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Accounting conservatism in expected earnings: a European study

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ACCOUNTING CONSERVATISM IN EXPECTED EARNINGS

A EUROPEAN STUDY

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Motivation for *the thesis*

Much recent international accounting research has focused on a comparison of the properties of reported earnings, and in this respect the diversity of accounting has been confirmed on an international scale. It is argued that such diversity in accounting may entail information barriers that create an impediment to capital market integration, whereby information disadvantages to foreign investors result in less foreign investment (Gordon and Bovenbeg, 1996) and information advantages to domestic investors lead to a home bias in investing attitudes (Gehrig, 1996). However, it is important to recognise that comparisons of accounting systems in terms of their outcomes in the form of reported earnings are not sufficient to assess the impact of accounting diversity as an information barrier. Thus, this thesis proposes that the evaluation of accounting diversity should take the perspective of market participants, and model not the reported accounting earnings but the forward earnings that market participants use for equity valuation.

In this context, accounting diversity will be considered here in terms of cross-country variation in the degree of bias introduced by the principle of accounting conservatism. Indeed, to the extent that market participants are able to unravel the various degrees of bias introduced in accounting numbers due to the particularities of local GAAP, accounting diversity is likely to be of no serious consequence for cross-border equity valuation, and thus would constitute an information barrier of only minor importance. It is in this spirit that accounting diversity is evaluated here, that is, in terms of how

market participants perceive these numbers in a cross-country setting, how they interpret their properties, and the implications of the inherent accounting bias for equity valuation.

Recent developments in equity valuation modelling, such as the residual income model and the abnormal earnings model, have provided the necessary basis from which to develop a framework that describes the process of removing the biases that characterise accounting. Indeed, the common feature of these accounting based valuation models is that they rely upon accounting expectations to account for the correction of bias introduced by accounting conservatism. This provides additional support for the view that accounting diversity (defined here as the cross-country diversity in the degree of accounting conservatism) should be evaluated not only in terms of current earnings but, more importantly, by understanding the process through which accounting biases are reversed in earnings' expectations.

In summary, whilst the first contribution of this thesis is to address market participants' perceptions of earnings rather than GAAP reported earnings in order to identify cross-country diversity, the second contribution is to build a framework within the context of contemporary equity valuation modelling that will describe the process of removing the biases that characterise accounting and determine accounting diversity. The empirical analysis that is reported in this thesis provides evidence in support of this theoretical framework.

Structure of the thesis

This thesis starts by setting out a framework in Chapter 1 that links accounting biases in terms of earnings conservatism with expected earnings growth, thereby describing the process underlying the reversal of conservatism. With this framework in mind, Chapter 2 reviews the prior evidence on the non-contemporaneous association of earnings and price changes, including the empirical regularity that earnings reflect price changes with a lag, which is commonly summarised as "Prices Lead Earnings". The research studies that provided the first indication of the reversal of conservatism are also reviewed, together with the existing evidence that conservatism reverses asymmetrically with respect to the sign of price changes. Chapter 2 establishes that there has been no study to date to assess the reversal of conservatism in the context of expected earnings. It is on this basis, and motivated by the mechanisms developed in Chapter 1, that the research carried out for the present thesis employs market participants' expectations in the form of analysts' forecasts.

Given the above, Chapter 3 provides a review of the research literature on the rationality of analysts' forecasts, explaining why concerns about their bias and accuracy may not be well founded. In particular, it is argued that these statistical characteristics are a natural consequence of the properties of reported accounting numbers and do not contradict the notion of earnings forecast rationality. In addition, since this thesis examines cross-country variation in accounting properties, recent developments in international accounting research are also reviewed, in Chapter 4. The review shows

that international accounting diversity has been explored mainly, as already mentioned, with respect to the properties of accounting numbers that are reported, and not with respect to the forecasted numbers that are generally employed in equity valuation. Another important point that arises from this review is that international accounting research has yet to consider capital market dynamics as an important force that shapes accounting numbers. In Chapter 4, it is shown that, within the context of international finance research, the degree of capital market integration may be evaluated by assessing country effects in expected and realised stock returns, and by comparing any decline in their influence with that of sector effects. It is suggested in Chapter 4 that, in a similar spirit, accounting diversity may be evaluated by testing for country effects in current and expected earnings and their valuations, after taking account of sector effects. Chapter 4 concludes by revisiting the framework developed at the outset that links accounting biases in terms of earnings conservatism with expected earnings growth, in order to introduce country and sector effects into the research design.

The following Chapters 5 and 6 present the corresponding empirical evidence. Chapter 5 tests for country effects in accounting earnings within the short term *i.e.*, with regard to current and one year ahead earnings forecasts. The findings reported in Chapter 5 show that there is considerable cross-country variation with respect to the recognition of positive value shocks, which is the main driver of accounting diversity, even when capital markets are alleged to be relatively integrated (*e.g.*, as in the Eurozone member states after 2000). It is also shown that, consistent with these findings, country effects

in the forward earnings multiple, that is the ratio of one year ahead forecasted earnings to current market value, persist at all times, even under integrated markets. However, by examining country versus sector effects in earnings pricing indicators which incorporate information on the reversal of conservatism beyond one year ahead, it is shown that the importance of country effects dissipates as financial markets become more integrated, despite accounting diversity. Following this, the contribution of Chapter 6 is to go beyond a purely empirical analysis and to build upon the framework that is developed in this thesis in order to explain how various earnings pricing indicators, widely used by finance professionals, reflect the process of unravelling conservatism so that ultimately such indicators will capture the underlying economics of the firm.

