected the marked change in strategy of the undertaking in question. Moreover, it would be helpful in analysing the intention of the undertaking.[124] The Commission went on to explain that the disruption to previous supply levels of interoperability could have resulted in the elimination of competition in the Work-group server market, as it demonstrated that Microsoft's market share in the work group server market had risen, alongside a consistent reduction in competitors over the previous few years.[125]

7.3.5 Conclusion

In terms of justification due to IPRs, US law primarily recognises that there is presumptive justification, unless the acquisition of the IPRs is illegal, or the refusal to license is done with illegal tying or sham litigation. EU law also confirms that a crucial function of the exclusive rights is to decide whether or not to grant a licence, although there are some exceptional circumstances.[126] As to the essential facilities doctrine, the US Supreme Court has been reluctant to recognise the application of the doctrine to cases regarding refusals to license, although local courts have applied it in some cases. This illustrates that greater emphasis has been placed on the promotion of the incentive of IPRs owners to invest in R&D, than has been placed on competition in the market. In other words, the dynamic efficiency stemming from innovation that is

[122] ibid [587], [588].

[123] *Commercial Solvents v Commission* [1974] ECR 223.

[124] Steven Anderman and Hedvig Schmidt, *EU Competition Law and Intellectual Property Rights: The Regulation of Innovation* (2nd edn, Oxford University Press 2011) 112-13 (stating that the discontinuation of a license for the interface information indicated the Microsoft did not chose to 'compete on the merits' on the basis of quality and price, etc. but to exclude competitors by refusal to license.).

[125] COMP/C3/37.792 *Microsoft* [2005] 4 CMLR 965 [590]-[612].

[126] The three types are: 1. if the intellectual property right holder 'arbitrarily' refuses to offer spare parts to independent customers to provide a repair service; 2. if the fixed prices for spare parts are set at an unfair or excessively high level; 3. if it decides no longer to produce spare parts for a particular model although many cars of that model are still in use. *Volvo v Veng* [1988] ECR 6211 [9].

embodied within the IPRs system is more favourable than the static efficiency resulting from competition that is incorporated within US competition law. Technically speaking, such an attitude may neglect to consider the possibility of a situation in which monopolisation in an IPRs-related market, which lacks competition from substitutions, may lead to the monopolist reducing the investment or being reluctant to innovate. The monopolisation may over-compensate for the investment of the right owner and consumers may be deprived from enjoying the benefits that result from competition, thus harming consumer welfare.[127] Another fact that should not be ignored is that the US, by comparison with other countries, acquires a large quantity of relatively advanced technologies that can be licensed abroad. From the perspective of the country's self-interest, it may be a reason for their partiality for IPRs owners rather than licensees. The essential facilities doctrine that is embodied within the 'exceptional circumstance' formula can justify a compulsory licence in limited cases in EU law.[128] This indicates that EU law recognises that a significant function of competition law is to restrict the exclusivity of IPRs through certain conditions as a way of creating more benefits, both for innovation and consumer welfare.

Both US law and EU law emphasise monopoly or dominant position, the indispensability of the facilities and the basic requirement for two different markets, and the exclusion of competition. US law requires the two parties to be existing competitors in the same downstream market, so that one party intends to exclude the other party from the market. However, EU law requires the likely elimination of competition in the secondary market, regardless of whether or not the two parties are existing or potential competitors in the same market.[129] US law does not properly

[127] In some cases, the right owner would have already made the investment before knowing they would have to share the innovation. Also, the compulsory sharing of IPRs could be deemed as an attempt to correct an 'anomalous' situation that is beyond the rationale of the IPRs. Beatriz Conde Gallego, 'Unilateral Refusal to License Indispensable Intellectual Property Rights — US and EU Approaches' in Josef Drexl (ed), *Research Handbook on Intellectual Property and Competition Law* (Edward Elgar 2008) 238.

[128] Mauro Squitieri, 'Refusals to License under European Union Competition Law after Microsoft' (2012) 11 J Int'l Bus & L 65, 83.

[129] COMP/C3/37.792 *Microsoft* [2005] 4 CMLR 965 [555] (The Commission noted that: 'There is no reason why a refusal to supply an undertaking that has an interest in entering the market should be treated differently to a refusal to supply a company that is already present in the market. In *Magill*, for

consider potential consumer demand for new products when the IPRs owner does not act in the downstream market, which implies that its main focus is on competition rather than on consumer welfare. By contrast, EU law is more concerned with consumer welfare. This is evident in *Microsoft,* where the risk and possibility of competition elimination to be considered included the elimination of effective competition rather than complete elimination. The 'newness' may be partly new rather than completely new, and would not be limited to the appearance of a 'new product', but could be a technical development that may bring new benefits to consumers. In addition, US law does not stress the appearance of new products, which is a typical condition to balance the value in both the IPRs regime and the competition mechanism, while EU law considers it a necessary condition of intervention, suggesting that the threshold for constituting the condition has been relaxed.

7.4 Proposals for China

7.4.1 Background of China's Technology Transfer Refusals

Several cases or events regarding refusals to transfer technology have occurred in China, and these have highlighted a number of characteristics. Refusals occur within technology standards, possibly involving more than two parties, and can severely affect the competition in an entire industry, rather than one or two individual companies.[130] Examples include the great influence of DVD standards on the Chinese DVD industry,[131] and the strong likelihood of refusals to license in *Huawei v InterDigital.*[132] In order to deal with this issue, China has started developing its own

instance, the company to which supply was refused was not competing in the market that was being monopolised – precisely because such supply has been refused.').

[130] The adverse effects are so great that the manufacturers may have no opportunity to get involved in new development, and the consumer may have to face the much higher price for products in China.

[131] See Section 3.2.1 of Chapter 3 of this thesis.

[132] (2011) Shenzhen of Guangdong Intermediate People's Court No 858/2011 ((2011) 深中法知民初字第 858 号 (2011) Shen Zhong Fa Zhi Min Chu Zi Di 858 Hao), aff'd, (2013) Guangdong High People's Court No 306/2013 ((2013) 粤高法民三终字第 306 号 (2013) Yue Gao Fa Min San Zhong Zi 306 Hao). In this case, Huawei's allegation of InterDigital's refusals to license was dismissed by the court, due to the fact that InterDigital had engaged in a process to negotiate the price, mainly with Huawei in regard to the licence. However, the excessively high price offered by the technology owner could be either to gain a monopolising benefit, normally when the owner is merely acting on the market of licensing IPRs, or to

technology standards since the 1990s.[133] However, this is still very difficult for China to achieve due to its relatively lower level of advanced technology.[134]

Another way to solve this problem would be to use competition law to regulate the refusals to license. China could require the technology standards to be licensed under fair conditions so as to avoid Chinese companies being excluded from the international technological scope and to allow them to catch up with technological developments. Technology standards may affect the development of an industry. Therefore, it could be expected that the regulation of competition law on refusals to license technology standards in China would be relatively stricter than other refusals to license under the framework of international treaties and conventions.

Refusals to license also occur in individual cases, mainly relating to refusals to license by a certain company and only involving the company's products; for example, in *TSUM v Sony,*[135] where only Sony's products were involved, or cases in which a company may have a dominant position in the relevant market with some substitutes

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aim to exclude competitors from the downstream market of products incorporating the IPRs, shamed by offering an excessive price that has been anticipated not to be accepted by the licensee. In other words, the technology owner refuses to license in an indirect way, especially when the IPRs owner also acts in the downstream market to compete with the licensee. For a more detailed analysis of price discrimination in this case, see Section 6.3.4.5 of Chapter 6 of this thesis.

[133] China develops technology standards in order to improve its indigenous innovation, free China from being reliant on and paying for foreign technology standards, to earn revenue, and to extend its overseas market. See Dieter Ernst, *Indigenous Innovation and Globalisation: the Challenge for China's Standardisation Strategy* (East-West Centre 2011) 19-25; Greg Linden, 'China Standard Time: A Study in Strategic Industrial Policy' (2004) 6 (3) Bus and Politics 1, 3-5.

[134] Even if China were to establish competitive technology standards after much time and large investment, relevant manufacturers may refuse to accept the standards. If the manufacturers' products have a dominant position in the Chinese market, then such a refusal may lead to the impossibility of implementing the technology standards. This is because those products would not satisfy the requirements of the technology standards: most consumers could not substantially use the products, the consumer demand would not be satisfied, and the consumer welfare would be harmed. For example, Intel and other manufacturers refused to accept China's new technology standard of WAPI for wireless LANs. See Section 3.2.1 of Chapter 3 of this thesis.

[135] (2004) Shanghai No 1 Intermediate People's Court No 223/2004 ((2004) 沪一中民五(知)初字第 223 号 (2004) Hu Yi Zhong Min Wu (Zhi) Chu Zi Di 223 Hao) (Sony was accused of violating competition law because it used a digital key that could alarm consumers if they used non-Sony batteries in Sony's digital cameras and camcorders, thus preventing the use of batteries made by other manufacturers such as TSUM. Provided that TSUM requests that Sony licenses the technology so that the batteries made by TSUM would work properly with Sony's digital products, and Sony refuses to license, TSUM may allege the refusal to be a violation of competition law in China.) For a more detailed introduction of the case, see Section 3.2.2 of Chapter 3 of this thesis. For a more detailed analysis of tying in this case, see Section 6.5.4.4 of Chapter 6 of this thesis.

acquiring a relatively small share. In such cases, the initial examinations should focus on the identification of dominant position and then on the conduct of the refusal itself. Even if the involved technology are not pooled or identified as an industrial standard by relevant associations, the refusal to license the technology may still affect the development and competition of an entire industry,[136] or even impact the acceptance of a new technology standard within an industry in China.[137] Therefore the refusals to license should be suspected seriously. It would also be necessary to observe any severe anti-competitive effects that may result from refusals to license by foreign companies, or by companies located in China but invested in or supported by foreign companies, and the extent of the harm on consumers. Finally, objective justification should be considered.

Advanced technology owners from developed countries come to China to make use of low labour costs and preferential policies, and to explore the large market offered by more than 1.3 billion people. In return, China expects to import advanced technologies.[138] However, foreign companies are aware of the importance of technological advantages in competition, and so have been claiming high standards of protection for IPRs and also using such protection as a competitive strategy. This is contrary to China's aim of gaining more advanced technologies. The upshot is that advanced technology owners are reluctant to grant licences to Chinese companies, and Chinese companies go to great lengths to acquire these technologies, even by counterfeit. Due to its involvement in a series of international negotiations and its

[136] Case T-201/04 *Microsoft v Commission* [2007] ECR II-3601, [2007] 5 CMLR 11 (if Microsoft refused to disclose the interoperability information for its Windows operating system, then other companies could not enter the relevant downstream market, in which software provided had to be compatible with the Windows operating system that was dominant position in the operating system market); C-418/01 *IMS Health v NDC Health Case* [2004] ECR I-5039, [2004] 4 CMLR 1453 (As a result of customers refusing to accept a new brick structure for data collection due to the costs of switching from the existing copyrighted structure to a new structure, were a request for licensing the existing copyrighted structure refused, other competitors would be unable to enter the market); Joined Cases C-241/91P and C-242/91 *RTE v Commission* [1995] ECR I-743 (the copyrighted weekly TV programme listing owned separately by three TV companies would have impeded the appearance of a comprehensive weekly listing guide that combined all programmes of the three companies, had they refused to license the copyrights).

[137] When Intel and other manufacturers refused to accept China's new technology standard of WAPI for wireless LANs. See Section 3.2.1 of Chapter 3 of this thesis.

[138] This is a primary goal of implementing the Reform and Opening-Up Policy in China. Clem Tisdell, 'Economic Reform and Openness in China: China's Development Policies in the Last 30 Years' (2009) 39(2) Econ Anal & Pol'y 271, 285 (discussing the background and implementation of the Reform and Opening-Up policy over the last thirty years).

membership of international IPRs-related communities, China has improved the implementation IPRs protection, as well as improved relevant legislation under which foreign companies have applied for and gained a large percentage of IPRs in China to legally consolidate their technological advantages. Such an application of competition law to regulate anti-competitive refusals to license conducted by international technological multinationals satisfies Chinese interests, improves technological levels in China, and creates a more competitive Chinese market.

7.4.2 Current Legislation and Relevant Provisions in Some Drafts

Compared with other restrictions on licences, refusals to license have not received much attention in the past from China as a refusal was deemed to be a most basic method of indicating the freedom of a company in a market economy. Therefore, refusals to supply and license have not featured prominently in relevant laws and regulations in China.[139] The exception to this is a provision that provides a general ground for compulsory licensing of a patent, based on a monopoly act and relevant adverse effects, which was included in the Patent Law of China in 2009.[140] This provision not only addresses refusals to license, but also addresses all other anti-competitive conducts that may lead to an inability to conclude a licence, providing a logical and reasonable basis for possible regulation by the Anti-Monopoly Law of China[141] (AML).[142] The provision is very simple, and so its application is not very clear. However, at the very least it implies that a proper compulsory licence in accordance with the AML will not be regarded as a violation of patent law.

[139] There are some provisions regulating foreign related joint ventures in China that display a certain attitude towards the compulsory licensing of technologies *ex ante*. For example, it is required that importing technology agreements, concluded by Chinese-foreign joint ventures based in China with a foreign shareholder or with third parties, do not contain provisions in which the licensing term should not exceed ten years; and is also required that the joint-venture is entitled to exploiting the licensed technology after the agreement expires. Regulations on the Implementation of Law of China on Chinese-Foreign Equity Joint Ventures 2011, art 43.

[140] The patent can be compulsorily licensed if '[...] 4) the exercise of the patent has been determined as an act of monopoly, and for the purpose of eliminating or reducing the adverse effect on competition resulting from [the refusal].' Patent Law of China 2009, art 48 (2).

[141] The Anti-Monopoly Law of China was passed by the Standing Committee of the 10th National People's Congress on 30 August 2007 and came into effect on 1 August 2008. An unofficial English version is provided in Appendix 1.

[142] For more details, see Section 5.4 of Chapter 5 of this thesis.

The AML stipulates that abuse of dominant position to refuse to trade with the counterparty without justifiable cause will be in violation of the AML.[143] The Rules on the Prohibition of Abuse of Intellectual Property Rights for the Purposes of Eliminating or Restricting Competition[144] (Rules) that came into force in 2015, as well as some recent drafts, provide some detailed guidance on refusals to license IPRs.[145] Above all, the drafts confirm that refusals to license are one of the ways that owners exploit IPRs, the anti-monopoly enforcement authorities (AMEAs) therefore will not

[143] AML, art 17(3). According to the AML, the refusal can take various forms, such as a reduction of the existing transaction quantity; the delay or termination of existing transactions; refusals to enter into new transactions; transactions not continuing due to the imposition of some restrictions; and refusals to make transactions of essential facilities with reasonable conditions. Regulations of the Administration for Industry and Commerce concerning Prohibition of Abuse of Dominant Market Position, art 4 (the first four provisions define the forms of refusal, and the final provision regarding essential facilities amounts to another primary approach for refusals to deal.) The 'reasonable condition' could be understood as a reasonable consideration, or reasonable restrictions imposed on the licence.

[144] 关于禁止滥用知识产权排除、限制竞争行为的规定 Guanyu Jingzhi Lanyong Zhishi Chanquan Paichu、Xianzhi Jingzheng Xingwei De Guiding. The Rules were promulgated on 7th April 2015 by the State Administration of Industry and Commerce of China (SAIC) and came into force on 1st August 2015. SAIC, 'Rules (official Chinese version)' (*SAIC*, 7 April 2015) <http://www.saic.gov.cn/zwgk/zyfb/zjl/fld/201504/t20150413_155103.html> accessed 10 April 2015. An unofficial English version of the Rules is provided in Appendix 2.

[145] There are four Anti-Monopoly Enforcement Authories (AMEAs) under the State Council in China. The Ministry of Commerce (MOC) is responsible for anti-monopoly review regarding concentrations; the National Development and Reform Commission (NDRC) focuses on tackling price-related monopoly issues; the State Administration of Industry and Commerce (SAIC) deals with other non-price-related and non-concentration-related issues; and the Anti-Monopoly Commission (AMC) coordinates the anti-monopoly work of these authories. For more details about AMEAs, see Section 4.3.3 of Chapter 4 of this thesis. In 2015, the AMC tasked the State Intellectual Property Office (SIPO) and the other three AMEAs with drafting the respective guidelines, following which the Commission would revise, adjust and integrate these guidelines into a single uniform set of guidelines. The 5th draft of the Guidelines on Enforcing the Anti-Monopoly Law with Respect to Intellectual Property Rights (5th Guidelines) was published by the SAIC in 2012. The 7th draft of these guidelines (7th Guidelines) was updated in 2016. In addition, the NDRC drafted the Guidelines on Anti-Monopoly with Respect to Abuse of Intellectual Property Rights (draft for comments) (NDRC Guidelines) at the end of 2015. SAIC Task Force (draft), American Bar Association (trans), 'The 5th Draft of Guidelines on Enforcing the Anti-Monopoly Law with Respect to Intellectual Property Rights (关于知识产权领域反垄断执法的指南 Guanyu Zhishi Chanquan Lingyu Fan Longduan Zhifa De Zhinan),' both Chinese and English version (*American Bar Association*, 2012) <http://www.americanbar.org/content/dam/aba/uncategorized/international_law/aba_china_aml_ip_guidelines_comments_finalpackage.authcheckdam.pdf> accessed on 5 October 2015. SAIC, 'Guidelines on Enforcing the Anti-Monopoly Law with Respect to Abuse of Intellectual Property Rights (7th draft of SAIC) (关于滥用知识产权的反垄断执法指南 (国家工商总局第七稿) Guanyu Lanyong Zhishi Chanquan De Fan Longduan Zhifa Zhinan (Guojia Gongshang Zongju Diqi Gao)),' (*SAIC*, 4 February 2016) <http://www.saic.gov.cn/fldyfbzdjz/gzdt/201602/t20160204_166524.html...> accessed 28 March 2016. NDRC, 'Guidelines on Anti-Monopoly with Respect to Abuse of Intellectual Property Rights (draft for comments) (关于滥用知识产权的反垄断指南 (征求意见稿) Guanyu Lanyong Zhishi Chanquan De Fan Longduan Zhinan (Zhengqiu Yijian Gao)),' (NDRC, 31 December 2015) <http://jjs.ndrc.gov.cn/fjgld/201512/t20151231_770233.html> accessed 2 February 2016.

normally oblige IPRs owners to license IPRs to others.[146] This view builds a base of respecting IPRs that there will be no intervention in the choice of how to exploit IPRs, and refusals to license IPRs are permissible in general, and implies that AML will only be applied to refusals to license IPRs in exceptional cases.