Chapter 7 provides a synthesis of the theory and empirical findings, and builds upon the estimates in Chapter 5 to construct an index of the speed of positive value recognition. Also, country effects are tested again based on this index. Consistent with the predictions, country effects persist in earnings pricing even within integrated markets when accounting practices are "slow" at capturing positive value shocks. Admittedly, these final inferences must be seen as a rough approximation; however, in terms of the policy implications, this thesis provides evidence that is in line with the current endeavours of standard setters towards harmonisation, particularly the expressed intention within the common FASB-IASB project to de-emphasise conservatism in favour of neutrality within the conceptual framework. In particular, the introduction in

IFRS of notions such as "fair value" would accelerate the speed at which accounting systems capture positive value shocks, thus making it less likely for country effects to be present in accounting numbers. Chapter 7 concludes therefore that, based on the empirical evidence that is reported, the current regulatory initiatives are likely to diminish the impact of accounting diversity as an information barrier.

Accounting Conservatism and Expected Earnings Growth

1.1 Introduction

Accrual accounting contributes to the resolution of uncertainty with respect to expected future cash flows. Accounting principles prescribe that this information should be objective and verifiable. However, the criteria of verifiability and objectivity do not apply symmetrically to economic gains and losses. This asymmetric degree of verifiability for the recognition of economic gains and losses is known as "conservatism" (Watts 2003a).

Conservatism arises from the contractual relationship between ownership and management.[1] In the basic contract, managers and shareholders not only have asymmetric information, but also asymmetric payoffs and interest horizons[2]. In this context, economic losses entail a decrease in shareholders' welfare but not necessarily a decrease in managers' welfare, as long as managers do not recognise losses in accounting earnings during their tenure. Conversely, managers are keen to recognise economic gains within their tenure as such action would entail an increase in their own welfare (Ball and Shivakumar, 2004). Consequently, asymmetric information, payoffs and interest horizons give rise to a counteracting demand by shareholders for an asymmetric degree of timeliness in news recognition. The delayed recognition of economic gains and the prompt recognition of losses not only restricts management

[1] It is also shaped by the intervention of other parties such as auditors, debtors and employees.
[2] Asymmetric payoffs and liability also exist between shareholders and debtors

compensation but also signals to the board of directors that underperformance and loss-making should be investigated (Watts, 2003a).

From the above, it can be seen that the conservatism concept appears to have two main aspects: first, the timely recognition of economic losses, and second the delayed recognition of economic gains.[3] The main emphasis in the research literature to date has been on the first of these, *i.e.*, the extent to which economic losses are recognised in accounting earnings, which is attributable to the asymmetric loss function of the contracting parties. The role of accounting then is to act as a means of hedging earnings expectations with regard to the high level of risk inherent in potential economic losses. In this respect, conservative practices not only recognise economic losses more promptly than economic gains, but also tend to over-recognise such losses. This may happen in a non-systematic way that is conditional on prevailing circumstances (*e.g.*, recognising higher than usual bad debt provisions for earnings management purposes) or in a systematically pessimistic or unconditional fashion (*e.g.*, imposing accounting depreciation rates that are higher than economic depreciation rates). Beaver and Ryan (2004) and Pope and Walker (2003) more particularly juxtapose "ex-ante" and "ex-post" conservatism as the unconditional and conditional

[3] In addition to the conflicts of interest and asymmetric information between managers and shareholders, other non-contracting factors such as taxation and accounting regulation can inflict a conservative bias in accounting (Watts, 2003a). Taxation is likely to be a more universal incentive towards an understatement of earnings in order to defer tax payments. Accounting regulation bodies also might be inclined towards more conservative accounting standards, considering that losses from overvalued assets and overstated income are more politically visible than foregone gains due to undervalued assets or understated income (Watts, 1977). For example, over-recognition of earnings and assets rather than under-recognition in the cases of the Enron and WorldCom accounting scandals triggered considerable developments in the U.S. standard setting mechanisms, such as the Sarbanes-Oxley Act.

forms of conservatism, *i.e.*, the pre-commitment to account unconditionally for expected cash flows in a pessimistic fashion *versus* the conditional form of conservatism which requires negative shocks to occur in order to recognise them. Pope and Walker (2003) note also that the two forms of conservatism are not independent. Indeed, exercising the ex-ante form of conservatism prevents ex-post conservatism from taking place, ensuring that eventual future negative surprises will not affect earnings expectations. For example, for a fully depreciated asset whose useful life is not over (*i.e.*, the asset is still expected to generate cash flows for the firm), then in the case of an unexpected impairment of the market value of this asset, conservative practices will have no effect on the firm's earnings and book value. On the other hand, in the case of an unexpected increase in the market value of the asset, subsequent earnings are likely to be higher not only due to higher cash flows but also due to the absence of depreciation charges.

The above discussion shows that accounting conservatism is perceived as the asymmetric recognition of economic gains and losses, with different combinations of ex-post and ex-ante conservatism affecting this asymmetry. However, asymmetric recognition consists also of the deferred recognition of economic gains, and not just the immediate recognition of economic losses. The sections that follow describe how the deferral of recognition of economic gains can determine earnings expectations, and how this link between accounting conservatism and earnings expectations can explain when accounting conservatism has economic effects.

1.2 The economic effects of conservatism

Holthausen and Leftwich (1983) state that, ideally, accounting policy is value irrelevant in a fashion analogous to Modigliani and Miller dividend irrelevance. Under circumstances where information acquisition has no cost, unravelling the variation in the timing of recognition of economic gains and losses due to conservatism will be of no economic consequence. As Holthausen and Leftwich (1983, p.81) point out, "The value of the firm is invariant to the choice of accounting rules in such a world because users of accounting numbers can unbundle the accounting package offered to them by corporations (*i.e.* they can costlessly restate the financial statements using whatever measurement rules they choose)". However, with respect to accounting conservatism, the value of the firm is not invariant to accounting rules if market participants are "fixated" on current earnings and cannot see through the implications for expected earnings.[4] Penman and Zhang (2002), for instance, argue that ex-ante conservative practices, such as R&D or advertisement expensing and the use of LIFO methods in inventory valuation, create "hidden reserves" when the firm is investing, thereby reducing earnings; these hidden reserves are released when the investment rate slows down, thereby increasing earnings. To the extent that market participants understand the consequences of the conservatism reversal, conservative practices should not predict future returns. However, Penman and Zhang (2002) find that a score based on the abovementioned conservative accounting practices predicts future returns.

[4] Conservative accounting rules may also affect capital allocation decisions by managers, preventing "good money being thrown after bad money" (e.g. see Venugopalan, 2004; Bushman, Piotroski and Smith, 2005); however, an analysis of this important aspect of economic effects of conservatism is beyond the scope of this thesis.

Similarly, Lev, Sarath and Sougiannis (2004) find that conservatively reporting firms are systematically undervalued, while aggressively reporting firms are overvalued. Whereas the empirical evidence suggests that accounting conservatism may have economic effects (*i.e.*, the use of conservative practices appears to predict future returns), here it is argued that it is rather the misapprehension of the reversal of conservatism that drives the above findings, mainly in the form of the effect of the deferred recognition of economic gains in expected earnings. These implications of conservatism reversal are better described within the context of a valuation model, and more particularly a valuation model that is based on earnings and earnings growth. The sections that follow develop this issue further.

1.3 Equity valuation models

It is usual to determine the share price as the present value of future cash flows, consisting of the dividends that are expected per share and the price to be received when the share is sold. However, the price at the end of the holding period depends in turn on dividends expected after that date. Therefore, in the most basic valuation model, an infinite stream of expected dividends values the share as follows:

$$P_t = d_{t+1}(1+r)^{-1} + d_{t+2}(1+r)^{-2} + \ldots = \sum_{n=1}^{\infty} d_{t+n}(1+r)^{-n} \qquad (1.1)$$

where d_{t+n} is the dividend per share in each future period $t+n$, r is the cost of capital and P_t is the current share price.

Ohlson and Juettner (2005) show that, for any sequence of numbers $\{y_{t+n}\}$ that satisfy $(1+r)^{-t+n}y_{t+n} \rightarrow 0$ as $n \rightarrow \infty$, then

$$0 = y_t + (1+r)^{-1}[y_{t+1} - (1+r)y_t] + (1+r)^{-2}[y_{t+2} - (1+r)y_{t+1}] + \ldots \quad (1.2)$$

and, therefore, by combining equations (1.1) and (1.2),

$$P_t = y_t + \sum_{n=1}^{\infty}(1+r)^{-n}(y_{t+n} + d_{t+n} - (1+r)y_{t+n-1}) \quad (1.3)$$

where y_t can be any number that satisfies condition (1.2). This is a general formula for any valuation model that is derived from (1.1). For example, if y_t equals 0, then (1.3) transforms to the dividend discount model (1.1). If y_t equals book value per share b_t, then (1.3) transforms instead to the residual income model

$$P_t = b_t + \sum_{n=1}^{\infty}(1+r)^{-n}(e_{t+n} - r \cdot b_{t+n-1}) \quad (1.4)$$

On the other hand, if y_t is substituted by capitalised expected earnings so that $y_t = \frac{e_{t+1}}{r}$, where e_{t+1} stands for one year ahead expected accounting earnings[5], then condition (1.2) still holds but (1.3) transforms to the pricing model that informs the analysis in this thesis

$$P_t = \frac{e_{t+1}}{r} + \sum_{n=1}^{\infty}(1+r)^{-n} \cdot z_{t+n} \quad (1.5)$$

where $z_t = \frac{1}{r}[e_{t+2} + r \cdot d_{t+1} - (1+r)e_{t+1}]$

The z sequence represents capitalised expected abnormal earnings, that is the surplus over the normal earnings expected from the reinvestment of the previous period's

[5] In this thesis e_{t+n}, n=0,1,2...stands for accounting earnings of the period $t+n$. In the present context these are expectations of accounting earnings. For instance, e_t refers to the expectation of accounting earnings at the end of year t but before the earnings for the year t are disclosed, e_{t+1} refers to the expectation of one year ahead accounting earnings. In this respect, an expectation operator would be necessary. However, this approach being cumbersome for presentation purposes, the expectation operator is omitted throughout the text.

earnings. In this formulation, the dividend irrelevancy property is satisfied by adding the term $r \cdot d_{t+1}$ to represent the foregone investment opportunity at the cost of capital r of having paid dividends d_{t+1}. Assuming that abnormal earnings grow in time at a rate $(1+g)$, where $g>0$, then (1.5) can be summarized as the abnormal earnings growth model, as follows:

$$P_t = \left[\frac{e_{t+1}}{r} + \frac{e_{t+2} + r \cdot d_{t+1} - (1+r)e_{t+1}}{r \cdot (r-g)} \right] \tag{1.6}$$