The Rules and the drafts then offer some factors that should be considered in determining the legitimacy of refusals to license by a dominant business operator that has no justifiable cause and may exclude and restrict competition. There are some factors that have been generally agreed: 1) whether the IPRs can be substituted properly in the relevant market, and are essential for other business operators to access the relevant market; 2) whether the refusals will have adverse effects on competition or innovation in the relevant market, and damage consumer welfare or the public interest.[147] Some also take into consideration whether the licence will damage IPRs owners unreasonably;[148] while one draft advises assessing the commitment of licensing IPRs, the will and ability of the refused party to pay a reasonable licensing fee, the necessary quality and technology to ensure the proper use of the IPRs or the safety or function of relevant products, any adverse effects on the public interest, such as saving energy and protecting the environment, resulting from exploitation of IPRs by the refused party.[149] Another draft considers whether the refused licensee lacks of willness and ability to pay the reasonable licensing fee, the effects of refusal of licence on the innovation of business operators.[150] This indicates that the application of the AML to refusals to license will primarily be based on the essential facilities doctrine.

7.4.3 Proposals for the Essential Facilities Doctrine

7.4.3.1 The Necessary Inclusion of the Essential Facilities Doctrine into Guidelines for Technology Transfer in China

[146] 5th Guidelines, art 17; 7th Guidelines, art 24; NDRC Guidelines, art 3(2)(2).
[147] ibid 5th Guidelines, art 17; 7th Guidelines, art 24; NDRC Guidelines, art 3(2)(2); Rules, art 7.
[148] ibid 7th Guidelines, art 24; Rules, art 7.
[149] NDRC Guidelines, art 3(2)(2).
[150] New Guidelines 2017, art 15.

The American Bar Association Section of Antitrust Law, Section of Intellectual Property Law and Section of International Law (ABA Sections),[151] advocate its deletion in the 5th Draft of the Guidelines on Enforcing the Anti-Monopoly Law with Respect to Intellectual Property Rights[152] (5th Guidelines). The ABA Sections argue that the AML does not contain any reference to the doctrine, and the implementing regulations of the AML[153] involve the doctrine for products and services but do not clarify whether or not they apply to IPRs.[154] The application of the doctrine conflicts with the patent law of China, in which patents cannot be exploited without the consent of patentees.[155] However, the AML prohibits the dominant company from, 'without justifiable causes, [refusing] to trade with counterparties,'[156] and courts have employed the AML and its implementing regulations when dealing with IPRs-related cases.[157] Moreover, the patent law of China stipulates that if the exercise of the patent amounts to a monopoly act and has an adverse effect on competition, then a

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[151] ABA Sections, 'Joint Comments of the American Bar Association Section of Antitrust Law, Section of Intellectual Property Law and Section of International Law on the SAIC Draft Guide on Anti-Monopoly Law Enforcement in the Field of Intellectual Property Rights' (ABA Sections Comments on the 5th Guidelines) (*American Bar Association*, 2012) <http://www.americanbar.org/content/dam/aba/uncategorized/international_law/aba_china_aml_ip_guidelines_comments_finalpackage.authcheckdam.pdf> accessed on 5 October 2015. ABA Sections, 'Joint Comments of the American Bar Association Section of Antitrust Law, Section of Intellectual Property Law and Section of International Law on the SAIC Draft Rules on the Prohibition of Abuses of Intellectual Property Rights for the Purposes of Eliminating or Restricting Competition' (ABA Sections Comments on the Rules) (*American Bar Association*, 2014) <http://www.americanbar.org/content/dam/aba/administrative/antitrust_law/at_comments_201407saic.authcheckdam.pdf> accessed on 5 October 2015.

[152] The 5th Guidelines has been made by the SAIC in 2012. SAIC Task Force (draft), American Bar Association (trans), 'The 5th Draft of Guidelines on Enforcing the Anti-Monopoly Law with Respect to Intellectual Property Rights (关于知识产权领域反垄断执法的指南 Guanyu Zhishi Chanquan Lingyu Fan Longduan Zhifa De Zhinan),' both Chinese and English version (*American Bar Association*, 2012) <http://www.americanbar.org/content/dam/aba/uncategorized/international_law/aba_china_aml_ip_guidelines_comments_finalpackage.authcheckdam.pdf> accessed on 5 October 2015.

[153] Regulations on the Administration for Industry and Commerce concerning Prohibition of Abuse of Dominant Market Position 2011, art 4(5).

[154] ABA Sections Comments on the 5th Guidelines, art 17. Also, the ABA Sections had proposed that 'the Essential Facilities Doctrine does not apply to IPR at all or only in extraordinarily limited circumstance' as a comment for the draft of the AML. ABA Sections Comments on the 5th Guidelines, art 17.

[155] ABA Sections Comments on the Rules, art 7, footnote 6.

[156] AML, art 17(3).

[157] See *Huawei v InterDigital* (2011) Shenzhen of Guangdong Intermediate People's Court No 858/2011 ((2011) 深中法知民初字第 858 号 (2011) Shen Zhong Fa Zhi Min Chu Zi Di 858 Hao), aff'd, (2013) Guangdong High People's Court No 306/2013 ((2013) 粤高法民三终字第 306 号 (2013) Yue Gao Fa Min San Zhong Zi 306 Hao). For more details, see Section 6.3.4.5 of Chapter 6 of this thesis. The AML does not exclude IPRs-related anticompetitive conducts from application of the AML and its implementing regulations.

compulsory licence may be applied.[158] This indicates that the application of the doctrine is consistent with the AML and patent law.

ABA Sections believe that the essential facilities doctrine 'would [...] create disincentives for competitors to develop their own competing IPR, and create long-term disincentives to innovate in general'.[159] This highlights the presumption held by ABA sections, and even US courts,[160] that innovation may be greater in a monopolistic market, especially as the potential competitors would have no option but to conduct innovation. However, such a market can also lead to lower dynamic efficiency under the monopoly,[161] as the monopolist may be reluctant to invest in R&D without the pressure of competition. The doctrine can be used to interfere with the refusal to correct the destruction of dynamic efficiency,[162] which would not be contrary to the aim of IPRs.

The ABA Sections also allege that an intellectual property facility is 'rarely truly essential,'[163] as technologies are fast moving and it is 'relatively easier to work around an IPR as compared to physical infrastructure'. Even the US Supreme Court has never recognised the essential facilities doctrine.[164] However, the conclusion that it is easier to work around IPRs does not exempt them all from 'indispensability', and the higher the level of technology development, the more difficult it is to work around them. It is especially difficult for potential competitors whom are small-scale undertakings to afford large investment in R&D to work around the IPRs when competing with a dominant multinational. Technically, the physical infrastructure can be reproduced if there are enough resources, but IPRs cannot be reproduced in this way and such imitation would be illegal without the consent of IPRs owners. Compared with Western companies, the ability of Chinese companies to innovate is relatively lower. It is much more difficult for them to create a substitute in the high-tech field, and so the

[158] Patent Law of China 2009, art 48 (2).
[159] ABA Sections Comments on the 5th Guidelines, art 17.
[160] *Verizon Communications v Trinko* 540 US 398 (2004).
[161] Massimo Motta, *Competition Policy: Theory and Practice* (Cambridge University Press 2004) 55-58.
[162] Once more competitors enter the market by applying the doctrine, both the incumbent and new entrants will conduct further innovation to gain more competitive advantages.
[163] ABA Sections Comments on the 5th Guidelines, art 17.
[164] ibid.

application of the doctrine could benefit Chinese companies to some extent. Moreover, if competitors are obliged to invest to create an alternative, doubts may arise concerning whether or not the alternative is socially beneficial.[165] Even if the new alternative is socially beneficial, the compatibility and network effects of IPRs may generate stronger anti-competitive effects than were generated by physical infrastructure, and the product may also be unable to compete well with the one already in the market. For example, a type of software for computer operating systems may not be the most economical and efficient, but it may enter the market with a lead-time advantage and most of the software with other functions are designed to be compatible with it. The network effect of this may easily exclude other operating system software from competing with it, and so it may not only conduct some anti-competitive practice, such as tying and excessively high pricing, but also constitute an essential facility. This is another barrier for entry to a downstream market, and severely affects the entire software industry. In addition, although the Supreme Court in the US has not recognised the doctrine, neither has it denied its existence.[166]

Finally, the ABA Sections state that the doctrine has rarely been used and never been used in patents around the world.[167] The application in exceptional situations does not constitute a reason to entirely delete the doctrine from the drafts. Bearing in mind that China exploits the statutory law system, and both AMEAs and courts lack relevant experience, it is necessary for legislators to provide clear guidelines regarding the circumstances in which to apply the doctrine. This would also limit the application to a necessary scope. Otherwise, the absolute immunity of exclusive rights in IPRs will not only depart from the more sophisticated, effects-based, and close-to-reality economic theory of the Post-Chicago School, which is widely applied in many other antitrust judgments,[168] but also be inconsistent with some empirical research that

[165] It points out that the increase in social fortune from the market does not necessarily demonstrate that the investment should be maximised. Moreover, the 1996 Telecommunications Act in *Trinko* intends to establish competition without essentiality of duplicating local networks. Nicholas Economides, 'Vertical Leverage and the Sacrifice Principle: Why the Supreme Court Got Trinko Wrong' (2005) 61 NYU Ann Surv Am L 379, 403.

[166] *Verizon Communications v Trinko* 540 US 398 (2004).

[167] ABA Sections Comments on the Rules, art 7.

[168] Josef Drexl, 'IMS Health and Trinko — Antitrust Placebo for Consumers Instead of Sound Economics in Refusal-to-Deal Cases' (2004) 35 IIC 796.

indicates that competition and an open market will offer more incentives to innovate and promote dynamic efficiency.[169] Moreover, the doctrine has not been applied to patents thus far, but it has been applied to copyright and interoperability information of computer operating systems in the EU, which provides an example for patents that have similar character to copyright and the interoperability information. Thus, the non-availability of pre-existing cases regarding patents does not necessarily amount to exclusion of patents from application of the doctrine.[170]

To sum up, it is necessary to include the essential facilities doctrine in relevant guidelines in China, but clear conditions are required for application of the doctrine to exceptional cases, and this must be done with caution.

7.4.3.2 Conditions for Applying the Essential Facilities Doctrine

Both the drafts and the Rules contain conditions for applying the doctrine to refusals to license IPRs, but they are too simple and ambiguous to be used for the analysis of individual cases, and should be developed further. Above all, the IPRs in question are indispensable.[171] The first point is that a substitute is not available.[172] The ABA Sections propose that 'the competitor seeking access cannot practically or reasonably work around the IP',[173] which ensures that there are no other options for the requesting

[169] Philip Lowe and Lucas Peeperkorn, 'Intellectual Property: How Special is its Competition Case?' in Claus-Dieter Ehlermann and Isabela Atanasiu (eds), *European Competition Law Annual 2005: The Relationship between Competition Law and Intellectual Property Law* (Hart Publishing 2005) 91-95.

[170] Some scholars in the US suggested that the irrefutable presumption of legality on IPRs, immunizing the refusal to license from antitrust responsibility completely, 'establishes relatively clear rules for behaviour.' By contrast, the disputable presumption offers 'somewhat less predictability'. Accordingly, the court needs to consider factors for applying the rule: 'the risk of erroneously condemning procompetitive conduct, the risk of erroneously permitting anticompetitive conduct, and the administrative and uncertainty costs associated with a more flexible standard.' Herbert Hovenkamp, Mark D Janis and Mark A Lemley, 'Unilateral Refusals to License' (2006) 2 J Comp L & Econ 1, 27. However, according to foregoing discussion, IPRs cannot be absolutely exempted from the scrutiny of competition law, thus an exceptional circumstance is likely to be caught by competition law. Although this is less affirmative than the *per se* legitimacy of IPRs, relatively clear conditions in which to apply the essential facilities doctrine can minimise the uncertainty and unpredictability, and preserve the justification and consumer welfare from the perspective of competition.

[171] ibid.

[172] The IPRs in question have no proper substitute in a relevant market. Rules, art 7; 7th Guidelines, art 24. However, the 5th Guidelines do not contain this aspect.

[173] ABA Sections Comments on the 5th Guidelines, art 17.

company. It is also necessary to consider the possibility and efficiency of investing in R&D to create a substitute.[174] However, this differs from physic property that can be copied although it is costly and inefficient to do so,[175] because a substitute of intellectual property will embody creative intelligence, which is much more difficult to generate.

The second point is that refusals to license will prevent the requesting companies from competing in the relevant market.[176] EU case law has provided reference in assessing this condition, either when a substitute is not available so that the requesting company cannot enter the market due to the refusal to license, as seen in *Magill*, or the acquisition of the substitute that exists in the market can not enable competitors to get involved in substantial competition due to other reasons, such as a lock-in effect of the market, as seen in *IMS*.[177] In the *Microsoft* case, the court agreed that inefficient competition can be a ground for applying the essential facilities doctrine, and if the refusal to license prevents the requesting company from becoming involved in efficient competition, not necessarily all competition, then it may violate competition law. This effects-based approach[178] is consistent with the objective of competition law, which protects competition rather than competitors.

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[174] It 'should consider synthetically the possibility of making another investment to build or to develop the facilities...' Regulations on the Administration for Industry and Commerce concerning Prohibition of Abuse of Dominant Market Position 2011, art 4.

[175] It is normally simple to establish another substituted facility for tangible property where there is enough financial and labour support. However, for intangible property protected by IPRs, rather than establishing a new product embodying the intangible property, it may be better to develop a new technology, and this requires a strong and intelligent background, as well as other investment, so may be more difficult to achieve.

[176] 5th Guidelines, art 17; 7th Guidelines, art 24; Rules, art 7.

[177] If a competitor has been excluded from the market, the competition of the competitor is apparently excluded. If a competitor exists in the market, it is possible to compete when the products could satisfy the consumer demand with acceptable costs/prices. However, it is also possible to be excluded from the competition in certain situations, such as a lock-in effect that prevents consumers from switching to its products, or excessively high costs leading to excessively high prices that are unlikely to be accepted by consumers. Therefore, existence in the market does not necessarily equate to the availability of competition, and the criterion should be exclusion from competition rather than from the market. Also the anti-monopoly enforcement authorities 'should consider ... the extent of dependence of the trade counterparty to operate its business efficiently on the facilities'. Regulations on the Administration for Industry and Commerce concerning Prohibition of Abuse of Dominant Market Position 2011, art 4.

[178] An effects-based approach attempts to assess whether and to what extent competition law can apply to the exercise of IPRs. Considering that both the application of competition law and the exercise of IPRs can have negative as well as positive effects, this approach will assess the effects of such an application on various values, including innovation, dissemination of technology, efficiency, consumer welfare, etc. If

Also to consider are the adverse impacts on competition and innovation in the relevant market. If there is no adequate and effective competition in the market, and the licence will enhance competition by increasing competitors, a refusal to license may be considered to be a violation of the AML. Where effective competition exists in the market, such as more than four competitors, whilst the entry via compulsory licence of an additional undertaking into the market will improve competition, it must be considered that this may discourage the innovation of IPRs owners, and thus competition law may not regulate the refusal. However, in some exceptional cases, such as *IMS* and *Microsoft*, the availability of competitors did not necessarily constitute effective competition because there were other circumstances that restricted competition, such as lock-in effects.

In terms of adverse effects on innovation, because refusals to license could both encourage initial innovators, as they could have an opportunity to recoup investment as well as earn extra profits, and discourage them when they are forced to face more competitors, a compulsory licence should not only consider the static efficiency in competition, but also needs to promote the dynamic efficiency that is pursued by IPRs,[179] so as to have better functions than the refusal. Moreover, a refusal may prevent follow-on innovation, as well as restrict or eliminate competition when the intellectual property in question is an input for new products. Both the static and dynamic efficiencies have been impeded, and competition law can be resorted to as a means of correction. Traditionally, the appearance of new products is a necessary symbol to indicate the destruction of innovation.[180] As an example, the condition of 'appearance of new products' has evolved in the EU from a product that does not pre-

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the positive effects of such an application outweigh the negative effects, the application should be considered to be justified. This approach is different from a conduct-based approach, which attempts to categorise certain conducts occurring in the exercise of IPRs that that fall under competition law. For more details, see Section 2.4.3 of Chapter 2 of this thesis.

[179] The ECJ confirmed the condition requiring there to be an adverse impact on innovation, namely the appearance of new products. This relates to 'the balancing of the interest in protection of the intellectual property right and the economic freedom of its owner against the interest in protection of free competition.' *IMS Health v NDC Health* [2004] ECR I-5039, [2004] 4 CMLR 1453 [48].

[180] Neither the 5th and 7th Guidelines nor the Rules contain a clear provision for the appearance of new products.

exist in *Magill*, to a product that is not completely the same as the existing one in *IMS*, and then to a technological development that may potentially generate new products in *Microsoft*.[181] This also indicates the change from a categorical and formalistic model to an effects-based approach. However, there are still no accurate definitions or conditions to assess a new product; rather, they have been changing in case law. If the issue of assessing a new product is transferred to the economic field, the essence of the question is not whether the prevented product is new and how new it is, but whether and to what extent the consumer's willingness to pay for the improved product based on the licence outweighs the costs of making it.[182] Moreover, the concept of 'newness' has no basis in modern microeconomics and is considered to be a characteristic.[183] Thus, it is unacceptable to stipulate an inexplicit term of appearance for new products in China. Rather, the approach should be to examine the adverse impacts on competition and innovation, and then weigh up the adverse impacts and the positive effects that may follow from allowing such refusals to license.

The harm of consumer and public interests, especially when consumer demand cannot be satisfied due to refusals to license IPRs, is another condition for application of the doctrine. Considering that the ultimate objective of competition law is to improve consumer welfare, the condition of impacts on consumer interests should be examined. The impacts on consumer and public interests are not only reflected in price and quantity, but also in quality, choice, and innovation.[184] The adverse effects on both competition and innovation may prevent not only lower prices and sufficient quantity, but also the generation of creative products that satisfy consumer demand or provide further options. The creative products can be either directly generated, based upon the refused IPRs that become an input, or indirectly generated from other

[181] Ian S Forrester and Katarzyna A Czapracka, 'Compulsory Licensing in European Competition Law: The Power of the Adjective' in Steven D Anderman and Ariel Ezrachi (eds), *Intellectual Property and Competition Law - New Frontiers* (Oxford University Press 2011) 157.

[182] Francois Leveque, 'Innovation, Leveraging and Essential Facilities: Interoperability Licensing in the EU Microsoft Case' in Francois Leveque and Howard Shelanski (eds), *Antitrust, Patents and Copyright: EU and US Perspectives* (Edward Elgar 2005) 106.

[183] ibid.

[184] This was confirmed in *Microsoft* case. See also Pranvera Kellezi, 'Rhetoric or Reform: Does the Law of Tying and Bundling Reflect Economic Theory? in Ariel Ezrachi (ed), *Article 82 EC - Reflections on its Recent Evolution* (Hart 2009) 157.

carriers that depend on access to the IPRs, such as technological development. Consumer demand could either exist at that time or there could be a potential demand, which are from both *ex ante* and *ex post* perspectives. When considering the potential demand, the habits of consumer use for similar products may need to be observed, alongside the extent of the benefits that the potential new products would bring to consumers, the development of the relevant products in the industry, etc.

Also, the requirement is normally for two separate markets, through which the IPRs or IPRs-protected product in the upstream market is indispensable in order to access the downstream market, thus consolidating the absolute justification of licensing IPRs in the upstream market. This is because the refusal would aid in leveraging the dominance based on IPRs in the upstream market to restrict or eliminate competition in the downstream market. If there is only one market, such as the upstream market, or the elimination of competition occurs only in the upstream market, then the essential facilities doctrine will not apply because the refusal stems from justification of IPRs. Otherwise, competition law can be brought to bear if the refusal results from the non-acceptance of certain anti-competitive restrictions.