1.4 Permanent earnings and normal earnings

The starting point in the abnormal earnings growth model, as in (1.6), is one year ahead expected earnings. However, valuation can start from current earnings as well, taking into account that current dividends reduce current price and next year's expected earnings but not current earnings, as follows:

$$P_t + d_t = (1+r) \cdot \left[\frac{e_t}{r} + \frac{e_{t+1} + rd_t - (1+r)e_t}{r \cdot (r-g)} \right] \tag{1.7}$$

Introducing the notion of permanent earnings E_t, where earnings would be permanent if $e_t = e_{t+1} = e_{t+2} = \ldots e_{t+n}$ and all earnings are distributed as dividends (invoking the Hicksian concept of permanent earnings), (1.7) is transformed to (1.8) as follows:

$$\begin{aligned} P_t + e_t &= (1+r) \cdot \left[\frac{e_t}{r} + \frac{e_t + re_t - (1+r)e_t}{r \cdot (r-g)} \right] \Leftrightarrow \\ P_t + e_t &= (1+r) \cdot \frac{e_t}{r} \Leftrightarrow \\ P_t &= \frac{e_t}{r} = \frac{e_{t+1}}{r} = \frac{E_t}{r} \end{aligned} \tag{1.8}$$

Whilst a similar concept that is dividend irrelevant and considerably less restrictive is that of *normal* earnings. Normal earnings occur when the abnormal growth in (1.6) is equal to zero, no matter what the dividend policy is. Permanent earnings, then, are a special case of normal earnings. Permanent and normal earnings in the current period differ by a $(1+r)$ factor.[6] On the other hand, with respect to one year ahead expected earnings, permanent earnings equal normal earnings, as is clear from equation (1.6) if we set abnormal earnings equal to zero. Therefore, one year ahead expected earnings provides a more versatile variable with which to show how conservatism affects valuation, since we can assign to it the properties of both permanent and normal earnings. Accordingly, conservatism is described below first as a deviation from permanent earnings and second as a deviation from normal earnings.

1.5 Accounting and permanent earnings

Drawing upon Pope and Walker's (1999) framework, the effect of earnings conservatism may be described by relating accounting earnings (per share) to permanent earnings. A shock ε_t in the permanent earnings E_t implies a value shock $\varphi_t=P_t-P_{t-1}$ as follows:

$$E_t = E_{t-1} + \varepsilon_t = E_{t-1} + r\varphi_t = rP_{t-1} + r(P_t - P_{t-1}) = rP_t \tag{1.9}$$

where:

E_t is permanent earnings at time t;

ε_t is the shock in current permanent earnings;

[6] This analysis explains Ohlson's (2005) statement that whereas permanent earnings imply "permanent in expectations earnings" (*i.e.*, normal earnings), the converse is not valid.

r is the discount rate;

φ_t is a shock in the market value of the firm between t-1 and t (*i.e.* P_t-P_{t-1}); and

P_t is share price.

The influence of accounting conservatism consists then of the asymmetric recognition of positive and negative value shocks in accounting earnings, with positive shocks being considerably under recognised with respect to negative shocks. The asymmetric response of accounting earnings e_t to the current shock in permanent earnings ε_t is described as follows:

$$e_t = (1-\lambda_0)E_{t-1} + \varepsilon_t - \theta_0\varepsilon_t^+ + \gamma_0\varepsilon_t^- \tag{1.10}$$

where:

e_t is current accounting earnings;

θ_0 is the proportion of the shock ε_t in the permanent earnings E_t that is not recognised in current earnings, when this shock is positive;

γ_0 is the proportion of the shock ε_t in the permanent earnings E_t that is over-recognised in current earnings, when this shock is negative;and

λ_0 is the proportion of prior permanent earnings E_{t-1} that is yet to be recognised.

The equation (1.10) is consistent with the influence of accounting conservatism in accounting earnings acknowledging that when the current permanent earnings shock is positive (*i.e.*, ε_t^+), only the 1-θ_0 of it is to be recognised in current accounting earnings, where $0<\theta_0\leq 1$; when the permanent earnings shock is negative (*i.e.*, ε_t^-), this is fully or over-recognised at a rate γ_0 taking the value of $(1+\gamma_0)\ \varepsilon^-$, where $\gamma_0 \geq 0$. The deferred

recognition of positive shocks or the deferred correction of the negative shocks' over-recognition may last for more than one year. Consequently, this might lead to the partial recognition of prior permanent earnings. For example, assuming that a positive shock at time t-1 is yet to be fully recognised by time t, current accounting earnings reflect only the (1- λ_0) of E_{t-1}.[7] Current accounting earnings are defined as the sum of the proportion of the current shock in permanent earnings ε_t, and the proportion of prior permanent earnings recognised until time t (*i.e.*, (1- λ_0) E_{t-1}). Even if current shocks in permanent earnings were fully recognised, accounting earnings would deviate from permanent earnings to the extent that prior permanent earnings are yet to be recognised to their full extent. Equation (1.10) shifts the attention then from the under/over recognition of permanent earnings shocks towards the deferral of the recognition of permanent earnings shocks.