When considering the effects-based approach, the objective justifications, such as health, safety, economic justifications,[185] should be considered when weighing up positive and negative effects to decide if the compulsory licence should be applied.

7.4.4 Conclusion

Refusals to license in China can be categorised into two groups: refusals upon other anti-competitive restrictions,[186] and unilateral and unconditional refusals. The former can be solved by way of dealing with the special restrictions through competition law, such as discriminatory treatment, tying, exclusive dealing, as well as the principle of

[185] Richard Whish and David Bailey, *Competition Law* (7th edn, Oxford University Press 2012) 211.

[186] The refusal can be conducted in an indirect manner by imposing restrictions that are too hostile to be accepted by the other party, such as excessively high prices, limits on output, etc. There is no specific restriction that will or will not be accepted by the other party as it will depend on the situation.

'reasonable and non-discriminatory' (RAND) in a technology standards licence.[187] For the latter, the essential facilities doctrine might be applied. Some conditions are necessary for applying the doctrine. The IPRs owner should be dominant in the market, and the IPRs or IPRs-protected products in the upstream market should be indispensable inputs for the products in the downstream market. The refusal will result in adverse impacts on both competition and innovation in the downstream market, and thus harm the interests of consumers. Negative effects on competition may not require that competition has been entirely eliminated, but rather that there is a restriction on effective competition or an impediment of potential competition. Also, the affected innovation could be either a specific new product, or a technological development from which new products may follow. As such, the analysis should not be formalistic. Rather, the effects-based approach should be utilised to balance the positive effects against the negative. In addition, several circumstances that may lead to compulsory licensing can be considered in China, in accordance with US and EU experiences: the IPRs have been granted illegally;[188] it is a sham litigation;[189] it imposes

[187] These restrictions could result in anti-competitive effects, regardless of whether or not they would lead to substantial refusals, and so should be analysed according to the approach specific to that restriction, rather than the approach for refusals to license.

[188] If the IPRs owner has no legal ground for gaining the technology, there is no justification for him to exercise the technology, including refusals to license; otherwise it is unfair for the requesting company. However, the AMEAs or courts would not judge the legality of the IPRs themselves, and the applicant or plaintiff would need to provide certain proof, or they may suspend the proceedings until other authorities or courts confirm the legality of the IPRs.

[189] This refers to the exercising of allegedly legitimate IPRs to achieve illegal objectives, including anti-competitive effects. This normally happens when an IPRs owner sues a defendant who has infringed the IPRs, while the defendant argues that the refusal to license and even the lawsuit constituted a sham litigation as its intention was to restrict competition. Sham litigation has found its way into many countries' statutes and case law. Lucia Helena Salgado and Graziela Ferrero Zucoloto, 'Study on the Anticompetitive Enforcement of Intellectual Property (IP) Rights: Sham Litigation' (*WIPO*, 22 Feburary 2012) <http://www.wipo.int/edocs/mdocs/mdocs/en/cdip_9/cdip_9_inf_6.pdf> accessed 26 March 2013 ('A possible tentative definition for sham litigation on a strictly economic perspective is predatory or fraudulent litigation with anticompetitive effect, i.e., the improper use of the courts and other government adjudicative or granting processes against rivals to achieve anticompetitive ends. The Study suggests that the anticompetitive use of judicial actions to unduly protect intellectual property might be considered one type of non-price predation strategies. Hence, the economic tools developed to identify this kind of practice can be useful here, too.') However, in China there is still little relevant legislation and case law. In a draft amending the Patent Law of China, sham litigation was included, but was deleted later because of controversy and not being in favour of the patentee. Xudong Qin (秦旭东), 'China will amend law to restrict Abuse of Patent' (中国将修法限制专利权滥用 Zhongguo Jiang Xiufa Xianzhi Zhuanli Quan Lanyong) (*Caijing*, 21 August 2010) <http://www.caijing.com.cn/2008-08-21/110007192.html> accessed 26 March 2013. Therefore, it is suggested that this be included in the draft, and that legislators and courts provide more guidance on identifying sham litigation.

supplementary obligations to accept the licence;[190] it is necessary to satisfy the urgent demands of consumers.[191] The guidelines in China should offer more detailed aspects that provide a clear and better understanding for courts, AMEAs, and undertakings to follow the effects-based approach.

7.5 Conclusion

Under the present framework, including the profoundly traditional culture of worship of authority, the political system of centralisation of power, and the insufficient competitive market structure, it is not difficult for some extremely dominant companies to have been created, based on either state-owned enterprises or other political or economic advantages. Without the need to negotiate with other parties, dominant companies can easily make strategic decisions, including engaging in anti-competitive practices, and these are considered to be normal and legitimate commercial conduct in a free market in China. For technology transfer, from the domestic perspective, the absence of sufficient creative ability and competition in the technology market may indicate that the advanced technology is more likely to grant the owner a dominant position in the embodiment market as well as in the technology market, which provides a basis to be abusive, such as refusals to license. From the foreign perspective, foreign technological multinationals may refuse to transfer

[190] Those supplementary obligations should be analysed to ensure that they will not lead to anti-competitive effects and are reasonable for the licensee. Otherwise, the supplementary obligations themselves violate the AML, or they cover up the use of refusal to license to restrict competition. 5th Guidelines, art 17 (stipulating that 'refusals to license IPRs may be a method to implement other supplementary obligations or tying, and the AMEAs of State Council will analyse the effects on competition based on supplementary obligations and tying.'); 7th Guidelines, art 24.

[191] For example, where a machine manufacturer will not produce any more spare parts for machines still being used by consumers, and also refuses to provide a license allowing others to produce the parts. *Volvo v Veng* [1988] ECR 6211 [9] (If a company decides to no longer produce spare parts for a particular model, even though many cars of that model are still in use, the compulsory license may apply.) It is necessary to analyse the reasons and the circumstances of the case. If the manufacturer has been crippled by serious loss and does not have adequate financial and other support to continue producing the spare parts, a refusal to license may be because they want to reserve the products to produce themselves once their financial status improves, or they just do not want to license. It may be presumed that they have no intention of restricting competition although they may harm consumer welfare, which can be dealt with by other laws. However, if they are found to have attempted to exploit competitive technologies to manufacture substitute spare parts, then the refusal to license the original technology may intend to eliminate inter-technology competition to drive the original technology and spare parts out of the market. This may affect competition and draw the attention of the AMEAs.

advanced technologies to Chinese companies in order to retain technical advantages. However, they are willing to export the technology-related products to China, or set up subsidiary companies in China to manufacture and then sell the embodiments both in China and other countries, making use of China being the largest national market in the world with low labour costs and a large workforce.[192] This not only restricts the development of the relevant industry in China, but also means that Chinese consumers may not be able to access goods at a competitive price, and there may not be sufficient output due to lack of competition. Therefore, regulation on refusals to license will be beneficial for the diffusion of technology, removing monopolies, and securing consumer welfare.

Nevertheless, competition law only applies in exceptional cases when certain conditions are satisfied, so that the basic principle of freedom of contract and the innovation mechanism embodied in IPRs will not be unnecessarily jeopardised. Both the Rules and some drafts provide four primary criteria: indispensability, absence of effective competition, adverse effects on competition and innovation, and lack of consumer demand and satisfaction. However, they do not provide further details. Indispensability should be proven in the manner that intellectual properties cannot be worked around practically and reasonably. The absence of effective competition does not require the elimination of all competition, but focuses instead on the extent of effective competition in the market. The adverse impact on innovation could relate to the incumbent's incentive for initial innovation, or the incentive for follow-on innovation of the incumbent and others. The prevention of the emergence of new products could be a criterion for assessing the harm to innovation, and partial newness or technological development, rather than complete newness, may be

[192] For example, when President Obama asked why the work of manufacturing Apple products could not go back to the US, a former executive gave an example to describe how the company has to rely on Chinese factories: 'Apple had redesigned the iPhone's screen at the last minute, forcing an assembly line overhaul. New screens began arriving at the plant near midnight. A foreman immediately roused 8,000 workers inside the company's dormitories, according to the executive. Each employee was given a biscuit and a cup of tea, guided to a workstation and within half an hour started a 12-hour shift fitting glass screens into beveled frames. Within 96 hours, the plant was producing over 10,000 iPhones a day.' The American plant could not match that. Charles Duhigg and Keith Bradsher, 'How the US Lost Out on iPhone Work' (*New York Times*, 2012) <http://www.nytimes.com/2012/01/22/business/apple-america-and-a-squeezed-middle-class.html?pagewanted=all> accessed 10 May 2014.

accepted. The assessment of proper consumer demand should consider the existing demand and the potential demand that may follow from new products provided by licensees through a compulsory licence.

CHAPTER 8. CONCLUSION

8.1 Application of Competition Law in Technology Transfer Promotes Innovation, Efficiency, and Consumer Welfare

Technological progress enhanced by innovation offers better or new products to meet consumers' developmental demands [1] and promotes economic growth. [2] The dissemination of technology,[3] such as technology transfer,[4] enables more consumers to share the benefits. Technological innovation generates dynamic efficiency, in which consumers are provided new products over the long-term, by stimulating investment in Research & Development (R&D).[5] The intellectual property rights (IPRs) system was designed to promote innovation by conferring exclusive rights to avoid exploitation of the intellectual property without consent of right-owners, based upon which inventors have the chance to earn reward from the creation so that they have incentives to invest in R&D. However, in some cases, IPRs systems have adverse impacts on innovation and consumer welfare. For instance, when IPRs-owners have a monopoly in relevant markets, they may be reluctant to continue innovation, considering the expense of investment and the risk of that the investment may not be rewarded. Moreover, if they take use of anti-competitive restrictions to achieve the charging of

[1] From the viewpoint of countries, technological progress is a crucial productive force to drive economic growth. Jon Sigurdson, *Technology and Science in the People's Republic of China: An Introduction* (Elsevier 2013) 4 ('[t]he role of technology in the development process is not a simple, easily isolated, and identified phenomenon, but it is generally agreed that technological change is the most crucial single variable in economic growth.')

[2] Thomas A Piraino, Jr, 'A Proposed Antitrust Approach to High Technology Competition' (2002) 4 Wm & Mary L Rev 65, 67 (stating that high technology has been a significant driver of the US's economic growth since the 1990s); John M Murray, 'Antitrust and Patent License Agreements: A New Look at Grantback Clause in High Technology Markets' (2012) 3 Case W Res J L Tech & Internet 299, 299 (stating that technology and innovation 'streamline operation, boost output or reach new markets').

[3] 'There is no doubt that in order to reach her ambitious goals, China will use extensively foreign technology and consequently develop both the import and export side of her economy and will not attempt to achieve self-sufficiency.' Jon Sigurdson, *Technology and Science in the People's Republic of China: An Introduction* (Elsevier 2013) 4.

[4] John M Murray, 'Antitrust and Patent License Agreements: A New Look at Grantback Clause in High Technology Markets' (2012) 3 Case W Res J L Tech & Internet 299, 300 (stating that 'licensing plays a critical role in facilitating the development and application of technology to various business and industries.').

[5] Joseph E Stiglitz and Carl E Walsh, *Economics* (4th edn, WW Norton 2011) 35; Jesús Huerta De Soto, *The Theory of Dynamic Efficiency* (Routledge 2009) 8-10.

super-high prices, consumer welfare will be damaged. In this case, competition law should be considered to rectify it.

Competition law primarily aims to achieve static efficiency[6] for consumers by driving price as close as possible to cost and by squeezing excess profits out of the economy in the short run.[7] When competition law is used to regulate the exercise of IPRs along with anti-competitive restrictions, by which more competitors will be available to the market, this will produce not only static efficiency, such as competitive pricing and sufficient supply, but also dynamic efficiency, facilitating innovation by encouraging market actors to gain competitive advantages through investment in R&D.

Both the IPRs system and competition law can promote innovation, efficiency, and consumer welfare, but with distinct mechanisms. Thus, when judging whether or not the exercise of IPRs should be intervened by competition law, an effects-based approach[8] should be exploited by assessing and weighing up the positive and adverse effects.

In addition to the basic approach, from a legislator's perspective, China's specific situation should also be considered. China has a lower level of high-technology, compared with developed countries, and so it is eager to improve its status to boost

[6] Walter Distaso, Paolo Lupi and Fabio M Manenti, 'Static and Dynamic Efficiency in the European Telecommunications Market: The Role of Regulation on the Incentives to Invest and the Ladder of Investment' in Information Resources Management Association (ed), *Networking and Telecommunications: Concepts, Methodologies, Tools, and Application* (Information Science Reference 2010) 259 ('Static efficiency occurs when marginal production costs are minimized (production efficiency) or when the price consumers pay in exchange of a good or service equals the production cost (allocative efficiency)').

[7] Anurag Gupta and Satyajeet Mazumdar, 'Competition Law and Intellectual Property Rights: Whether Conflicting or Complementing Each Other to Serve a Common Purpose?' (2011) 2(2) Asian JL & Econ 1, 1-5.

[8] An effects-based approach attempts to assess whether and to what extent competition law can apply to the exercise of IPRs. Considering that both the application of competition law and the exercise of IPRs can have negative as well as positive effects, this approach will assess the effects of such an application on various values, including innovation, dissemination of technology, efficiency, consumer welfare, etc. If the positive effects of such an application outweigh the negative effects, the application should be considered to be justified. This approach is different from a conduct-based approach, which attempts to categorise certain conducts occurring in the exercise of IPRs that fall under competition law. For more details, see Chapter 2 of this thesis.

the economy. Besides the development of IPRs protection over recent decades[9] to secure the incentive for innovation in the IPRs system, the R&D spillovers resulting from the application of competition law to the exercise of IPRs can facilitate indigenous innovation.[10] China's average living standard is expected to improve,[11] and so the application of competition law could enable the benefits of innovation to be broadly shared by consumers.[12] These factors should be considered in the effects-based approach to the interfaced area of competition law and IPRs in technology transfer in China.

8.2 Competition Legislation to Solve Severe Anti-competitive Issues in China's Mordern Technology Market is Inadequate

8.2.1 Severe Anti-competitive Issues in China's Mordern Technology Market

On adopting the Reform and Opening-Up policy, [13] China recognised that 'science and technology are the top productive forces'[14] and thus began placing an emphasis on

[9] For more details, see Section 4.2.3 of Chapter 4 of this thesis.

[10] Thomas K Cheng, 'A Developmental Approach to the Patent-Antitrust Interface' (2012) 33 Nw J Int'l L & Bus 1, 8-9.

[11] China's GDP per capita is very low compared to that of developed countries. World Bank, 'GDP per capita (current US$)' (*World Bank*, no date) <http://data.worldbank.org/indicator/NY.GDP.PCAP.CD> accessed 1 August 2014 (China's GDP per capita in 2013 was USD 6,807 (GBP 4,254.37), which is far lower than that of developed countries, such as USD 53,143 (GBP 33,214.38) of the US, USD 45,085 (GBP 28,178.13) of Germany, USD 39,337 (GBP 24,585.63) of the UK, and USD 38,492 (GBP 24,057.50) of Japan).

[12] William J Baumol, *The Free Market Innovation: Analysing the Growth Miracle of Capitalism* (Princeton University Press 2002) 102.

[13] The Reform and Opening-Up policy was an innovative proposal by Xiaoping Deng, who was a highly significant leader in the Chinese central government and was known internationally as an 'architect of reform'. The policy was widely supported, and in 1978 the 3rd Plenary Session of the 11th Central Committee confirmed that it would be implemented. The policy advocated treating the economic development and construction of social modernisation as the central task, rather than the class and political struggle which had previously been the focus. The policy consisted of two main sections. The first concerned domestic reform, involving most aspects of the country, and including business, education, the financial system, tax, property and the medical system, etc. The most outstanding achievements were the introduction of a market-based economic system into the traditional centrally planned economy, which allowed the private economy to enter the market, and the setting up of special economic zones to experiment with applying new policies to stimulate the economy. The second section of the policy was about opening up to the world, and it allowed foreign direct investment to China (initially only in the special economic zones with preferential policies); promoted foreign trade with other countries; and advocated integration with the rest of the world instead of closed borders. The policy mainly focused on economic reforms, but continued the political system of socialism and the single-party Communist dictatorship. The implementation of the policy significantly boosted China's

R&D. From a foreign perspective, lower labour costs and a large market have been attracting foreign investors and traders. Alongside this, the dream of Chinese national rejuvenation[15] has led China to hope for more than access to the outside world – it also wants to compete in it. However, the significant disparity in technology levels between China and developed countries has become an obstacle to China's international competitiveness, and importing more advanced technology is as important as indigenous innovation. Foreign technology multinationals may take various types of action and strategies based on IPRs protection to restrict the exploitation of Chinese licensees, and to secure their own technological advancement and even acquire a dominant position in the market.[16] Although they can legally impose some restrictions with regard to IPRs, they might still conclude monopoly agreements or abuse their dominant position to impose restrictions which are anti-competitive and beyond the necessary scope of protection by IPRs.[17] In this case, they might be regulated by

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economic development. Peter Harrold, 'China's Reform Experience to Date' (1992) World Bank Discussion Paper, WDPO 180 <http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/1999/10/14/000178830_98101903552078/Rendered/PDF/multi_page.pdf> accessed 1 May 2013 (mainly discussing the economic reform of China from 1978-90 and its achievements); Susan L Shirk, *How China Opens Its Door: The Political Success of the PRC's Foreign Trade and Investment Reforms* (Brookings Institution 1995) (highlighting the improvement in foreign direct investment and trade in China since the 20th century); Wu Qi, 'Changes and Challenges with 30 years of Reform and Opening Up' (*Xinhua News Agency*, 6 October 2008) <http://news.xinhuanet.com/english/2008-10/06/content_10155776.htm> accessed 1 May 2013 (discussing the development of China after the implementation of the Reform and Opening-Up policy, and the challenges that have arisen); Clem Tisdell, 'Economic Reform and Openness in China: China's Development Policies in the Last 30 Years' (2009) 39(2) Econ Anal & Pol'y 271, 285 (discussing the background and implementation of the Reform and Opening-Up policy over the last thirty years).

[14] The theory was called for in a decision made by the Chinese Communist Party Central Committee and the State Council in May 1978 at the initial stage of the Reform and Opening-Up period of China. Mary Burdman, 'China Declares Science to be "the Top Productive Force"' (1995) 22(27) Exec Intellig Rev 47.

[15] 'National rejuvenation' was clearly emphasised by Mr Jinping Xi when he started his leadership as Chinese Chairman in 2013, by declaring that achieving the Chinese Dream of a great rejuvenation was the new government's primary objective. Zheng Wang, 'Not Rising, but Rejuvenating: The "Chinese Dream"' (*The Diplomat*, 05 February 2013) <http://thediplomat.com/2013/02/chinese-dream-draft/> accessed 25 March 2014; Josh Chin, 'China's National Rejuvenation Now 65.3% Complete, Index Says' (*The Wall Street Journal*, 22 November 2013) <http://blogs.wsj.com/chinarealtime/2013/11/22/chinas-national-rejuvenation-now-65-3-complete-index-says/> accessed 25 March 2014.

[16] Muzhu Shen and Weiwei Xie (沈木珠，解薇薇), 'Research on the IPRs-related Anti-Monopoly Legislation in China: Discussing the Crisis of IPRs Faced by Chinese Companies' (中国知识产权领域的反垄断立法思考：从中国企业面临的知识产权危机谈起 Zhongguo Zhishi Chanquan Lingyü De Fan Longduan Lifa Sikao: Cong Zhongguo Qiye Mianlin De Zhishi Chanquan Weiji Tanqi), (2005) 3 Science of Law (法律科学 Falü Kexue) 112.

[17] Xianlin Wang (王先林), 'The Antitrust Analysis on Abusing of IPRs by Multinationals in China' (在华跨国公司知识产权滥用的反垄断法分析 Zai Hua Kuaguo Gongsi Zhishi Chanquan Lanyong De Fan Longduan Fa Fenxi) (2005)15(6) Intellectual Property (知识产权 Zhishi Chanquan) 24.

competition law if they restrict or eliminate competition in the technology-related market in China.

Anti-competitive restrictions in technology transfer have had a severe impact in China, including a devastating blow to the DVD industry,[18] a discriminatory treatment of Chinese personal computer manufacturers by Microsoft,[19] and unfairly low pricing of the word-processing software Word 97 and the Norton anti-virus software in time to exclude China's new competitors.[20] Moreover, a number of relevant cases, discussed in this thesis, have been brought to courts in China; these have mainly been in relation to foreign multinationals imposing restrictions on Chinese companies, such as *Kam Hing v Microsoft*[21] (price discrimination), *Huawei v InterDigital*[22] (price discrimination, unfairly high price, and refuse to license); *Ribang v Jonshon & Jonshon*[23] (restriction on resales, allocation of markets, price fixing); *Beijing Dongjin v Intel*[24] (field of use); and *TSUM v Sony*[25] (tying).

In comparison, fewer anti-competitive issues have arisen in the domestic technology transfer market. This is because the relative ability of domestic companies to innovate is not strong enough, and because there is far less advanced technology in comparison

[18] Excessively high prices, tying, group boycott, etc. were used in the licensing of DVD-related technology standards so that Chinese manufacturers that had been producing DVDs had to quit the market as they could not afford the expense. For more details, see Section 3.2.1 of Chapter 3 of this thesis.

[19] It was reported that Microsoft had charged large personal computer (PC) companies in China approx. RMB 300.00 (GBP 30.00) for licensing preinstalled Windows 98 on each computer they produced, while the same licence cost RMB 690.00 (GBP 69.00) to SMEs in China, and even less than RMB 100.00 (GBP 10.00) to IBM. Xianlin Wang (王先林), 'The Antitrust Analysis on Abusing of IPRs by Multinationals in China' (在华跨国公司知识产权滥用的反垄断法分析 Zai Hua Kuaguo Gongsi Zhishi Chanquan Lanyong De Fan Longduan Fa Fenxi) (2005)15(6) Intellectual Property (知识产权 Zhishi Chanquan) 24.

[20] Xianlin Wang, Bu Shou and Liping Wang, 'The Abuse of IPRs by Multinationals in China' (跨国公司在华知识产权滥用 Kuaguo Gongsi Zai Hua Zhishi Chanquan Lanyong) (*Sina*, 9 November 2005) <http://finance.sina.com.cn/g/20051109/15022106106.shtml> accessed 15 April 2013.

[21] (2013) Guangzhou Intermediate People's Court No 21/2013 ((2013) 穗中法知民初字第 21 号 Sui Zhong Fa Zhi Min Chu Zi Di 21 Hao).

[22] (2011) Shenzhen of Guangdong Intermediate People's Court No 858/2011 ((2011) 深中法知民初字第 858 号 (2011) Shen Zhong Fa Zhi Min Chu Zi Di 858 Hao), aff'd, (2013) Guangdong High People's Court No 306/2013 ((2013) 粤高法民三终字第 306 号 (2013) Yue Gao Fa Min San Zhong Zi 306 Hao).

[23] (2010) Shanghai No 1 Intermediate People's Court No 169/2010 ((2010) 沪一中民五(知)初字第 169 号 (2010) Hu Yi Zhong Min Wu (Zhi) Chu Zi Di 169 Hao), rev'd, (2012) Shanghai High People's Court No 63/2012 ((2012) 沪高民三(知)终字第 63 号 (2012) Hu Gao Min San (Zhi) Zhong Zi Di 63 Hao).

[24] (2006) Beijing No 1 Intermediate People's Court (unpublished and settled confidentially).

[25] (2004) Shanghai No 1 Intermediate People's Court No 223/2004 ((2004) 沪一中民五(知)初字第 223 号 (2004) Hu Yi Zhong Min Wu (Zhi) Chu Zi Di 223 Hao).

the situation in developed countries.[26] Indigenous inventors prefer either to exploit the technologies themselves, or to assign, rather than license, them to others for the purpose of sustaining their technical advantages and competitiveness, and avoiding plagiarism. This means that the entire domestic industry concerning technology fails to improve in an efficient manner, and consumers are unable to benefit from the lower prices and better quality that result from competition. There are a few such cases among Chinese companies, such as *Qihoo v Tencent*[27] (tying), *Huawei v ZTE*[28] (abuse of dominant position to request injunction and recall). Whilst not directly related to technology transfer or not judged by Chinese courts, it can be anticipated that with the development of indigenous innovation of Chinese companies and the improvement of IPRs protection in China, there will be more technology being transferred as well as invented. Thus, more anti-competitive issues may arise in the future, and comprehensive regulations will be required for dealing with such issues.

These anti-competitive issues have resulted in serious adverse effects on Chinese consumer welfare, as well as on technological innovation and competition in the market, and relevant, detailed regulation is therefore urgently required. However, following historical review on the development of both IPRs system and competition law, and an examination of current legislation indicates that competition law in China is inadequate for resolving the issues.

8.2.2 Historical Factors Have Delayed Progress of Interface Between IPRs and Competition Law in Technology Transfer in China

Traditional culture has had a profound influence on Chinese legislation, in which Confucianism is a typical doctrine that advocates respect for authority, and to some extent the respect of subordinates for private rights of individual creations in a civil

[26] Chih-Hai Yang and others, 'Intellectual Property Rights and Patenting in China's High-technology Industries: Does Ownership Matter?' (2011) 19 (5) China & World Econ 102, 120-22 (the empirical study shows relatively low R&D productivity for China's high-technology industries, compared with OECD countries).

[27] (2011) Guangdong High People's Court No 2/2011 ((2011) 粤高法民三初字第 2 号 (2011) Yue Gao Fa Min San Chu Zi Di 2 Hao), aff'd, (2013) Supreme People's Court No 4/2013 ((2013) 民三终字第 4 号 (2013) Min San Zhong Zi Di 4 Hao).

[28] C-170/13, European Court of Justice, Judgement of 16 July 2015.

society, which is a crucial ground for IPRs.[29] In addition, the culture promotes a more planned economic system as well as a political system with centralised power,[30] in which a market is mainly controlled by central planning rather than the demand-supply mechanism associated with competition. When Communism was introduced into China,[31] it increased the centralisation of power in both the economic and political arenas.[32] This circumstance that advocates centralisation conflicts with the essence of IPRs and competition law, which intend to protect private rights and to break monopoly in the market on a basis of equality.

The Reform and Opening-Up policy implemented in the 1970s enabled China to begin integrating with the world and changing the rigid centrally planned economic system[33] to a socialist market economy[34] that embodies an introduction of market-

[29] Brian Barron, 'Chinese Patent Legislation in Culture and Historical Perspective' (1991) 6 IPJ 313, 316-20; John R Allison and Lianlian Lin, 'The Evolution of Chinese Attitudes Toward Property Rights in Invention and Discovery' (1999) 20 U Pa J Int'l Econ L 735, 774; Wei Shi, 'Culture Perplexity in Intellectual Property: Is Stealing a Book an Elegant Offense?' (2006) 32 NCJ Int'l L & Com Reg 1, 44.

[30] Hong Lian, 'The Outline of Traditional Chinese Concept of Etiquette and Its Modern Effects' (2011) 7(8) Asian Soc Sci 256, 257.

[31] Ignazio Castellucci, 'Rule of Law with Chinese Characteristics' (2007) 13 Ann Surv Int'l & Comp L 35, 64.

[32] Alan Zimmerman, 'Contending with Chinese Counterfeits: Culture, Growth, and Management Responses' (2013) 56 (2) Bus Hori 147,148.

[33] A centrally planned economy is defined as an economic system in which economic decisions for allocation of inputs are mainly decided by a central authority, normally a central government in a top-down administrative system, rather than by the interaction between demand of consumers and supply of manufacturers in the market. In this economic system, the government controls the investment, production, distribution, price, quantity, etc. of goods. This system enables a government to exploit resources to serve certain economic goals, and to satisfy consumer demand with a large investment in the industries that require it. Significant development in heavy industry can potentially be achieved in a short space of time, even in an undeveloped economic situation; the rapid construction of heavy industry by the Soviet Union in the 1930s is a good example of this. However, this economic system makes it difficult to acquire accurate information on consumer demand and to allocate inputs to efficient producers, and does not provide strong incentives to producers. Socialist countries, including China, always make use of a centrally planned economic system. Paul Kennedy, *The Rise and Fall of the Great Powers* (Random House 1987) 322-23 (analysing how the advantages of the centrally planned economy were exploited by the Soviet Union to secure achievements in the development of heavy industry in 1930); Ludwig von Mises, 'Economic Calculation in the Socialist Commonwealth' (*Mises Institute*, 1990) <http://mises.org/sites/default/files/Economic%20Calculation%20in%20the%20Socialist%20Commonwealth_Vol_2_3.pdf> accessed 20 April 2013 (criticising the centrally planned economy for its inability to gain accurate information on consumer preferences, shortages and surpluses, meaning that the planner cannot manufacture efficiently. Also refers to this problem as the 'economic calculation problem'); Ollman Bertell, *Market Socialism: The Debate Among Socialists* (Routledge 1997) 12 (stressing that the planner would direct companies and ministries at a lower level on what to produce according to democratically-determined national and social objectives); Robin Hahnel, *The ABCs of Political Economy* (Pluto 2002) 262 (stating that the centrally planned economy lacks economic democracy and self-management, and therefore cannot easily promote innovation and efficiency); Michael Ellman, 'The Rise

adjusting method into the economy.[35] Such a policy opened up a channel for a large amount of foreign investment and trade business into China, and heavily boosts the economy. Due to the external pressure from the desire to be a member of the World Trade Organisation (WTO), China has become involved in various legislative and judicial actions to protect IPRs, and it has had a number of significant achievements.[36] So too, the benefits from a partly competitive market economy have led to competition law being put back on the agenda. However, because of a grandual development of market-oriented economy, a lack of experience and opposition by

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and Fall of Socialist Planning' in Saul Estrin and others (eds), *Transition and Beyond: Essays in Honour of Mario Nuti* (Palgrave Macmillan 2007) 22 (highlighting the fact that the centrally planned economy lacks popular and democratic oversight of the local market); Steven N Durlauf and Lawrence E Blume (eds), *The New Palgrave: A Dictionary of Economics* (2nd edn, Palgrave Macmillan 2008) 879-80 (defining 'planned economy' and describing the central order for allocating resources in the centrally planned economy).

[34] The socialist market economy is a special economic model employed by China, officially defined as an economic system under which the market plays a basic role in the allocation of resources under the macro-economic control of the state. It is different from both the centrally planned economy, in which the central government solely makes direct orders for the allocation of resources, and the classic market economy, in which resources are primarily allocated in accordance with market indications of supply and demand. The socialist market economy was first proposed by Xiaoping Deng, who argued that the market was an instrument that could serve both a capitalist economy and a socialist economy, and that the market economy was not a standard for distinguishing capitalism and socialism in the 20th century. 14th Central Committee of the Communist Party of China (1992), 'Decision of the Central Committee of the Communist Party on Some Issues Concerning the Establishment of a Socialist Market Economic System' (中共中央关于建立社会主义市场经济体制若干问题的决定 Zhonggong Zhongyang Guanyü Jianli Shehui Zhuyi Shichang Jingji Tizhi Ruogan Wenti De Jueding) (*News of Communist Party of China*, 14 November 1993) <http://cpc.people.com.cn/GB/64162/134902/8092314.html> accessed 25 April 2013 (stating that it was the first time that the term 'socialist market economy' was used, together with relevant explanation and a statement of the aim to establish such an economy by the central government of China); Zhongliang Shi, 'Review and Experience of Economic Structure Reform in China' in Mohamed Osman Suliman and Osman Suliman (eds), *China's Transition to a Socialist Market Economy* (Quorum 1998) 3-15 (reviewing the economic reforms in China since the 1970s, including the transition to a socialist market economy, in which some scholars argue that the socialist market economy is a capitalist economy rather than a socialist economy); Global Study Association of Depaul University, 'China: Market Socialism or Capitalism?' (*Loyola University Chicago*, 13 May 2006) <http://www.luc.edu/faculty/dschwei/ChinaCap.GSA.pdf> accessed 25 April 2013 (arguing that the Chinese socialist market economy is not socialism, as the socialism involves production for use rather than profits, and the central government's direct orders rather than self-management and workplace democracy); Julan Du and Chengguang Xu, 'Market Socialism or Capitalism? Evidence from Chinese Financial Market Development' in János Kornai and Yingqi Qian (eds), *Market and Socialism: In the Light of the Experiences of China and Vietnam* (Palgrave Macmillan 2008) 88-109 (considering the current economic system to be a state capitalist system rather a socialist market economy. The financial market, as it currently exists, should not available in the market of socialism, and the state profits are retained by companies, instead of being allocated equitably to people under a social scheme.).

[35] R Hewitt Pate, 'What I Heard in the Great Hall of the People—Realistic Expectations of Chinese Antitrust' (2008) 75 ALJ 195, 197.

[36] Linda Yueh, 'Patent Laws and Innovation in China' (2009) 29(4) Int'l Rev L & Econ 304, 310.

monopolies, it took more than twenty years for the Anti-Monopoly Law of China[37] (AML) to be enacted in 2008.

After considering the historical development of the two types of law that were primarily introduced from abroad rather than originating internally, a number of conclusions can be drawn. Firstly, the centralisation advocated or implemented in culture, politics, and economy in China has impeded the development of competition law as well as IPRs due to the contradictory traditional doctrine.[38] Compared with the long history of legislation in developed countries and considering the current demand for China's modernisation, the respective development of the two types of law has been tardy and still demands improvement. In this case, the legislation on their intersection is very likely to desire an urgent improvement.

On the one hand, IPRs have a longer history of development than competition law in China and have established an entire legal system[39] that is much more sufficient than competition law. For the purposes of the promotion of indigenous innovation that aims to elevate the entire level of a particular industry as well as national competitiveness, and the satisfaction of demand from both domestic and international IPRs owners, IPRs protection has been strengthened in China.[40] On the other hand, global integration and the rapid growth of China's market economy have been ongoing, and both indigenous individual and private companies, and also foreign investors that intend to or have already acted in China, expect a more positive, competitive, free, and fair market within which they can operate on the basis of market-related regulations and competitive advantages, rather than being impeded by administrative power and anti-competitive conducts. This results in a heavy demand

[37] The Anti-Monopoly Law of China was passed by the Standing Committee of the 10th National People's Congress on 30 August 2007 and came into effect on 1 August 2008. An unofficial English version is provided in Appendix 1.

[38] The doctrine of equality is embodied in the aim of IPRs to protect private rights of intellectual property, and in the aim of competition law to safeguard the healthy competition of competitors in the market. The doctrine of centralisation does not only request a contribution to society without consideration of the private rights of such a contribution, but also very likely results in a monopoly in the economy that will be regulated by competition law.

[39] For more details, see Section 4.2.3 of Chapter 4 of the thesis.

[40] ibid.

for the improvement of competition law. The development of new competition law lags far behind of the progress of IPRs in China, which are relatively advanced. The notably uneven development of the two types of law brings about a difficulty for regulating technology transfer by competition law, as competition law has an inadequate basis in both theory and practice to pierce the IPRs mechanism. Thus, this situation also implies the inadequacy of competition legislation relating to the exercise of IPRs in China.

8.2.3 Current Competition Legislation is Inadequate for Solving Anti-competitive Issues Arising in Technology Transfer Markets in China

The current competition legislation of China is still immature,[41] and for the special area involving IPRs, is far too simplistic and general. The only and principal article regarding IPRs in the AML has logic problem, [42] which may cause misunderstanding and expected to be changed.[43] A few relevant provisions are scattered throughout various laws and regulations,[44] but they only mention the issue and do not provide specific provisions for assessing and judging it. The AML contains only one article

[41] It was not until 1st August 2008 that the Anti-Monopoly Law of China came into effect, and its implementing regulations were promulgated in the last few years.

[42] 'This law is not applicable to undertakings who exercise their intellectual property rights in accordance with the laws and administrative regulations on intellectual property rights; however, this law shall be applicable to the undertakings who eliminate or restrict market competition by abusing their intellectual property rights.' AML, art 55.

[43] It proposes to be change as 'this law is applicable to undertakings' conducts that eliminate or restrict competition by exercising IPRs; however, if the exercise of IPRs is in accordance with intellectual property law or relevant administrative regulations, it might be considered of being exempted from the scrutiny of this law.'

[44] Foreign Trade Law of China 2004, art 30 (non-challenge, tying and exclusive grant-back); Regulations for the Implementation of the Law of China on Chinese-Foreign Equity Joint Ventures 2011, art 43 (fair licensing fee, restriction on price, quantity, and territory, exploitation of a technology after expiry of the agreement, grant-back); Technology Contract Law of China 1987 (repealed 1999) and Regulations on the Implementation of the Technology Contract Law 1989 (repealed 1999) (monopolisation of technology, impediment to technology progress); Regulations on the Administration of Technology Import Contracts 1985 (repealed 2002), art 4 and Detailed Rules for the Implementation of the Regulations on Administration of Technology Import Contract 1988 (repealed 2002), art 12 (tying, selection of other suppliers to provide raw materials, restrictions on R&D, grant-back, etc.); Contract Law of China 1999, art 329 (any technology contract that illegally monopolises technologies, impedes technological progress, or infringes upon the technological fruits of others is null and void); Regulations on the Administration of Technology Imports and Exports of China 2002, art 29 (restrictions on transferee of technologies); Interpretation of the Supreme People's Court concerning Some Issues on the Application of Laws for the Trial of Cases on Disputes regarding Technology Contracts No 20/2004 (restrictions on R&D, non-compete, field of use, tying, restrictions on the technology-related objects, and non-challenge); Patent Law of China 2001, art 48 (compulsory licensing).

involving IPRs and that lends itself to confusion,[45] thus failing to meet the expectation for application to specific issues. This indicates that the current legislation is severely inadequate to satisfy the demand of tackling anti-competitive issues in technology transfer. Therefore, detailed guidelines are required to provide guidance for market actors, as well as for anti-monopoly enforcement authorities (AMEAs) and courts, to safeguard the necessary legal certainty and foreseeability.