This deferral of the recognition of permanent earnings shocks has implications for expected one year ahead earnings. To put it simply, it is expected that what is not recognised currently will be recognised in the future. As a result, future expected earnings are a function of the current state of conservatism and its reversal. As analysed above, one year ahead earnings can be described in terms of the deviation from current permanent earnings. Thus, the implications of the reversal of conservatism for one year

[7] Pope and Walker (1999) also acknowledge the influence of the prior value shocks on current accounting earnings. Using the current notation, their model can be represented as $e_t = E_t - \theta_0 \varepsilon_t^+ + \gamma_0 \varepsilon_t^- + V_t = E_{t-1} + \varepsilon_t - \theta_0 \varepsilon_t^+ + \gamma_0 \varepsilon_t^- + V_t$ (see equations 2 and 4 in Pope and Walker, 1999), where V_t repress,ents the effects of prior period news (or permanent earnings shocks) on current period earnings. When $0 < \lambda_0 \leq 1$ or V_t is negative, according to Giner and Rees(2001), there is pervasive conservatism. To the extent that good news take more than one year to be recognised, current accounting earnings are likely to reflect only the (1- λ_0) of E_{t-1} and thus, pervasive conservatism is more likely.

ahead earnings can be represented in the magnitude of parameters λ, θ and γ which now take a subscript of one as follows:

$$e_{t+1} = (1-\lambda_1)E_{t-1} + \varepsilon_t - \theta_1\varepsilon_t^+ + \gamma_1\varepsilon_t^- \Leftrightarrow$$

$$e_{t+1} = E_{t-1} + \varepsilon_t - \left[\lambda_1 E_{t-1} + \theta_1\varepsilon_t^+ - \gamma_1\varepsilon_t^-\right] \Leftrightarrow \quad (1.11)$$

$$e_{t+1} = E_t - \left[\lambda_1 E_{t-1} + \theta_1\varepsilon_t^+ - \gamma_1\varepsilon_t^-\right]$$

where:

e_{t+1} is expected accounting earnings at $t+1$;

θ_1 is the proportion of the shock ε_t in the permanent earnings E_t that is not recognised in accounting earnings e_{t+1}, when this shock is positive (θ_1 is expected to be less than θ_0 if conservatism reverses);

γ_1 is the proportion of the shock ε_t in the permanent earnings E_t that is over-recognised in accounting earnings e_{t+1}, when this shock is negative (as this over-recognition is corrected the magnitude of γ_1 is expected to be less than the magnitude of γ_0); and

λ_1 is the proportion of prior value shocks that is yet to be recognised (λ_1 is expected to be less than λ_0 if conservatism reverses).

Given the above, (1.11) could be re-written as:

$$e_{t+1} = (1-\lambda_0)E_{t-1} + \varepsilon_t - \theta_0\varepsilon_t^+ + \gamma_0\varepsilon_t^- + (\lambda_0-\lambda_1)E_{t-1} + (\theta_0-\theta_1)\varepsilon_t^+ + (\gamma_1-\gamma_0)\varepsilon_t^{-\,8} \quad (1.11a)$$

As θ_1 is expected to be less than θ_0, γ_1 is expected to be less than the magnitude of γ_0 and λ_1 is expected to be less than λ_0 if conservatism reverses, then expected one year earnings are shown to increase due to the reversal of conservatism.

Considering the speed at which the λ, θ and γ evolve, it follows that an accounting system or accounting practice can be characterised as "slow" or "fast" in capturing economic gains and losses. A first approach to the speed of convergence, from biased recognition towards full recognition, could be given by subtracting Equation (1.10) from (1.11). Consequently, Equation (1.12) shows that the expected earnings growth from current to one year-ahead earnings depends on the deferral of current and prior news recognition as follows: [9]

$$e_{t+1} - e_t = (\lambda_0 - \lambda_1)E_{t-1} + (\theta_0 - \theta_1)\varepsilon_t^+ - (\gamma_1 - \gamma_0)\varepsilon_t^- \tag{1.12}$$

The reversal of conservatism suggests then that the expected growth in earnings is mostly due to the deferred recognition of positive shocks.

1.6 Conservatism in the abnormal earning growth model

Now, if we divide (1.11) by current price P_t, then,

$$\frac{e_{t+1}}{P_t} = r - \frac{\left[\lambda_1 E_{t-1} + \theta_1 \varepsilon_t^+ - \gamma_1 \varepsilon_t^-\right]}{P_t} \tag{1.13}$$

[9] It is very important that the relationships that are developed here are "ex-ante". Ex-post realisations of earnings and earnings growth are subject to the arrival of news. As a result, ex-ante and ex-post distributions of earnings growth for example will differ with the ex-ante growth having a mean and median greater than the ex-post distribution. Chapter 3 discusses why and when differences between actual and expected earnings are a result of accounting conservatism, drawing mainly on Helbok and Walker(2004).

Next, we compare this with this following reformulation of (1.6)

$$\frac{e_{t+1}}{P_t} = r - \left[\frac{e_{t+2} - e_{t+1} - r(e_{t+1} - d_t)}{(r-g)}\right] / P_t \tag{1.14}$$

Substituting (1.13) in (1.14), it can be shown that

$$\begin{aligned} &\frac{e_2 - e_1 - r(e_1 - d_0)}{(1+r)} + \frac{e_3 - e_2 - r(e_2 - d_1)}{(1+r)^2} + \ldots = \\ &\frac{e_2 - e_1 - r(e_1 - d_0)}{(r-g)} = (\lambda_1 E_{t-1} + \theta_1 \varepsilon_t^+ - \gamma_1 \varepsilon_t^-) \end{aligned} \tag{1.15}$$

That is, the expected growth rate in earnings is equivalent to the reversal of conservatism. In order to translate accounting earnings into firm value, market participants have to assess the current state of conservatism and how its reversal unfolds into the earnings expectations affecting expected short and long term earnings growth.