Courts and AMEAs have insufficient experience of applying the AML to common anti-competitive practices, especially within the specific field of technology transfer. A stark contrast is apparent between the appearance and growth of anti-competitive issues involving IPRs in technology transfer, and the almost blank status of detailed regulation in China. The inadequate regulations will lead to negative outcomes; for example, Chinese plaintiffs have no strong grounds to file a case, and foreign defendants may have no basis to provide a proper defence, even though they may have sufficient experience of dealing with anti-competitive cases in other countries. Moreover, it may be difficult for either party to assess whether their conducts in the transfer meet Chinese competition law. This will not only impact the risk control of the parties, but may also discourage the technology owner from granting a transfer. In addition, it is difficult for courts and AMEAs to justify their decisions. This to some extent verifies the inadequacy of relevant competition legislation that can be inferred from the historical causes.

8.3 Proposals for Regulation of Anti-competitive Issues in Technology Transfer in China

8.3.1 The Background for Proposing Detailed Guidelines

8.3.1.1 The Necessity of Proposing Detailed Guidelines

[45] For more details of the confusion of the article, see Section 5.2.1 of Chapter 5 of the thesis.

The first rule in regard to the interface of IPRs and competition law - the Rules on the Prohibition of Abuse of Intellectual Property Rights for the Purposes of Eliminating or Restricting Competition[46] (Rules) - came into force in August 2015. The AMEAs whilst have an ambition to make a single uniform set of guidelines in this area recently.[47] This implies an increase in demand for more regulations on the market, as well as the increased emphasis being put on the legislation by AMEAs. The publication of the guidelines has drawn much attention from IPRs owners, who may be anxious about excessive restrictions on their exploitation of IPRs, as well as transferees. Thus, the guidelines should offer sufficient consideration from various aspects to balance the positive and negative effects of IPRs-related conduct. Furthermore, regardless of

[46] 关于禁止滥用知识产权排除、限制竞争行为的规定 Guanyu Jingzhi Lanyong Zhishi Chanquan Paichu、Xianzhi Jingzheng Xingwei De Guiding. The Rules were promulgated on 7th April 2015 by the State Administration of Industry and Commerce of China (SAIC) and came into force on 1st August 2015. SAIC, 'Rules (official Chinese version)' (*SAIC*, 7 April 2015) <http://www.saic.gov.cn/zwgk/zyfb/zjl/fld/201504/t20150413_155103.html> accessed 10 April 2015. An unofficial English version of the Rules is provided in Appendix 2.

[47] There are four Anti-Monopoly Enforcement Authories (AMEAs) under the State Council in China. The Ministry of Commerce (MOC) is responsible for anti-monopoly review regarding concentrations; the National Development and Reform Commission (NDRC) focuses on tackling price-related monopoly issues; the State Administration of Industry and Commerce (SAIC) deals with other non-price-related and non-concentration-related issues; and the Anti-Monopoly Commission (AMC) coordinates the anti-monopoly work of these authories. For more details about AMEAs, see Section 4.3.3 of Chapter 4 of this thesis. In 2015, the AMC tasked the State Intellectual Property Office (SIPO) and the other three AMEAs with drafting the respective guidelines, following which the Commission would revise, adjust and integrate these guidelines into a single uniform set of guidelines. The 5th draft of the Guidelines on Enforcing the Anti-Monopoly Law with Respect to Intellectual Property Rights (5th Guidelines) was published by the SAIC in 2012. The 7th draft of these guidelines (7th Guidelines) was updated in 2016. In addition, the NDRC drafted the Guidelines on Anti-Monopoly with Respect to Abuse of Intellectual Property Rights (draft for comments) (NDRC Guidelines) at the end of 2015. SAIC Task Force (draft), American Bar Association (trans), 'The 5th Draft of Guidelines on Enforcing the Anti-Monopoly Law with Respect to Intellectual Property Rights (关于知识产权领域反垄断执法的指南 Guanyu Zhishi Chanquan Lingyu Fan Longduan Zhifa De Zhinan),' both Chinese and English version (*American Bar Association*, 2012) <http://www.americanbar.org/content/dam/aba/uncategorized/international_law/aba_china_aml_ip_guidelines_comments_finalpackage.authcheckdam.pdf> accessed on 5 October 2015. SAIC, 'Guidelines on Enforcing the Anti-Monopoly Law with Respect to Abuse of Intellectual Property Rights (7th draft of SAIC) (关于滥用知识产权的反垄断执法指南 (国家工商总局第七稿) Guanyu Lanyong Zhishi Chanquan De Fan Longduan Zhifa Zhinan (Guojia Gongshang Zongju Diqi Gao)),' (*SAIC*, 4 February 2016) <http://www.saic.gov.cn/fldyfbzdjz/gzdt/201602/t20160204_166524.html...> accessed 28 March 2016. NDRC, 'Guidelines on Anti-Monopoly with Respect to Abuse of Intellectual Property Rights (draft for comments) (关于滥用知识产权的反垄断指南 (征求意见稿) Guanyu Lanyong Zhishi Chanquan De Fan Longduan Zhinan (Zhengqiu Yijian Gao)),' (NDRC, 31 December 2015) <http://jjs.ndrc.gov.cn/fjgld/201512/t20151231_770233.html> accessed 2 February 2016; AMC, 'Guidelines on Anti-Monopoly with Respect to Abuse of Intellectual Property Rights (draft for comments) (关于滥用知识产权的反垄断指南 (征求意见稿) Guanyu Lanyong Zhishi Chanquan De Fan Longduan Zhinan (Zhengqiu Yijian Gao)),' (*AMC*, 23 March 2017) <http://fldj.mofcom.gov.cn/article/zcfb/201703/20170302539418.shtml> accessed 2 April 2017.

whether the guidelines favour technology transferors or transferees, the guidelines should be predictable and certain, so that business operators can estimate the legal results of their conduct in technology transfer; otherwise the technology owners may prefer to retain rather than transfer technologies. Thus, the requirements of explicitness, predictability and certainty call for comprehensive and detailed guidelines.

However, the existing proposed guidelines are still too general and simple. The enforced Rules are the first legislation focusing on IPRs-related anti-competitive issues, and they contain more contexts comparing with the Article 55 of the AML, but have very few analysis for specific issues. After this, the State Administration of Industry and Commerce further made the Guidelines on Enforcing the Anti-Monopoly Law with Respect to Abuse of Intellectual Property Rights (7th Guidelines), which show its intension to provide some relatively comprehensive guidelines. The 7th Guidelines embody primary principles, procedures, methods of assessment, identification of relevant markets, specific restrictions in both monopoly agreements and abuse of dominant position, etc. They provide limited anaysis on some primary specific restrictions. The Guidelines on Anti-Monopoly with Respect to Abuse of Intellectual Property Rights (draft for comments) (NDRC Guidelines)made by National Development and Reform and Committee have almost the same structure as the 7th Guidelines, but the guidance of assessment for specific issues are less. The latest Guidelines on Anti-Monopoly with Respect to Abuse of Intellectual Property Rights (draft for comments) (AMC Guidelines) published by Anti-Monopoly Committee seem to very like NDRC Guidelines, which are too simple and not detailed sufficiently, although the making of the AMC Guidelines have considered other drafts.

The Rules and the drafts have acquired some valuable approaches for analysing general anti-competitive issues from the Antitrust Guidelines for the Licensing of Intellectual Property of United States 2017 [48] (Antitrust Guidelines 2017) and Commission Regulation (EU) No 316/2014 of 21 March 2014 on the application of

[48] The Antitrust Guidelines issued by the US Department of Justice and the Federal Trade Commission on 12 January 2017.

Article 101(3) of the Treaty on the Functioning of the European Union to categories of technology transfer agreements [2014] OJ L93/17 49 (TTBER 316/2014) and its guidelines[50] (Guidelines of TTBER 316/2014).[51] But the Rules and drafts have very few detailed approaches for assessing specific anti-competitive issues,[52] although these approaches are available in the Antitrust Guidelines 2017[53] and Guidelines of TTBER 316/2014.[54] Moreover, even though the analysis in the Antitrust Guidelines 2017 for specific anti-competitive issues is not as sufficient as that contained in the Guidelines of TTBER 316/2014, the Department of Justice (DOJ) and the Federal Trade Commission (FTC) of the United States (US) have produced a number of relevant reports,[55] and also numerous court decision[56] are available, which constructed a

[49] TTBER 316/2014 entered into force on 1 May 2014 and will expire on 30 April 2026. It supersedes Commission Regulation (EC) No 772/2004 of 27 April 2004 on the application of Article 81(3) of the Treaty to categories of technology transfer agreements [2004] OJ L123/11 (TTBER 772/2004), and makes some amendments.

[50] Communication from the Commission — Guidelines on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements [2014] OJ C89/3. It also supersedes the guidelines of TTBER 772/2004. Commission Notice — Guidelines on the application of Article 81 of the EC Treaty to technology transfer agreements [2004] OJ C101/2 (Guidelines of TTBER 772/2004).

[51] For example, the Rules and the drafts make use of 'safe harbour' that is applied in both the Antitrust Guidelines 2017 and TTBER 316/2014. Rules, art 5; 5th Guidelines, art 12; 7th Guidelines, art 21; NDRC Guidelines, art 2(3); Antitrust Guidelines 2017, s 4.3 (safety zone); TTBER 316/2014, arts 4-5 (hardcore restrictions). Also, the drafts contain some general principles and approaches for analysing anti-competitive conducts, relevant markets, dominant position, effects on competition, etc., which is very similar to the relevant content in the Antitrust Guidelines 2017. 5th Guidelines, Ch 2; 7th Guidelines, arts 4,5 and 6; NDRC, art 1; Antitrust Guidelines 2017, arts 2-4; Guidelines of TTBER 316/2014, s 4.1.

[52] Both the Rules and the drafts have some simplistic provisions for a few anti-competitive issues. Rules, arts 7 (refusals to license), 9 (tying) and 10 (unreasonable conditions on transactions); 5th Guidelines, arts 17 (refusals to license), 18 (tying) and 19 (unreasonable conditions on transactions); 7th Guidelines, ch 3 (definition of some monopoly agreements), arts 23 (unfairly high licensing fee), 24 (refusals to license IPRs), 25 (tying) and 26 (imposition of unreasonable restrictions); NDRC Guidelines, arts 2 (coordination of develoment, patent pools, cross-licensing, standard setting, price restriction, exclusive grant-back and non-doubt) and 3 (unfairly high licensing fee, refusals to license IPRs, tying, imposition of unreasonable restritions, discriminatory treatment and injunction relief).

[53] Antitrust Guidelines 2017, ss 5.1-5.7 (including how to assess horizontal restraints, resale price maintenance, tying arrangements, exclusive dealing, cross-licensing and pooling arrangements, grant-backs, and acquisition of intellectual property rights).

[54] Guidelines of TTBER 316/2014, s 4.2 (including royalty obligations, exclusive licensing and sales restrictions, exclusive and sole licences, sales restrictions, output restrictions, field of use restrictions, captive use restrictions, tying and bundling, non-compete obligations, etc.).

[55] US Department of Justice and Federal Trade Commission, 'Antitrust Enforcement and Intellectual Property Rights: Promoting Innovation and Competition' (*Federal Trade Commission*, April 2007), <http://www.ftc.gov/sites/default/files/documents/reports/antitrust-enforcement-and-intellectual-property-rights-promoting-innovation-and-competition-report.s.department-justice-and-federal-trade-commission/p040101promotinginnovationandcompetitionrpt0704.pdf> accessed 12 April 2013; US Department of Justice, 'Antitrust and Intellectual Property' (US Department of Justice, January 2003) <http://www.justice.gov/atr/public/speeches/200701.htm> accessed 15 April 2013.

[56] See Chapter 6 and Section 7.2 of Chapter 7 of this thesis.

scheme for applying competition law to IPRs. In the European Union (EU), besides the very detailed TTBER 316/2014 and its guidelines, there are extensive case law and Commission decisions [57] to provide supplementary assistance. By contrast, the application of the AML to common practice in China is brand new, and its application to IPRs is far more complicated for AMEAs, courts, and companies, especially as they lack relevant experience, so even the Rules and the drafts are too simplistic to be applied properly.

Furthermore, because mostly a 'rule of reason' and effects-based approach has been followed in recent times, the application of the AML needs to involve a sophisticated assessment of the positive and negative effects. The effects should be considered from various aspects;[58] it is difficult to conduct a proper assessment without detailed guidelines as well as sufficient knowledge specialising in the area.

In addition, the legal uncertainty that stems from such inadequate legislation will impede the transfer of technology in very real terms, as powerful technology owners may be unwilling to transfer their technology because they are unable to ensure that the restrictions they intend to impose on the licensee to maximise their profits are lawful. At the same time, the less powerful licensees may not have strong legal arguements to use against licensors during the negotiation period, and may not be able to claim compensation for the licensor's uncertain anti-competitive conducts due to potentially unaffordable legal costs. Although the legislation should allow some manoeuvrability for courts and AMEAs to operate flexibly when dealing with unexpected problems in the future, the legislative guidelines should be clearly specified in relation to common anti-competitive restrictions in technology transfer, similar to TTBER and its guidelines, to offer more legal predictability and certainty. Therefore, detailed guidelines are demanded as a necessity for China.

[57] See Chapter 6 and Section 7.3 of Chapter 7 of this thesis.

[58] The effects include incentive for initial and follow-on innovation, incentive for transferring technology, reduced costs of production and distribution of products, decrease of price, increase of output, provision of more consumer choice, restriction or elimination of competition, etc.

8.3.1.2 Some Factors to be Considered when Proposing Detailed Guidelines

Above all, the rule of reason and effects-based approach will be employed as a principle. The IPRs system grants exclusive rights to IPRs owners so that they have improved opportunities for recouping investments and gaining extra profits, thus facilitating investment in R&D. This would generate dynamic efficiency that accumulates social fortune to satisfy people and benefit consumers in the long run.[59] However, when right owners exercise IPRs in technology transfer, restrictions can be imposed on licensees and this may restrain competition in the market. The competition mechanism embodied in competition law has a great function for allocation of resources in accordance with the supply-demand relation and to the exclusion of other factors that may restrict such a mechanism.[60] The static efficiency of competition reflects immediate welfare for consumers as they could benefit from the lower price, sufficient supply, and better quality resulting from competition among suppliers. However, there are instances where the company with a legally gained dominant position will violate competition law by using its position in some way, such as the abuse of it, which may discourage the company to invest in R&D when it obtains such position by invention, and affect the dissemination of technology as the company may be reluctant to transfer it. In addition, a higher number of creations promoted by IPRs entering the market results in stronger competition in the market, which in turn results in more incentive for competitors to invest in R&D in order to be included in the competition, and possibly even win it. Thus, both the IPRs system and the competition mechanism can promote innovation, competition, and consumer welfare. When considering if an anti-competitive conduct should be intervened by competition law, it should not be judged on merely the conduct itself, but the positive and negative effects as a result of applying the competition law should be weighed up, including the effects on innovation, competition, and consumer welfare, etc.

[59] Joseph E Stiglitz and Carl E Walsh, *Economics* (4th edn, WW Norton 2011) 35.

[60] Herbert Hovenkam and others, *IP and Antitrust: An Analysis of Antitrust Principles Applied to Intellectual Property Law* (2nd edn, Aspen 2010) Chs 1, 13.

China possesses certain characteristics that are different to those of developed countries, and these should be considered. Firstly, China plays mainly a role of importing rather than exporting advance technology, and so the guidelines are expected to assess the impacts on promoting technology owners to grant transfers, as well as to provide more scope for Chinese transferees to exploit the transferred technology on a fair basis.[61] Secondly, the technological foundation of China is relatively low[62] and complete innovation is difficult, and so follow-on innovation is vital, in addition to indigenous innovation. If competition law favoured technology transferees, it would benefit by promoting the function of technology spillovers for follow-on innovation.[63] Thirdly, although the entire economy has greatly improved after thirty years of implementing the Reform and Opening Policy, it is a time for China, as a developing country, to place more emphasis on development of Chinese citizens' welfare.[64] This also conforms to the current objective of the Chinese government to construct a harmonious society.[65] By adopting competition law, immediate welfare can be achieved to a far greater extent.

As a result of these factors, two types of conduct in technology transfer should be highlighted. For horizontal and vertical agreements, especially when the parties do

[61] If competition law is too strict, the technology owner would become reluctant to transfer technology due to a difficulty imposing restrictions that would maintain competitive advantage. If competition law is too lenient, the local transferee companies may not be make good use of the technology.

[62] Chih-Hai Yang and others, 'Intellectual Property Rights and Patenting in China's High-technology Industries: Does Ownership Matter?' (2011) 19 (5) China & World Econ 102, 120-22 (the empirical study shows relatively low R&D productivity for China's high-technology industries, compared with OECD countries).

[63] When the technology owner has a solid intention to transfer technology to China for obvious reasons, possibly a high licensing fee, large market, or lower labour costs, then the incentive of the technology owner to transfer the technology need not be considered; otherwise, the incentive should be considered. The impacts could vary depending on the situation. For instance, provided that the technology is very new and valuable, and there are few substitutes in the market, in order for it to be introduced to China, emphasis should be placed on the beneficial impacts of technology dissemination in an effects-based assessment. However, if other competitors are available in a relevant market, the impacts of restricting or eliminating competition will draw much attention.

[64] For example, the GDP growth rate of China has been approx. 10% over the past 30 years, and in 2013 the GDP of China was USD 9,240,270 million (GBP 5,775,168.75 million), accounting for 12.34% of global GDP. This ranks China in second place, behind the US at USD 16,800,000 million (GBP 10,500,000). In contrast, China's GDP per capita in 2013 was USD 6,807 (GBP 4,254.37), which is far lower than that of developed countries, such as USD 53,143 (GBP 33,214.38) of the US, USD 45,085 (GBP 28,178.13) of Germany, USD 39,337 (GBP 24,585.63) of the UK, and USD 38,492 (GBP 24,057.50) of Japan. World Bank, 'GDP per capita (current US$)' (*World Bank*, no date) <http://data.worldbank.org/indicator/NY.GDP.PCAP.CD> accessed 1 August 2014.

[65] John King Fairbank and Merle Goldman, *China: A New History* (Howard University Press 2006) 468.

not hold a dominant position, to encourage the dissemination of technology and indigenous innovation to create a prosperous technology market in China, the regulation of competition law could be made relatively more lenient as the anti-competitive effects on the market might be limited and there would be some competitors and substitutes in the market. This would especially benefit small and medium enterprises (SMEs) that do not have a dominant position and are very likely to grow more efficiently with potential competitiveness; some Chinese SMEs are expected to become multinationals in the future so this will not only improve the technology level in certain industries, but also provide them with a competitive global advantage. As such, only if the agreements lead to substantially anti-competitive harm without objective justification will they be caught by competition law. With regard to companies occupying a dominant position, they have fewer competitors, easily control the market, and abuse their dominant position to restrict or eliminate competition, even likely to leverage the market power to secondary markets, and so more emphasis should be placed on them as the potential for the generation of severe adverse effects requires firm regulation through competition law.