The economic consequences from the misspecification of the parameters γ_1, θ_1 and λ_1, that is the lack of full appreciation of the current status of conservatism and its reversal, become clearer by combining (1.9) and (1.13) in order to have an expression for the cost of equity capital, (considering the forecast for one year expected earnings e_{t+1} as publicly known), as follows:

$$r = \frac{e_{t+1}}{P_t - \lambda_1 P_{t-1} - \theta_1 (P_t - P_{t-1})^+ + \gamma_1 (P_t - P_{t-1})^-} \tag{1.16}$$

The above mentioned findings of Penman and Zhang (2002) or Lev, Sougianis and Sarath (2004), that the use of conservative practices can predict future returns, may be explained in the spirit of (1.16). In a practical setting, earnings forecasts for one year ahead are readily available; it is up to each investor to determine the parameters γ_1, θ_1 and λ_1. In the context of Penman and Zhang (2002), building "hidden reserves" using conservative accounting practices may mislead market participants with regard to the reversal of conservatism (*i.e.*, they ignore the "hidden reserves") and this could be reflected in a misapprehension of the parameters γ_1, θ_1 and λ_1.

1.7 A multi-period approach to the examination of conservatism.

So far, the analysis of the effects of accounting conservatism has been presented with respect to earnings and earnings expectations. However, it has to be noted that, since Feltham and Ohlson (1996), researchers have also modelled conservatism within the residual income valuation model (*e.g.* Zhang, 2000) and have sought to provide empirical evidence on conservatism in terms of the book to market ratio (see, for instance, Beaver and Ryan, 1995; Ahmed, Morton and Schaefer, 2000; Garcia Lara and Mora, 2004). As shown above, given the clean surplus relationship, the book value of equity accumulates the effects of the initial under (over)-recognition of good (bad) news as well as the effects of the reversal of conservatism in subsequent periods. As a result, the book to market ratio is a summary indicator of accounting conservatism since it describes the joint past effects of initial conservatism and conservatism reversal. As a consequence of the summary and noisy nature of the book to market ratio as an

indicator of accounting conservatism, it can give contradictory signals concerning the under (over)-recognition of positive (negative) value shocks. Take for instance the Garcia Lara and Mora (2004) study, where it is found that, in terms of balance sheet conservatism, accounting in Germany is more conservative than accounting in the UK. Yet, the same authors find that negative value shocks are recognized in a more pronounced fashion in the UK than in Germany, an indication that implies greater conservatism in accounting in the UK than in Germany. The authors in this study draw upon Pope and Walker (2003) to interpret their finding that "ex-ante" conservatism prevents the exercise of "ex-post" conservatism with respect to bad news. However, this does not help us to reconcile these two opposing findings.[10]

If conservatism is considered in two dimensions, that is the initial asymmetric timeliness of news and the reversal of conservatism in subsequent periods, the disagreement between balance sheet and earnings conservatism in the example above can be attributed to differences in the speed of the reversal of conservatism, with reversal of conservatism in Germany being slower than in the UK, inducing lower book values of equity in Germany. The association of current earnings and value shocks is of limited utility. Conservatism has to be considered in a multi-period setting and, furthermore, it should be considered in terms of earnings expectations rather than in terms of realized future earnings, consistent with the framework developed in this chapter. This intuition is also confirmed by Roychowdhury and Watts (2005), who

[10] The evidence from Garcia Lara and Mora (2004) is employed here as an example. One could find similar occurrences on the firm level within the same country.

argue that the relation between balance sheet and earnings conservatism depends on the horizon over which asymmetric timeliness is measured and that earnings conservatism is better at capturing total conservatism in net assets at a point in time, when it is estimated cumulatively over multiple years. As shown in here, a multi-period approach to the earnings-returns relationship informs not only our understanding of the current conservative bias but also tells us about the rate of its subsequent correction - the reversal of conservatism.

Evidence on the Reversal of Conservatism

2.1 Introduction

The previous chapter shows how prices depend on expected earnings and how the unravelling of the reversal of conservatism in expected earnings enables market participants to translate expected accounting earnings to permanent earnings and firm value. It has been made clear that there are two basic inputs in the valuation equation: *a)* expected accounting earnings; and *b)* information with respect to the reversal of conservatism. So far, in the accounting literature, it has been established that "Prices Lead Earnings", that is, accounting earnings incorporate the information reflected in price changes systematically with a lag. The reversal of conservatism then, refers to the correction of the bias induced by the accounting lag by incorporating current market news into subsequent earnings.

On this point, it is important to clarify that, whilst a change in prices leads earnings, it is revisions of expected earnings that cause price changes and not the other way round. Thus, although the characterisation "Prices Lead Earnings" describes an empirical regularity, it does not denote a causality that runs from the change in prices to earnings. For example, let's assume a positive change in price that is related to an upwards revision of expectations for the one-year ahead earnings. Assume that, one year later, the event that had triggered an upwards revision of earnings is recognised in current earnings. It follows that one would find a positive association between the positive value change at time t-1 and earnings at time t and would attribute it to prices leading

earnings. If, for any reason, the event that had triggered the revision in expectations at time t-1 does not take place, and corresponding earnings are not realised at time t, the "Prices Lead Earnings" dictum would not hold as there are no earnings to be associated with the positive change in price at time t-1. In the previous example, the event that triggered the upwards price change and expectations revision for the earnings one year ahead had not been registered in the accounting earnings of time t-1 due to accounting conservatism. The reversal of conservatism then consists of the correction of the accounting bias at t-1. The above example encourages an examination of accounting conservatism in a multi-period setting with an ex-ante perspective employing earnings expectations. In contrast to the usual methodology of examining accounting conservatism within the context of a contemporaneous earnings-returns association, this thesis takes this examination a step further with an ex-ante multi-period setting.

With the above in mind, the present chapter reviews the empirical evidence on the reversal of conservatism to see how the concept has been shaped through the different views on the earnings generating process that have been advanced in the research literature. At the outset, it should be recognised that the evidence on the reversal of conservatism was not explicit before Basu (1997), whose contribution has been to introduce formally, and in a testable context, the influence of conservative accounting rules on the earnings-returns relationship. Nevertheless, the early studies, beginning with Beaver, Lambert and Morse (1980), which demonstrated that "Prices Lead Earnings", constitute an important stage in the development of our understanding of accounting conservatism.

2.2 Early evidence on the non-synchronous earnings-returns relation

Beaver, Lambert and Morse (1980) point out that the expected value of future earnings conditional upon past earnings alone will not equal the expected value of future earnings conditional upon past earnings and past prices, given that earnings are the result of a compound process involving more than one stochastic variable. They maintain that the time series of earnings follows a first-order moving average process in first differences (IMA(1,1)) as follows:

$$\begin{aligned} e_t &= A_t + u_t \\ A_t &= A_{t-1} + a_t - \zeta a_t \end{aligned} \tag{2.1}$$

where:

e_t refers to observed earnings;

A_t is the part of observed earnings that reflects events that affect current price;

u_t refers to the part of observed earnings that has no price implications;

a_t refers to the part of A_t that is related to unexpected contemporaneous events; *and*

(1-ζ) refers to the transitory component of unexpected events.

Based on their concept of accounting earnings as described here in (2.1), Beaver, Lambert and Morse (1980) then conclude that the part of A_t which is not reflected in e_t should appear with a lag in subsequent years' earnings, an idea that is consistent with the reversal of conservatism set out in Chapter 1. More interestingly, the authors also

attempt an empirical association of earnings growth with lagged returns (see Table 2.1, below).[11]

The three definitions of current returns in Beaver, Lambert and Morse (1980) yield similar evidence, with the mean coefficients extending from 0.07 to 0.13, thus confirming their intuition that current news is indeed reflected in subsequent earnings.[12] The *R*-square estimates, which are also quite high (between 0.24 and 0.27), should be partly attributed to the regressions been conducted on observations grouped into portfolios according to the independent variable. Such grouping is adopted by the authors in this case in order to eliminate the errors-in-variables problem (by diversifying the measurement error in the explanatory variable) which is alleged to affect the slope coefficient estimates.

The grouping methodology is criticised later in Beaver, Lambert and Ryan (1987), who argue that this approach is not costless in that aggregation typically leads to "throwing away" information and a loss in the efficiency of the estimation. The main contribution of Beaver, Lambert and Ryan (1987) is to propose the use of the reverse regression (*i.e.*, earnings on returns) instead of grouping in the context of the returns-earnings relation estimates in order to deal with the errors in variables problem stemming from the measurement error in the independent variable, *i.e.*, accounting earnings.

[11] Beaver, Lambert and Morse(1980) describe their test as a regression of one year ahead realised earnings growth on current returns. However, this test could also equally be described as a regression of current earnings growth on lagged returns, for reasons of comparisons with the findings of the subsequent studies that revisit the issue of the "Prices Lead Earnings".

[12] Whereas the mean slope coefficient in the first case appears as not significant, this coefficient was positive in eleven out of eighteen annual regressions.

Table 2.1
Beaver, Lambert and Morse (1980)

Regression coefficients for subsequent growth in earnings on percentage changes on price (1958-1976)

$$\%\Delta e_t = a_0 + a_1 R_{t-1} + u_t$$

Independent variable	*% change in prices excl. dividends*	*% change in prices incl. dividends*	*Unsystematic % change in prices incl. dividends*
Mean a_1	0.07	0.09***	0.13***
Mean *R*-square	0.26	0.27	0.24

***,**,* indicates that the coefficient estimate is significant at the .01, .05 and .10 level in two tail tests, respectively.

Beaver, Lamber and Morse (1980, p.21) run annual cross-sectional regressions of the subsequent percentage growth in earnings Δe_t on three different forms of current annual percentage change in market price; (a) the percentage change in price in security *i* in year *t*-1; (b) the security return (including dividends) of security *i* in year t-1 and (c) the unsystematic or residual return (including dividends) of security *i* in year t-*1*. The mean coefficient and *R*-square are estimated by 17 annual regressions.

The authors also examine a non-contemporaneous relation of earnings and lagged returns, but furthermore they include current returns arguing that the inclusion of this variable constitutes either an omitted variable in the Beaver, Lambert and Morse (1980) research design if returns are correlated, or a means to reduce the standard deviation of disturbances if returns are uncorrelated. Table 2.2 reproduces the Beaver, Lambert and Ryan (1987, p.153) evidence which shows that both response coefficients are positive and significant, a finding consistent with news being reflected in accounting earnings with a lag. Note however that the response coefficient of the lagged returns is definitely larger than the coefficient in Beaver, Lambert and Morse (1980), that is 0.17 versus 0.07 respectively. Such an increase is most likely attributed to current returns being an omitted variable in the Beaver, Lambert and Morse (1980) study. This argument can also be supported by subsequent study (Collins, Kothari, Shanken and Sloan, 1994) which explains that including contemporaneous earnings in lagged returns regression control for the unexpected component of current earnings.