8.3.2 Proposals for Dealing with Anti-competitive Issues When Technology Owners Transfer Technology in China

When a technology owner grants a licence, he could impose various restrictions in order to secure his advantages or achieve his IPRs strategy. However, some restrictions may violate competition law because they lead to anti-competitive effects, and the negative effects outweigh the efficiency. Therefore, the assessment of the positive and the negative effects of the anti-competitive restriction is crucial for deciding whether or not the restriction falls within the scope of competition law. The proposals would provide detailed guidelines for directing the analysis of these effects from specific anti-competitive issues, such as price fixing, price discrimination, allocation of markets, tying, and grant-back restrictions.

Firstly, price fixing damages the mechanism for setting a price in accordance with supply-demand relations by charging a super-high price in a manipulative way, and

seriously limits the fundamental competition of price. It is generally prohibited as it rarely produces any efficiency.[66] However, some efficiencies may be considered when technology transfer is involved,[67] such as saving costs in management and organisation; economies of scale in joint ventures; dissemination of technology by keeping competition soft for a technology owner; and the avoidance of a strategy of predatory pricing or excessive pricing. An important index to assess price fixing is to observe whether the ultimate price on the market is excessively high. If it is, then this at least highlights the consumer harm and is very likely unlawful; if it is not, then it is necessary to consider the motive for engaging in such conduct and may be justified.

Secondly, price discrimination refers to charging different customers a different price for the same transaction, resulting in primary line and secondary line injuries.[68] Several relevant cases have arisen in China, such as *Kam Hing v Microsoft* and *Huawei v InterDigital*. Unfortunately, the drafts do not provide sufficient guidance relating to price discrimination.[69] Regarding primary line injury, it is the dominant company that must bear the burden of proof for objective justification of the low price, rather than for the other party to prove the anti-competitive motive and the subsequent raising of the price to recoup losses and gain supra-competitive profits. For secondary line injury, it should be noted whether or not the dominant company operates in a downstream market. If not, the primary motive of a dominant company to charge excessively high royalties to some licensees is to gain more profit, which places the licensees at a competitive cost disadvantage in a downstream market. However, if it does, the

[66] The *per se* rule has been widely applied to price fixing in common practices in the US. *United States v Socony-Vacuum Oil* 310 US 150, 218 (1940) (confirmed price fixing is *per se* unlawful under the Sherman Act); *United States v Trenton Potteries* 273 US 392 (1927) (the defence of being reasonable and not to harm consumers was not accepted by courts); *United States v Trans Missouri Freight Association* 166 US 290 (1897) (the excuse of avoiding ruinous competition in price was declined by courts).

[67] The US prefers to apply the *per se* rule to IPRs-related practices except for the resale price maintenance. Antitrust Guidelines 2017, s 5.1; *Mallinckrodt v Medipart* 976 F2d 700 (Fed Cir 1992) (the court held that the patentee could freely impose restrictions on post-sales, and that only price fixing and tying should be dealt with by the *per se* illegal rule). In the EU, price fixing is regarded as a hardcore restriction in TTBER 316/2014 as well as in Article 101 of the TFEU, but it is not *per se* illegal; rather, it could be exempted from being caught within the scope of competition law. See TTBER 316/2014, art 4(2)(a) (maximum sale price or recommending a sale price in an agreement between non-competitors in some cases can be block exempted).

[68] Alison Jones and Brenda Sufrin, *EU Competition Law: Text, Cases, and Materials* (5th edn, Oxford University Press 2014) 388.

[69] There is only one provision that stipulates that IPRs shall not be licensed with an unfairly high price. 5th Guidelines, art 16.

dominant company may exercise price discrimination to restrict or eliminate competition in a downstream market.[70] For vertically integrated price discrimination, it is necessary to observe the technology costs of the company itself, and then compare them with the licence fee for other licensees.

The invention of new technology normally requires initially large sunk costs but very small margin costs for licences. As such, the technology owner should be allowed to set up different royalties to maximise income to recoup investment and promote incentives for innovation.[71] The differential royalties should be based upon proper criteria, such as quantity and customer group. Otherwise, if equivalent transaction licensees or customers have been charged different rates, competition law may intervene where seriously anti-competitive effects result.

Thirdly, there are different types of market allocation, such as an exclusive licence in a specific territory or over a specific customer group or field.[72] In a horizontal agreement, the restriction may be the collusion of competitors to reserve certain markets for themselves with the other party agreeing not to enter that market, thus eliminating the competition.[73] In a vertical agreement, the major problem is a restriction or elimination of intra-technology among licensees or between licensees and licensors.[74]

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[70] Jerry A Hausman and Jeffery K MacKie-Mason, 'Price Discrimination and Patent Policy' (1988) 19 RAND J Econ 253.

[71] William J Baumol and Daniel G Swanson, 'The New Economy and Ubiquitous Competitive Price Discrimination: Identifying Defensible Criteria of Market Power, Symposium on Competitive Price Discrimination' (2003) 70 ALJ 661.

[72] Herbert Hovenkam and others, *IP and Antitrust: An Analysis of Antitrust Principles Applied to Intellectual Property Law* (2nd edn, Aspen 2010) 110-11.

[73] The horizontal allocation of markets is *per se* illegal unless it has objective justification in US law. See Antitrust Guidelines 2017, s 5.1 ('[...] some restraints may merit *per se* treatment, including price fixing, allocation of markets or customers, agreement to reduce output, and certain group boycotts'); Sherman Act 1890 (15 USC § 1) ('Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is declared to be illegal'); *United States v Topco Associates* 319 F Supp 1031 (ND III 1970), 405 US 596 (1972) (the Supreme Court confirmed the horizontal territorial restriction was per se illegal). Allocation of markets is considered to be a hardcore restriction but can be exempted in some cases in EU law. See TTBER 316/2014, art 4 (1)(c); Case 258/78 *Nungesser v Commission* [1982] ECR 2015, [1983] 1 CMLR 278 (the court stated that in certain circumstances the territorial restriction in a licence would not be prohibited under Article 101(1)).

[74] The restriction on intra-technology competition is considered to have less adverse impact than on inter-technology competition in horizontal agreements, because the latter may affect the entire relevant market while the former only involves a single technology in the relevant market. Thus, vertical agreements are treated more leniently; for instance, the rule of reason can be applied to a vertical

This is especially the case when the licensor acquires a dominant position, and so the intra-technology competition, as the main competition in the market, may be restricted or eliminated by the vertical restriction, and will bring with it severe anti-competitive effects to the market and harm to consumer welfare.[75] The AML only explicitly stipulates the prohibition of vertical price-related restrictions,[76] but the vertical allocation of markets should not be ignored. Nonetheless, the allocation of markets can also generate efficiencies. It grants licensors a right to reserve a certain market for themselves, which means that they would be more disposed to grant a licence to another specific market, as there would be no chance of competitors competing with them.[77] It also removes the same worries from licensees so that they are willing to take risks and invest in manufacturing technology-related products, especially when the products are completely new and the investment is large, and this is very important when the technology is new. Only once both the licensor and the licensee stop being concerned about their business being affected by other competitors and wish to be involved in licensing will the technology be effectively exploited and disseminated, eventually benefiting consumers.

Fourthly, tying can be used to leverage market power in a tying products market to a tied products market to exclude competition in the tied market, as well as to harm consumer choice.[78] Both the Rules and drafts contain some relevant guidance, in particular for assessing four conditions: dominance in the tying products market;

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allocation of markets in US law. Antitrust Guidelines 2017, s 2.3, example 1 (field of use and territorial limitations); s 4.1.2, example 8 (exclusive license and exclusive dealing). *Continental TV v GTE Sylvania* 433 US 36 (1977) (the Supreme Court confirmed that the rule of reason should be applied to territorial restrictions); *Mallinckrodt v Medipart* 976 F2d 700 (Fed Cir 1992) (the Federal Circuit Court confirmed that the absolute *per se* rule is only applied to price fixing and tying in post-sale restrictions); *Quanta Computer v LG Electronics* 553 US 617 (2008) (the courts did not apply the *per se* rule to a field of use restriction of post-sale).

[75] In this case, the intra-technology competition may account for the main competition in the relevant market, thus the vertical allocation of markets may have severe adverse impact on the relevant market.

[76] AML, art 14.

[77] Louis Kaplow, 'The Patent-Antitrust Intersection: A Reappraisal' (1984) 97 Harv L Rev 1813, 1827.

[78] The rule of reason has been applied to tying in both the US and the EU. Antitrust Guidelines 2017, s 5.3 ('[a]lthough tying agreements may result in anticompetitive effects, such arrangements can also result in significant efficiencies and precompetitive benefits'); *United States v Microsoft* 87 F Supp 2d 30, 47 (DDC 2000), aff'd in part, rev'd in part, 253 F3d 34 (DC Cir 2001) (the court considered the possible efficiency of tying); *Atari Games v Nintendo of America* 897 F2d 1572, 1576 (Fed Cir 1990); 975 F2d 832, 24 USPQ 2d 1015 (1992) (tying in a patent licence did not violate antitrust law *per se*). Guidelines of TTBER 316/2014, paras 221-25. Guidance of Article 102, paras 28-31, 50-55.

separate tying and tied products; anti-competitive effects; and justifiable causes.[79] One of the main problems is that the drafts stipulate characteristic and commercial usage as criteria to assess two separate products,[80] but this misses an important standard — consumer demand.[81] With rapid technological development taking place, the US and the EU currently place a different emphasis on the judging of separate products.[82] The US favours IPRs owners in order to encourage innovation, whilst the EU favours licensees in order to emphasise the order of competition in the market.[83] It is proposed that the guidelines in China should apply the EU model, a relatively lenient standard for judging separate products, to avoid harm to competition and consumers caused by tying.

Tying can be used to restrict competition in the tied products market, as other competitors could be excluded from the market and the entry barrier to the market would be raised. Tying can also foreclose the competition in tying product markets, as entrants must enter more than one market simultaneously. Ultimately, technology owners with a dominant position can charge super-competitive prices and the consumer choice would be impeded. However, in some cases, the tying can produce efficiencies. When the tied product is necessary for the use of the licensed technology so that it satisfies technological requirements or conforms to quantity standards, especially when the trade mark or brand name is also licensed and a certain product

[79] 5th Guidelines, art 18; 7th Guidelines, art 25; NDRC Guidelines, art 3(2)(3); Rules, art 9.

[80] ibid 5th Guidelines, art 18; 7th Guidelines, art 25; NDRC Guidelines, art 3(2)(3).

[81] It should be clear that consumer habit is different to consumer demand. The former is normally established on the grounds of experience and activities in the past, and also possibly based on the lock-in effect which stems from the dominance of a certain market actor. The latter is more objective for judging what exactly consumers need and, if there is a habit, whether such a habit has any justification; if not, whether breaking the habit will bring more welfare to consumers.

[82] In Microsoft on tying IE, the US court believed that if the product was a 'valid, not insignificant and technological' development on the prior products, the product could be deemed as a wholly new product, although there may be individual consumer demand for different parts of the product. See *United States v Microsoft* 87 F Supp 2d 30, 47 (DDC 2000), aff'd in part, rev'd in part, 253 F3d 34 (DC Cir 2001). In contrast, the EU court makes it easier to identify that two products are separate, which would be more like to amount to tying that violates competition law. For instance, the Windows Media Player was considered separate from, rather than unified with, the Windows operating system. See *Microsoft v Commission* [2007] ECR II-3601 [913], [914], [922] (the court accepted that 'consumers want to find a media player pre-installed on their computers' but 'from different sources').

[83] James F Ponsoldt, Christopher D David, 'Comparison between US and EU Antitrust Treatment of Tying Claims against Microsoft: When Should the Bundling of Computer Software be Permitted (2007) 27(2) Nw J Int'l L & Bus 421, 451.

quality is required in order to maintain the value and reputation,[84] or the tied product can significantly improve the exploitation of the licensed technology,[85] then the tying may be exempted from competition law.[86]

Finally, the primary anti-competitive effects of grant-back on licensees is that it discourages follow-on innovation; for instance, Chinese companies that intend to invest in and gain the improvement of a licensed technology may not conduct the investment if a grant-back was imposed. However, it is also necessary to be aware that licensors have been losing technological advantages by not gaining new improvements invented by the licensee, so the incentive of technology owners to transfer technologies is an efficiency to be assessed.[87] For certain types of grant-back, such as reciprocal, non-exclusive, or non-free grant-back, the licensee could receive new improvements invented by the licensor; or he could exploit or license the improvement to third parties; or the licensee could receive a proper amount of royalties for the improvement; or the restriction is only minimal because the licensee can benefit from the improvement, the grant-back restriction might be exempted.

8.3.3 Proposals for Dealing with Refusals to Transfer Technology in China

Not enough emphasis has been placed on refusals to transfer in China. However, refusals are inconsistent with one of its most important objectives: to enhance technology transfer. From the perspective of Chinese interests, it is currently an advanced technology importing party, and China would benefit greatly if it imposed more lenient conditions for the application of competition law to regulate refusals to transfer, as this would not only promote the dissemination of technology but also

[84] Guidelines of TTBER 316/2014, para 224.
[85] ibid 225.
[86] The US and the EU have different treatments of objective justification; for instance, the US courts are likely accept a cause of safety or hygiene while the EU courts may not. For more details, see the analysis of the *TSUM* case in Section 6.5.4.4 of Chapter 6 of this thesis. China is proposing to take a stricter approach for acceptance of these causes in order to restrict the adverse effects of tying on the market.
[87] Both the US and the EU apply the rule of reason rather than *per se* illegal to grant-back. See Antitrust Guidelines 2017, s 5.6, *Transparent-Wrap Machine v Stokes & Smith* 329 US 637 (1947) (the Supreme Court held that grant-back is not *per se* illegal because it might create the licensor's right to exploit the improvement after the expiry of the original patent); Guidelines of TTBER 316/2014, paras 129-32.

improve the technological level of Chinese companies. Nevertheless, the application of competition law should not simply be a tool for pillaging intellectual work and harming the essence of the IPRs system without justification.[88] Moreover, it should obey the basic principle of weighing the positive and negative effects that such regulation has on refusals.

Both the Rules and the drafts contain some guidance on how to apply the essential facilities doctrine to refusals to license,[89] but they do not provide sufficient detailed conditions for application of the doctrine, and so the AMEAs, courts, and companies find it difficult to assess what constitutes a refusal to license that violates competition law. It is proposed that five primary conditions may amount to such a violation. Firstly, the IPRs are indispensible, which could be either that substitutes are not available or that the market does not accept the substitutes due to exceptional reasons, such as a lock-in effect. Secondly, the refusal to license leads to an absence of effective competition in the market. It must be borne in mind that this does not require the elimination of all competition, only prevention of effective competition. Thirdly, the refusal to license has an adverse effect on innovation, especially impeding the appearance of new products or the development of new technology. However, the new products need not be completely new in relation to the existing products but could be only partly new. Fourthly, consumer welfare is harmed as a result of the refusal to license. The adverse effects on competition and innovation result in the consumer not benefiting from things such as lower prices and better products. Fifthly, two separate markets are normally required, in which the refusal of the IPRs or IPRs-related product in the upstream market will lead to adverse effects in the downstream market. However, the objective justification for conducting the refusal to license should be considered.

[88] China, in particular, has been denounced for offering insufficient protection for IPRs. If the application of a compulsory licence by competition law has no strong ground, it would not only break the IPRs system but also induce further criticism from the West, and this would affect the global integration of China.

[89] 5th Guidelines, art 17; 7th Guidelines, art 24; NDRC Guidelines, art 3(2)(2).

8.4 Further Studies

In addition to some primary, specific anti-competitive issues that have been analysed, certain other issues, such as cross-licensing, non-challenge, need to be discussed but are not analysed in this thesis due to the limitation of space.

Patent pools and standardisation are also important issues in technology transfer, and they often have a severe impact on an entire industry rather than on a few individual companies. As discussed in Chapter 4, some Chinese industries, such as the DVD industry, have suffered greatly due to the anti-competitive conducts of patent pools and standardisation. In addition, with great investment in R&D, some Chinese companies hold some new technologies in certain industries. As such, they need to know how to properly operate a patent pool or to establish industrial standards in order to diffuse the technologies, as well as to uphold their competitive standards. Therefore, emphasis must be placed on the proper application of the AML to these practices.

8.5 Contributions of the Thesis

This study has contributed to the legislation and the academic literature in the following ways. Firstly, it analyses the dynamic and static efficiencies, and consumer welfare, stemming from both IPRs and competition to clarify their relationship and identify the necessity of applying competition law to IPRs in exceptional cases. Then, it observes the foreign-related and domestic technology market and relevant anti-competitive issues. It also has set out the historical developments of the intellectual property law and competition law of China, and the current legislation to address these issues. The conclusion drawn has been that there is inadequate competition legislation in the interface between IPRs and competition law in China, and the proposition of more comprehensive guidelines is highly demanded and consistent with the evolutionary paths of the two types of law.

After discovering the inadequacy, this thesis has not provided general suggestions but has instead discussed specific anti-competitive issues. It has highlighted the relevant developments and experiences of the US and the EU in tackling each anti-competitive issue, and has discussed the similarities and differences. It has then gone on to analyse the current legislation, especially the relevant stipulations of the the Rules and the drafts. The Rules and the drafts are the most recent updates of the only available guidance specialising in the interface between IPRs and competition law, providing some relatively detailed provisions that reflect the most recent attitudes, thinking, and research of Chinese AMEAs. The errors and inadequacies of these have been pointed out. Finally, the thesis has proposed detailed guidelines, based on the experiences of the US and the EU, bearing in mind the character and individual situation of China, in order to consider the positive and negative effects of each issue, and to aid in the decision of whether or not competition law should apply.

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APPENDICES

Appendix 1

An unofficial English version of Anti-Monopoly Law of China on the official website of National People's Congress of China which adopted the law. (http://www.npc.gov.cn/englishnpc/Law/2009-02/20/content_1471587.htm, accessed on 20 March 2016)

Anti-monopoly Law of the People's Republic of China

(Adopted at the 29th Meeting of the Standing Committee of the Tenth National People's Congress on August 30, 2007)

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Chapter I

General Provisions

Article 1 This Law is enacted for the purpose of preventing and restraining monopolistic conducts, protecting fair market competition, enhancing economic efficiency, safeguarding the interests of consumers and the interests of the society as a whole, and promoting the healthy development of socialist market economy.

Article 2 This Law is applicable to monopolistic conducts in economic activities within the territory of the People's Republic of China; and it is applicable to monopolistic conducts outside the territory of the People's Republic of China, which serve to eliminate or restrict competition on the domestic market of China.

Article 3 For the purposes of this Law, monopolistic conducts include:
(1) monopoly agreements reached between undertakings ;
(2) abuse of dominant market position by undertakings; and
(3) concentration of undertakings that lead, or may lead to elimination or restriction of competition.

Article 4 The State shall formulate and implement competition rules which are compatible with the socialist market economy, in order to improve macro-economic regulation and build up a sound market network which operates in an integrated, open, competitive and orderly manner.

Article 5 Undertakings may, through fair competition and voluntary association, get themselves concentrated according to law, to expand the scale of their business operations and enhance their competitiveness on the market.

Article 6 Undertakings holding a dominant position on the market may not abuse such position to eliminate or restrict competition.

Article 7 With respect to the industries which are under the control of by the State-owned economic sector and have a bearing on the lifeline of the national economy or national security and the industries which exercise monopoly over the production and sale of certain commodities according to law, the State shall protect the lawful business operations of undertakings in these industries, and shall, in accordance with law, supervise and regulate their business operations and the prices of the commodities and services provided by them, in order to protect the consumers' interests and facilitate technological advance.

The undertakings mentioned in the preceding paragraph shall do business according to law, be honest, faithful and strictly self-disciplined, and subject themselves to public supervision, and they shall not harm the consumers' interests by taking advantage of their position of control or their monopolistic production and sale of certain commodities.

Article 8 Administrative departments or organizations authorized by laws or regulations to perform the function of administering public affairs may not abuse their administrative power to eliminate or restrict competition.

Article 9 The State Council shall establish an anti-monopoly commission to be in charge of organizing, coordinating and guiding anti-monopoly work and to perform the following duties:

(1) studying and drafting policies on competition;

(2)organizing investigation and assessment of competition on the market as a whole and publishing assessment reports;

(3) formulating and releasing anti-monopoly guidelines;

(4) coordinating administrative enforcement of the Anti-Monopoly Law; and

(5) other duties as prescribed by the State Council.

The composition of and procedural rules for the anti-monopoly commission shall be specified by the State Council.

Article 10 The authorities responsible for enforcement of the Anti-monopoly Law specified by the State Council (hereinafter referred to, in general, as the authority for enforcement of the Anti-monopoly Law under the State Council) shall be in charge of such enforcement in accordance with the provisions of this Law.

The authority for enforcement of the Anti-monopoly Law under the State Council may, in light of the need of work, empower the appropriate departments of the people's governments of provinces, autonomous regions or municipalities directly under the

Central Government to take charge of relevant enforcement of the Anti-monopoly Law in accordance with the provisions of this Law.

Article 11 Trade associations shall tighten their self-discipline, give guidance to the undertakings in their respective trades in lawful competition, and maintain the market order in competition.

Article 12 For the purposes of this Law, undertakings include natural persons, legal persons, and other organizations that engage in manufacturing, or selling commodities or providing services.

For the purposes of this Law, a relevant market consists of the range of the commodities for which, and the regions where, undertakings compete each other during a given period of time for specific commodities or services (hereinafter referred to, in general, as "commodities").

Chapter II
Monopoly Agreements

Article 13 Competing undertakings are prohibited from concluding the following monopoly agreements:
(1) on fixing or changing commodity prices;
(2) on restricting the amount of commodities manufactured or marketed;
(3) on splitting the sales market or the purchasing market for raw and semi-finished materials;
(4) on restricting the purchase of new technologies or equipment, or the development of new technologies or products;
(5) on joint boycotting of transactions; and
(6) other monopoly agreements confirmed as such by the authority for enforcement of the Anti-monopoly Law under the State Council.

For the purposes of this Law, monopoly agreements include agreements, decisions and other concerted conducts designed to eliminate or restrict competition.

Article 14 Undertakings are prohibited from concluding the following monopoly agreements with their trading counterparts:
(1) on fixing the prices of commodities resold to a third party;
(2) on restricting the lowest prices for commodities resold to a third party; and
(3) other monopoly agreements confirmed as such by the authority for enforcement of the Anti-monopoly Law under the State Council.

Article 15 The provisions of Article 13 and 14 of this Law shall not be applicable to the agreements between undertakings which they can prove to be concluded for one of the following purposes:
(1) improving technologies, or engaging in research and development of new products; or
(2) improving product quality, reducing cost, and enhancing efficiency, unifying specifications and standards of products, or implementing specialized division of production;
(3) increasing the efficiency and competitiveness of small and medium-sized undertakings;
(4) serving public interests in energy conservation, environmental protection and disaster relief;
(5) mitigating sharp decrease in sales volumes or obvious overproduction caused by economic depression;
(6) safeguarding legitimate interests in foreign trade and in economic cooperation with foreign counterparts; or
(7) other purposes as prescribed by law or the State Council.

In the cases as specified in Subparagraphs (1) through (5) of the preceding paragraph, where the provisions of Articles 13 and 14 of this Law are not applicable, the undertakings shall, in addition, prove that the agreements reached will not

substantially restrict competition in the relevant market and that they can enable the consumers to share the benefits derived therefrom.

Article 16 Trade associations may not make arrangements for undertakings within their respective trades to engage in the monopolistic practices prohibited by the provisions of this Chapter.

Chapter III
Abuse of Dominant Market Position

Article 17 Undertakings holding dominant market positions are prohibited from doing the following by abusing their dominant market positions:
(1) selling commodities at unfairly high prices or buying commodities at unfairly low prices;
(2) without justifiable reasons, selling commodities at prices below cost;
(3) without justifiable reasons, refusing to enter into transactions with their trading counterparts;
(4) without justifiable reasons, allowing their trading counterparts to make transactions exclusively with themselves or with the undertakings designated by them;
(5) without justifiable reasons, conducting tie-in sale of commodities or adding other unreasonable trading conditions to transactions;
(6) without justifiable reasons, applying differential prices and other transaction terms among their trading counterparts who are on an equal footing; or
(7) other acts of abuse of dominant market positions confirmed as such by the authority for enforcement of the Anti-monopoly Law under the State Council.

For the purposes of this Law, dominant market position means a market position held by undertakings that are capable of controlling the prices or quantities of commodities or other transaction terms in a relevant market, or preventing or exerting an influence on the access of other undertakings to the market.

Article 18 The dominant market position of an undertaking shall be determined on the basis of the following factors:

(1) its share on a relevant market and the competitiveness on the market;

(2) its ability to control the sales market or the purchasing marker for raw and semi-finished materials;

(3) its financial strength and technical conditions;

(4) the extent to which other business mangers depend on it in transactions ;

(5) the difficulty that other undertakings find in entering a relevant market; and

(6) other factors related to the determination of the dominant market position held by an undertaking.

Article 19 The conclusion that an undertaking holds a dominant market position may be deduced from any one of the following circumstances:

(1) the market share of one undertaking accounts for half of the total in a relevant market;

(2) the joint market share of two undertakings accounts for two-thirds of the total, in a relevant market; or

(3) the joint market share of three undertakings accounts for three-fourths of the total in a relevant market.

Under the circumstance specified in Subparagraph (2) or (3) of the preceding paragraph, if the market share of one of the undertakings is less than one-tenths of the total, the undertakings shall not be considered to have a dominant market position.

Where an undertaking that is considered to hold a dominant market position has evidence to the contrary, he shall not be considered to hold a dominant market position.

Chapter IV

Concentration of Undertakings

Article 20 Concentration of undertakings means the following:

(1) merger of undertakings;

(2) control over other undertakings gained by an undertaking through acquiring their shares or assets; and

(3) control over other undertakings or the ability capable of exerting a decisive influence on the same gained by an undertaking through signing contracts or other means.

Article 21 When their intended concentration reaches the threshold level as set by the State Council, undertakings shall declare in advance to the authority for enforcement of the Anti-monopoly Law under the State Council; they shall not implement the concentration in the absence of such declaration.

Article 22 In any of the following circumstances, undertakings may dispense with declaration to the authority for enforcement of the Anti-monopoly Law under the State Council:

(1) one of the undertakings involved in the concentration owns 50 percent or more of the voting shares or assets of each of the other undertakings; or

(2) one and the same undertaking not involved in the concentration owns 50 percent or more of the voting shares or assets of each of the undertakings involved in the concentration.

Article 23 To declare concentration to the authority for enforcement of the Anti-monopoly Law under the State Council, the undertakings shall submit the following documents and materials:

(1) declaration in writing;

(2) explanation of the impact to be exerted by the concentration on competition in a relevant market;

(3) concentration agreement;

(4) the financial report of each of the undertakings in the previous fiscal year, which is audited by a certified public accountant firm; and

(5) other documents and materials as specified by the authority for enforcement of the Anti-monopoly Law under the State Council.

In the written declaration shall clearly be stated the titles of the undertakings involved in the concentration, their domiciles, business scopes, the anticipated date for concentration and other matters specified by the authority for enforcement of the Anti-monopoly Law under the State Council.

Article 24 In case documents or materials submitted by the undertakings are incomplete, the undertakings concerned shall supplement the relevant documents or materials within the time limit prescribed by the authority for enforcement of the Anti-monopoly Law under the State Council. If they fail to do so at the expiration of the time limit, they shall be deemed to have made no declaration.

Article 25 The authority for enforcement of the Anti-monopoly Law under the State Council shall, within 30 days from the date it receives the documents or materials submitted by the undertakings which conform to the provisions of Article 23 of this Law, make a preliminary review of the concentration declared by the businesses and make a decision whether to conduct a further review, and notify the undertakings of its decision in writing. Before the authority for enforcement of the Anti-monopoly Law under the State Council makes such decision, the undertakings shall not implement concentration.

Where the authority for enforcement of the Anti-monopoly Law under the State Council decides not to conduct further review or fails to make such a decision at the expiration of the specified time limit, the undertakings may implement concentration.

Article 26 Where the authority for enforcement of the Anti-monopoly Law under the State Council decides to conduct further review, it shall, within 90 days from the date of decision, complete such review, decide whether to prohibit the undertakings from concentrating, and notify them of such decision in writing. Where a decision on prohibiting the undertakings from concentrating is made, the reasons for such decision shall be given. The undertakings shall not implement concentration during the period of review.

Under any of the following circumstances, the authority for enforcement of the Anti-monopoly Law under the State Council may extend the period for review as specified in the preceding paragraph on condition that it notifies the undertakings of the extension in writing, however, the extension shall not exceed the maximum of 60 days:

(1) The undertakings agree to the extension;

(2)The documents or materials submitted by undertakings are inaccurate and therefore need further verification; or

(3) major changes have take place after the undertakings made the declaration.

Where the authority for enforcement of the Anti-monopoly Law under the State Council fails to make a decision at the expiration of the time limit, the undertakings may implement concentration.

Article 27 The following factors shall be taken into consideration in the review of concentration of undertakings:

(1) the market shares of the undertakings involved in concentration in a relevant market and their power of control over the market;

(2) the degree of concentration in relevant market;

(3) the impact of their concentration on assess to the market and technological advance;

(4) the impact of their concentration on consumers and the other relevant undertakings concerned;

(5) the impact of their concentration on the development of the national economy; and

(6) other factors which the authority for enforcement of the Anti-monopoly Law under the State Council deems to need consideration in terms of its impact on market competition.

Article 28 If the concentration of undertakings leads, or may lead, to elimination or restriction of competition, the authority for enforcement of the Anti-monopoly Law under the State Council shall make a decision to prohibit their concentration. However, if the undertakings concerned can prove that the advantages of such concentration to competition obviously outweigh the disadvantages, or that the

concentration is in the public interest, the authority for enforcement of the Anti-monopoly Law under the State Council may decide not to prohibit their concentration.

Article 29 Where the authority for enforcement of the Anti-monopoly Law under the State Council does not prohibit the concentration of undertakings, it may decide to impose additional, restrictive conditions for lessening the negative impact exerted by such concentration on competition.

Article 30 The authority for enforcement of the Anti-monopoly Law under the State Council shall, in a timely manner, publish its decisions on prohibition against the concentration of undertakings or its decisions on imposing additional restrictive conditions on the implementation of such concentration.

Article 31 Where a foreign investor participates in the concentration of undertakings by merging and acquiring a domestic enterprise or by any other means, which involves national security, the matter shall be subject to review on national security as is required by the relevant State regulations, in addition to the review on the concentration of undertakings in accordance with the provisions of this Law.

Chapter V

Abuse of Administrative Power to Eliminate or Restrict Competition

Article 32 Administrative departments and other organizations authorized by laws or regulations to perform the function of administering public affairs may not abuse their administrative power to require, or require in disguised form, units or individuals to deal in, purchase or use only the commodities supplied by the undertakings designated by them.

Article 33 Administrative departments and other organizations authorized by laws or regulations to perform the function of administering public affairs may not abuse their administrative power to impede the free flow of commodities between different regions by any of the following means:

(1) setting discriminatory charging items, implementing discriminatory charge rates, or fixing discriminatory prices for non-local commodities;
(2) imposing technical specifications or test standards on non-local commodities, which are different from those on local commodities of similar types, or taking discriminatory technical measures, such as repeated test and repeated certification, against non-local commodities, for the purpose of restricting the access of non-local commodities to the local market;
(3) adopting a special practice of administrative licensing for non-local commodities, for the purpose of restricting the access of non-local commodities to the local market;
(4) erecting barriers or adopting other means to prevent non-local commodities from coming in or local commodities from going out; or
(5) other means designed to impede the free flow of commodities between regions.

Article 34 Administrative departments and other organizations authorized by laws or regulations to perform the function of administering public affairs may not abuse their administrative power to exclude non-local undertakings from participating, or restrict their participation, in local invitation and tendering by imposing discriminatory qualification requirements or assessment standards, or by refusing to publish information according to law.

Article 35 Administrative departments and other organizations authorized by laws or regulations to perform the function of administering public affairs may not abuse their administrative power to exclude non-local undertakings from making investment or restrict their investment locally or exclude them from establishing branch offices locally or restrict their establishment of such offices, by treating them unequally as compared with the local undertakings, or by other means.

Article 36 Administrative departments and other organizations authorized by laws or regulations to perform the function of administering public affairs may not abuse their administrative power to compel undertakings to engage in monopolistic conducts that are prohibited by this Law.

Article 37 Administrative organs may not abuse their administrative power to formulate regulations with the contents of eliminating or restricting competition.

Chapter VI
Investigation into Suspected Monopolistic Conducts

Article 38 The authority for enforcement of the Anti-monopoly Law shall investigate any suspected monopolistic conduct according to law.

All units and individuals shall have the right to report to the authority for enforcement of the Anti-monopoly Law against suspected monopolistic conducts. The latter shall keep the information confidential.

If the report is made in writing and relevant facts and evidence are provided, the authority for enforcement of the Anti-monopoly Law shall conduct necessary investigation.

Article 39 When conducting investigations into a suspected monopolistic conduct, the authority for enforcement of the Anti-monopoly Law may take the following measures:

(1) conducting inspection of the business places or the relevant premises of the undertakings under investigation;

(2) making inquiries of the undertakings under investigation, the interested parties, or other units or individuals involved, and requesting them to provide relevant explanations;

(3) consulting and duplicating the relevant documents and materials of the undertakings under investigation, the interested parties and other relevant units and individuals, such as bills, certificates, agreements, account books, business correspondence and electronic data;

(4) sealing up or seizing relevant evidence; and

(5) inquiring about the bank accounts of the undertakings under investigation.

For taking the measures specified in the preceding paragraph, a written report shall be submitted for approval to the principal leading person of the authority for enforcement of the Anti-monopoly Law.

Article 40 For the authority for enforcement of the Anti-monopoly Law to conduct investigation into suspected monopolistic conducts, there shall be at least two law-enforcement officers, who shall produce their law enforcement papers.

The law-enforcement officers shall make written records when conducting inquiry and investigation, which shall be signed by the persons after being inquired or investigated.

Article 41 The authority for enforcement of the Anti-monopoly Law and its staff members are obligated to keep confidential the commercial secrets they come to have access to in the course of law enforcement.

Article 42 The undertakings under investigation, the interested parties or other relevant units or individuals shall cooperate with the authority for enforcement of the Anti-monopoly Law in performing their duties in accordance with law, and they shall not refuse to submit to or hinder the investigation conducted by the authority for enforcement of the Anti-monopoly Law.

Article 43 The undertakings under investigation and the interested parties shall have the right to make statements. The authority for enforcement of the Anti-monopoly Law shall verify the facts, justifications and evidence presented by the said undertakings or interested parties.

Article 44 Where after investigation into and verification of the suspected monopolistic conduct, the authority for enforcement of the Anti-monopoly Law concludes that it constitutes a monopolistic conduct, the said authority shall make a decision on how to deal with it in accordance with law and may make the matter known to the public.

Article 45 With respect to the suspected monopolistic conduct which is under investigation by the authority for enforcement of the Anti-monopoly Law, if the undertakings under investigation commits themselves to adopt specific measures to eliminate the consequences of its conduct within a certain period of time which is accepted by the said authority, the authority for enforcement of the Anti-monopoly Law may decide to suspend the investigation. In the decision shall clearly be stated the details of the undertakings' commitments.

Where the authority for enforcement of the Anti-monopoly Law decides to suspend investigation, it shall oversee the fulfillment of the commitments made by the undertaking. Where the undertaking fulfills its commitments, the authority for enforcement of the Anti-monopoly Law may decide to terminate the investigation.

In any of the following circumstances, the authority for enforcement of the Anti-monopoly Law shall resume investigation:
(1) The undertakings concerned fail to fulfill its commitments;
(2) Material changes have taken place in respect of the facts on which the decision to suspend investigation was based; or
(3) The decision to suspend investigation was based on incomplete or untrue information provided by the undertaking concerned.

Chapter VII
Legal Liabilities

Article 46 Where an undertaking, in violation of the provisions of this Law, concludes and implements a monopoly agreement, the authority for enforcement of the Anti-monopoly Law shall instruct it to discontinue the violation, confiscate its unlawful gains, and, in addition, impose on it a fine of not less than one percent but not more than 10 percent of its sales achieved in the previous year. If such monopoly agreement has not been implemented, it may be fined not more than RMB 500,000 yuan.

If the business manage, on its own initiative, reports to the authority for enforcement of the Anti-monopoly Law about the monopoly agreement reached, and provides material evidence, the said authority may, at its discretion, mitigate, or exempt the undertaking from, punishment.

Where a trade association, in violation of the provisions of this Law, has arranged the undertaking in the trade to reach a monopoly agreement, the authority for enforcement of the Anti-monopoly Law may impose on it a fine of not more than 500,000 yuan. If the circumstances are serious, the administrative department for the registration of public organizations may cancel the registration of the trade association in accordance with law.

Article 47 Where an undertaking, in violation of the provisions of this Law, abuses its dominant market position, the authority for enforcement of the Anti-monopoly Law shall instruct it to discontinue such violation, confiscate its unlawful gains and, in addition, impose on it a fine of not less than one percent but not more than 10 percent of its sales achieved in the previous year.

Article 48 Where the undertakings, in violation of the provisions of this Law, implement concentration, the authority for enforcement of the Anti-monopoly Law under the State Council shall instruct them to discontinue such concentration, and within a specified time limit to dispose of their shares or assets, transfer the business and adopt other necessary measures to return to the state prior to the concentration, and it may impose on them a fine of not more than 500,000 yuan.

Article 49 To determine the specific amount of fines prescribed in Articles 46, 47 and 48, the authority for enforcement of the Anti-monopoly Law shall consider such factors as the nature, extent and duration of the violations.

Article 50 Where the monopolistic conduct of an undertaking has caused losses to another person, it shall bear civil liabilities according to law.

Article 51 Where an administrative development or an organization authorized by laws or regulations to perform the function of administering public affairs abuses its administrative power to eliminate or restrict competition, the department at a higher level shall instruct it to rectify; the leading person directly in charge and the other persons directly responsible shall be given administrative sanctions in accordance with law. The authority for enforcement of the Anti-monopoly Law may submit a proposal to the relevant department at a higher level for handling the matter according to law.

Where otherwise provided for by laws or administrative regulations in respect of administrative departments or organizations authorized by laws or regulations to perform the function of administering public affairs that abuse their administrative power to eliminate or restrict competition, such provisions shall prevail.

Article 52 Where, during the review and investigation conducted by the authority for enforcement of the Anti-monopoly Law, a unit or individual refuses to provide relevant materials or information, or provides false materials or information, or conceals, or destroys, or transfers evidence, or refuses to submit to or obstructs investigation in any other manner, the authority for enforcement of the Anti-monopoly Law shall instruct it/him to rectify, and a fine of not more than 20,000 yuan shall be imposed on the individual and not more than 200,000 yuan on the unit; if the circumstances are serious, a fine of not less than 20,000 yuan but not more than 100,000 yuan shall be imposed on the individual and not less than 200,000 yuan but not more than one million yuan on the unit; and if a crime is constituted, criminal liability shall be investigated for in accordance with law.

Article 53 Where an undertaking is dissatisfied with the decision made by the authority for enforcement of the Anti-monopoly Law in accordance with the provisions of Article 28 or 29 of this Law, it may first apply for administrative reconsideration according to law; and if it is dissatisfied with the decision made after administrative reconsideration, it may bring an administrative action before the court according to law.

Where an undertaking is dissatisfied with any decision made by the authority for enforcement of the Anti-monopoly Law other than the decisions specified in the preceding paragraph, it may apply for administrative reconsideration or bring an administrative action before the court according to law.

Article 54 Where a staff member of the authority for enforcement of the Anti-monopoly Law abuses his power, neglects his duty, engages in malpractices for personal gain, or divulges commercial secrets he comes to have access to in the course of law enforcement, which constitutes a crime, he shall be investigated for criminal liability according to law; and if his case is not serious enough to constitute a crime, he shall be given an administrative sanction according to law.

Chapter VIII
Supplementary Provisions

Article 55 This law is not applicable to undertakings who exercise their intellectual property rights in accordance with the laws and administrative regulations on intellectual property rights; however, this law shall be applicable to the undertakings who eliminate or restrict market competition by abusing their intellectual property rights.

Article 56 This Law is not applicable to the association or cooperation by agricultural producers or rural economic organizations in their business activities of production, processing, sale, transportation, storage of farm products, etc.

Article 57 This Law shall go into effect as of August 1, 2008.

Appendix 2

An unofficial English version of Rules on the Prohibition of Abuses of Intellectual Property Rights for the Purposes of Eliminating or Restricting Competition translated by Freshfields Bruckhaus Deringer and the author of this thesis.

Rules on the Prohibition of Abuses of Intellectual Property Rights for the Purposes of Eliminating or Restricting Competition

(Promulgated by the Edict of No 74 by the State Administration for Industry and Commerce on 4 July 2015)

Article 1 These Rules are enacted in accordance with the Anti-Monopoly Law of the People's Republic of China (hereinafter the 'AML') in order to protect fair competition in a market and encourage innovation as well as to prohibit the abuse of intellectual property rights by undertakings to eliminate or restrict competition.

Article 2 The AML shares the same goal with intellectual property protection, which is to promote innovation and competition, improve efficiency of economy's operation and protect consumer welfare and public interest of the society.

The AML does not apply to conducts of undertakings in exercising their intellectual property rights in accordance with relevant intellectual property laws and administrative regulations; however, the AML applies to conducts of undertakings that abuse their intellectual property rights in eliminating or restricting competition.

Article 3 'Conducts eliminating and restricting competition by abusing intellectual property rights to restrict or eliminate competition' referred to herein shall mean monopolistic conducts such as implementing monopolistic agreements, abusing dominant market position, etc. by exercising the intellectual property rights in violation of the AML (excluding price monopoly).

'Relevant market' referred to herein includes both relevant product market and relevant geographic market and shall be defined in accordance with the AML and the

Guidelines on the Definition of Relevant Market issued by the Anti-Monopoly Commission under the State Council by taking into account factors such as intellectual property rights, innovation, etc. In the anti-monopoly law enforcement work involving the license of intellectual property rights, relevant product market may either be the technology market or a product market containing specific intellectual property rights. 'Relevant technology market' shall mean the market where technologies involved in the exercise of the intellectual property rights compete with the existing substitutable technologies of the same type.

Article 4 Undertakings shall not, in the form of exercising intellectual property rights, reach monopolistic agreements as prohibited by Articles 13 and 14 of the AML except to the extent that such undertakings can prove the agreements reached are in compliance with provisions under Article 15 of the AML

Article 5 Under any of the following circumstances, the exercise of intellectual property rights by undertakings may not be identified as monopolistic agreements as prohibited by Article 13(6) and Article 14(3) under the AML, except to the extent that evidence to the contrary prove such agreements have the effects to restrict or eliminate competition:

(1) The combined market share of the competing undertakings in the market affected by their behaviour is no more than 20%; or there are at least four other alternative technologies which are available at reasonable costs;

(2) Neither the undertaking nor its counterpart has a market share of more than 30% in the relevant market, or there are at least two other alternative technologies which are available at reasonable costs in the relevant market.

Article 6 Undertakings with dominant market positions shall not, in the exercise of the intellectual property rights, abuse such dominant market positions to restrict or eliminate competition.

Dominant market positions shall be identified or presumed in accordance with Article 18 and 19 of the AML. Possession of intellectual property rights may constitute a factor

to determine the dominant market position, provided that an undertaking may not be directly presumed to hold a dominant market position in relevant market only as a result of its possession of intellectual property rights.

Article 7 An undertaking with dominant market position shall not refuse without justifications to license other undertakings to use its intellectual property rights on reasonable terms to eliminate or restrict competition in the circumstance that such intellectual property rights constitute essential facilities for manufacturing and operating activities.

Factors to be considered for determining the constitution of behaviours in the above paragraph:

(1) Whether there are reasonable substitutes to such intellectual property rights in the relevant market, and whether such intellectual property rights are essential for other undertakings to participate in competition in the relevant market;

(2) Whether refusal to license such intellectual property rights will bring adverse impact on the competition or innovation in the relevant market and will harm consumer interests and public interests;

(3) Whether the licensing of such intellectual property rights will result in unreasonable damage to such undertaking.

Article 8 Undertakings with dominant market positions shall not, in the course of exercising their intellectual property rights, engage without justifications in the following behaviours to restrict transactions and to eliminate or restrict competition:

(1) To restrict that the counterpart can only conduct transactions with them;

(2) To restrict that the counterpart can only conduct transactions with the undertakings designated by them;

Article 9 Undertakings with dominant market positions shall not, in the course of exercising their intellectual property rights, engage without justifications in tying

behaviours to eliminate or restrict competition satisfying the following conditions simultaneously:

(1) Tying or bundling different products to be together to sell, which is against trade practice and consumption custom or ignores function of products;

(2) The tying behaviour enables such undertakings to extend their dominant positions in the tying product market to the tied product market, thereby restricting or eliminating the abilities of other undertakings to compete in the tying or tied product market.

Article 10 Undertakings with dominant market positions shall not, in the course of exercising their intellectual property rights, impose without justifications the following unreasonable restrictive conditions to eliminate or restrict competition:

(1) To require the counterpart to exclusively license back the technology improved by such counterpart;

(2) To prohibit the counterpart from challenging the validity of their intellectual property rights;

(3) To restrain the counterpart from, upon the expiration of the license agreement, utilising competing products, or developing or using competing technologies in a way that will not infringe their intellectual property rights;

(4) To continue exercising intellectual property rights for which the protection period has expired or which have been determined as invalid;

(5) To prohibit the counterpart from engaging in transactions with any third party;

(6) To impose other unreasonable restrictive conditions on the counterpart.

Article 11 Undertakings with dominant market positions shall not, in the course of exercising their intellectual property rights, treat counterparts of same conditions in a discriminating manner to eliminate or restrict competition.

Article 12 Undertakings shall not, in the course of exercising intellectual property rights, engage in behaviours to eliminate or restrict competition by taking advantage of patent pools.

Members to the patent pool shall not, by taking advantage of such patent pool, exchange competition-related sensitive information concerning output, market division, etc. They may also not conclude monopolistic agreements prohibited by Article 13 and Article 14 of the AML, except to the extent that they can prove the agreements concluded are in compliance with provisions of Article 15 of the AML.

The management organisation of the patent pool, with dominant market positions, shall not engage in the following behaviours to abuse dominant market positions by taking advantage of the patent pool:

(1) To restrain member to the pool from licensing patents beyond the pool as independent licensor;

(2) To restrain members to the pool or the licensee from developing independently or jointly with third parties technologies which compete with the pooled patents;

(3) To force the licensee to exclusively license back the technologies it has improved or developed to the management body of, or members to the patent pool;

(4) To prohibit the licensee from challenging the validity of the pooled patents;

(5) To provide differential treatment on trading conditions against members with same conditions to the pool or the licensees in the same relevant market.

(6) Other behaviours of abusing dominant market position that has been identified by the State Administration for Industry and Commerce.

For the purpose of these Rules, 'patent pool' refers to a scheme of arrangement whereby two or more than two patent holders jointly license their respective patents to a third party in a form where a joint venture is set up specifically for such purpose or a member to the pool or an independent third party is entrusted with the responsibilities of management.

Article 13 Undertakings shall not, in the course of exercising intellectual property rights, engage in behaviours to eliminate or restrict competition by taking advantage of the formulation and implementation of standards (including mandatory requirements of national technological specifications, the same hereinafter).

Undertakings with dominant market positions, without justifications, shall not engage in the following conducts to eliminate or restrict competition during the process of standard setting and standard implementation:

(1) During the process of standard setting, refusing to disclose to standards formulation organisation the information on their rights intentionally or expressly abandoning their rights and asserting their patent rights against the party implementing such standards after some particular standards involve such patents.

(2) After their patent technology become standard essential patents, violating the fair, reasonable and non-discriminatory principle and refusing to license, tying or imposing other unreasonable conditions on transactions to eliminate or restrict competition.

For the purpose of these Rules, the standard essential patents refer to such patents which are indispensable for the implementation of the standard.

Article 14 Where the undertakings are suspected of abusing intellectual property rights to eliminate or restrict competition, the industrial and commercial authorities shall conduct investigations in accordance with the AML and Provisions on the Procedures for the Investigation and Handling by Industrial and Commercial Authorities of Cases Involving Monopolistic Agreements and Abuse of Dominant Market Positions.

Article 15 The following measures may be taken for the purpose of analysing and determining whether the undertakings are suspected of abusing of intellectual property rights to eliminate or restrict competition:

(1) To determine the nature and form of the exercise of intellectual property rights by the undertakings;

(2) To determine the nature of the inter- relationship among the undertakings exercising the intellectual property rights;

(3) To define the relevant market involved in the exercise of intellectual property rights;

(4) To determine the market position of the undertakings exercising the intellectual property rights;

(5) To analyse the impact of the exercise of intellectual property rights by the undertakings on the competition in relevant market;

When analysing and determine the nature of the relationship among undertakings, it shall be taken into account the characteristics of the act of exercising the intellectual property rights. In circumstance concerning the license of intellectual property rights, the undertakings previously competing with each other are parties to the license contract, while in the market where both the licensor and licensee manufacture products utilising such intellectual property rights, the undertakings are competing against each other. However, if the parties were not competing against each other when they executed the agreement, but only became competitors after the execution of the agreement, the agreement will not be deemed as an agreement between competitors unless there is any substantive change to the original agreement.

Article 16 The following factors shall be taken into consideration when analysing and determining the impact on competition of the exercise of intellectual property rights by undertakings:

(1) Market positions of the undertaking and its counterparts;

(2) Concentration level of the relevant market;

(3) Difficulty to enter into the relevant market;

(4) Industry practice and development stage of the industry;

(5) Time of restriction in terms of output, geography, consumers, etc. as well as the scope of effectiveness;

(6) Impact on innovation promotion and technology popularization;

(7) The innovation ability of the undertaking and the speed of technology evolution;

(8) Other factors relevant to the determination of the impact on competition of the exercise of intellectual property rights.

Article 17 Where an undertaking abuses its intellectual property rights, eliminating or restricting competition, which constitutes a monopoly agreement, the Administration for Industry and Commerce shall order the undertaking to cease the violation, confiscate the illegal gains, and impose a fine of 1-10 percent of the turnover in the previous fiscal year; where the monopoly agreement has not been implemented, the Administration for Industry and Commerce may impose a fine of no more than RMB 500,000.

Where an undertaking abuses its intellectual property rights, eliminating or restricting competition, which constitutes an abuse of a dominant market position, the Administration for Industry and Commerce shall order the undertaking to cease the violation, confiscate its illegal gains and impose a fine of 1-10 percent of the turnover in the previous fiscal year.

The Administration for Industry and Commerce shall consider the nature, circumstances, seriousness and duration of the violation, and other relevant factors, when determining the specific magnitude of the fine.

Article 18 These Rules shall be interpreted by the State Administration of Industry and Commerce.

Article 19 These Rules shall take effect as of 1 August 2015.

Appendix 3

An unofficial English version of Chapter VI of Patent Law of China. (http://www.lawinfochina.com/display.aspx?lib=law&id=7289&CGid=#menu5, accessed on 01 May 2017)

Patent Law of China (amended in 2008)

Chapter VI Compulsory Licence for Exploitation of Patents

Article 48 Under any of the following circumstances, the patent administrative department of the State Council may, upon the application of an eligible entity or individual, grant it or him a compulsory licence to exploit the patent for an invention or utility model:

(1) The patentee, after the lapse of 3 full years from the date when patent is granted and after the lapse of 4 full years from the date when a patent application is filed, fails to exploit or to fully exploit its or his patent without any justifiable reason; or

(2) The patentee's act of exercising the patent rights is determined as a monopolizing act and it is to eliminate or reduce the adverse consequences of the said act on competition.

Article 49 Where a national emergency or any extraordinary state of affairs occurs, or where the public interest so requires, the patent administrative department of the State Council may grant a compulsory licence to exploit the patent for an invention or utility model.

Article 50 For the purpose of public health, the patent administrative department of the State Council may grant a compulsory licence for a patented medicine so as to produce and export it to the country or region which conforms to the provisions of the relevant international treaty to which the People's Republic of China has acceded.

Article 51 Where an invention or utility model for which the patent was granted has seen any major technical progress of prominent economic significance when compared with another invention or utility model for which the patent has been granted earlier, and the exploitation of the later invention or utility model depends on the exploitation of the earlier one, the patent administrative department of the State Council may, upon the request of the later patentee, grant a compulsory licence to exploit the earlier invention or utility model.
Where, according to the preceding paragraph, a compulsory licence is granted, the patent administrative department of the State Council may, upon the request of the earlier patentee, also grant a compulsory licence to exploit the later invention or utility model.

Article 52 Where the invention involved in the compulsory licence is a semi-conductor technology, the exploitation of the compulsory licence shall be limited only to public interests and the circumstance as described in Article 48 (2) of this Law.

Article 53 Besides the circumstances as described in Article 48 (2) and Article 50 of this Law in which a compulsory licence is granted, the exploitation of a compulsory licence shall be implemented primarily for supplying the domestic market.

Article 54 The entity or individual requesting, in accordance with the provisions of Article 48 (1) and Article 51 of this Law, a compulsory licence for exploitation shall prove that it or he has not been able to conclude with the patentee a licence contract for exploitation on reasonable terms within a reasonable timeframe.

Article 55 Where the patent administrative department of the State Council decides to grant a compulsory licence for exploitation, it shall notify the patentee in time, and register it and make an announcement.
A decision on granting a compulsory licence for exploitation shall, on the basis of the reasons for compulsory licence, specify the scope and time of exploitation. When the reasons for compulsory licence have been eliminated and will no longer occur, the

patent administrative department of the State Council shall, upon request of the patentee, make a decision after examination on terminating the compulsory licence.

Article 56 Any entity or individual who is granted a compulsory licence for exploitation shall not have exclusive right to exploit the patent and shall not have the right to authorize anyone else to exploit the patent.

Article 57 The entity or individual that is granted a compulsory licence for exploitation shall pay to the patentee a reasonable royalty or deal with the royalty issue under the relevant international treaties to which the People's Republic of China has acceded. If a royalty is to be paid, the amount of the royalty shall be decided by both parties upon negotiation. If the parties fail to reach an agreement, the issue shall be settled by the patent administrative department of the State Council.

Article 58 Where a patentee is dissatisfied with the decision of the patent administrative department of the State Council on granting a compulsory licence for exploitation, or where a patentee, or an entity or individual to whom the compulsory licence for exploitation is granted is dissatisfied with the ruling of the patent administrative department of the State Council on the royalties payable for compulsorily licensed exploitation, he or it may, within three months as of receipt of the notification, bring a lawsuit to the people's court.

Appendix 4

An unofficial English version of Article 329 of Contract Law of China. (http://www.lawinfochina.com/display.aspx?id=6145&lib=law&SearchKeyword=&SearchCKeyword=%ba%cf%cd%ac%b7%a8, accessed on 01 May 2017)

Contract Law of China (1999)

Article 329 A technology contract which illegally monopolizes technology, impairs technological advancement or infringes on the technology of a third party is invalid.

Appendix 5

An unofficial English version of Article 10 of Interpretation of the Supreme People's Court concerning Some Issues on Application of Law for the Trial of Cases on Disputes over Technology Contracts No. 20/2004.

(http://www.lawinfochina.com/display.aspx?lib=law&id=3910&CGid=, accessed on 01 May 2017)

Interpretation of the Supreme People's Court concerning Some Issues on Application of Law for the Trial of Cases on Disputes over Technology Contracts No. 20/2004

Article 10 The following circumstances shall belong to "illegally monopolizing technology and impairing technological progress" mentioned in Article 329 of the Contract Law:

(1) Restricting one party from making new research and development on the basis of the contractual subject technology, or restricting this party from using the improved technology, or the conditions for both parties to exchange the improved technologies with each other being not reciprocal, including such circumstances as requiring one party to gratuitously provide the other party with the improved technology, to transfer the improved technology to the other party non-reciprocally, to gratuitously and solely occupy, or jointly own the intellectual property of the improved technology;

(2) Restricting one party from obtaining, from other origins, the technology similar to or competitive against that of the technology provider;

(3) Impeding one party's sufficient exploitation of the contractual subject technology in a reasonable way pursuant to the market demands, including unreasonably restricting the quantity, varieties, price, sales channel or export market of the

contractual subject technology exploited by technology accepter in an obvious way to produce products or to provide services;

(4) Requiring the technology accepter to accept attached conditions dispensable for exploiting the technology, including purchasing dispensable technologies, raw materials, products, equipment, services or accepting dispensable persons, etc.;

(5) Unreasonably restricting the channels or origins for the technology accepter to purchase raw materials, parts and components, products or equipment, etc.; and

(6) Prohibiting the technology accepter from making objections to the effectiveness of the intellectual property of the contractual subject technology, or attaching conditions to the objections made.