Table 2.2
Beaver, Lambert and Ryan (1987)

Regression coefficients for subsequent growth in earnings on percentage changes in price and lagged percentages in price (1966-1983)

$$\%\Delta e_t = a_0 + a_1 R_t + a_2 R_{t-1} + u_t$$

Independent variable	*% change in prices excl. dividends*
Mean a_0	0.04(0.05)
Mean a_1	0.60(0.06)
Mean a_2	0.17(0.04)

Beaver, Lamber and Ryan (1987, pp.153) run annual cross-sectional regressions of the annual growth in earnings Δe_t current and lagged annual percentage change in market price R_t and R_{t-1}. The mean coefficients from annual regressions are reported. Numbers in parentheses represent the time series error of the mean coefficient.

Collins, Kothari and Rayburn (1987) also revisit the non-contemporaneous earnings-returns relation; nevertheless, their contribution consists of explicitly assigning the "Prices Lead Earnings" empirical regularity to the revenue and expense recognition rules underlying the conventional accrual accounting model. Furthermore, they introduce the concept of accounting conservatism, pointing out that "... these rules require a completed, arms-length transaction before the economic impact of events is entered into the accounting records. Thus, part of the change in firm value associated with events with earnings implications may well occur in a time frame prior to the accounting period in which the effects of these events are captured by the accounting records (p.114)". Thus, the main contribution of Collins, Kothari and Rayburn (1987) is to consider accounting earnings within the context of accounting rules, and not simply as a time series process. Moreover, a second important insight of this study is to introduce the effect of the amount of available information in the timeliness and the extent to which permanent earnings changes are revealed to market agents. More particularly, employing firm size as a proxy for available information, the findings in this study show that earnings reflect lagged returns in a more pronounced manner within larger than smaller firms. Considering the evidence in Table 2.3, which reproduces their main findings (Table 4, p.135), it is seen that the non-contemporaneous relation of earnings and returns is significant for large firms and insignificant for small firms, implying that the earnings-returns association depends on the broader information set available to market participants (note the difference in the estimates of the coefficient of lagged returns a_1 which takes the value of 0.074 for large firms and a non significant 0.017 for small firms).

Table 2.3
Collins, Kothari and Rayburn (1987)

Percentage change in earnings on leading, contemporaneous and lagged size-adjusted returns (1968-1980)

$$\%\Delta e_t = a_0 + a_1 R_{t-1} + a_2 R_t + a_3 R_{t+1} + u_t$$

	Small firms	*Large firms*
a_0	0.136	0.063
	(9.53)	*(7.88)*
a_1	0.017	0.074
	(0.50)	*(2.54)*
a_2	0.654	0.248
	(15.48)	*(8.42)*
a_3	0.463	-0.15
	(6.84)	*(-2.30)*
R-square	0.227	0.062

Collins, Kothari and Rayburn (1987, *p.*135) run pool regressions of the annual growth in earnings Δe_t current and lagged twelve month size adjusted returns (January-December) R_t and R_{t-1} as well as a three month size adjusted return (January-March) R_{t+1}. Numbers in parentheses are *t*-statistics.

Kothari (1992) takes the examination of the association of "Prices Lead Earnings" to a level beyond that of confirming it as an empirical regularity. This paper establishes the notion of permanent earnings as one that is similar to the Hicksian concept of income, which was introduced in the previous chapter. More specifically, it is argued that when :

a) earnings contemporaneously reflect all the information that is impounded in the return over the relevant period, that is when prices do not lead earnings;

b) only information about earnings affects stock price;

c) earnings follow a random walk, and,

d) the dividend payout ratio is 100 percent, then the firm value can be modeled as:

$$P_t = \frac{E_{t+1}}{r} = \frac{E_t}{r} \tag{2.2}$$

where E_{t+1} refers to the expectation of earnings one year ahead. Furthermore, when relaxing the assumption of full payout dividend policy

$$P_t + d_t = (1 + \frac{1}{r})E_t \tag{2.3}$$

Kothari (1992) also argues that when "Prices Lead Earnings", accounting conservatism introduces information in earnings that is already known to the market. Thus, earnings growth includes a portion that is anticipated and a portion that is a surprise (that is a portion that can be attributed to lagged returns and a portion that is attributed to contemporaneous returns). Assuming a one year lag period, Kothari (1992) then derives a model where earnings grow due to the accounting lag as follows:

$$e_t = e_{t-1} + x_t + Lx_t \tag{2.4}$$

where x_t denotes the surprise portion of earnings growth and Lx_t the portion of earnings growth that was anticipated at the beginning of the year due to the accounting lag. Similarly, the expectation of future earnings conditional on current information will reflect the portion of current information in the market that will be reflected with one period lag as

$$e_{t+1} = e_t + Lx_{t+1} \tag{2.5}$$

so that

$$P_t = \frac{e_{t+1}}{r} + \frac{Lx_{t+1}}{r} \tag{2.6}$$

The similarity of (2.6) with the abnormal earnings model is striking if one sets the accounting lag as one period, that is, conservatism reverses completely in the period $t+1$.[13]

However, "Prices Lead Earnings" for more than one year. Evidence on this issue is provided in three contemporaneous research papers by Kothari and Sloan (1992), Easton, Harris and Ohlson (1992) and Warfield and Wild (1992), as discussed below.

Kothari and Sloan (1992) extend their horizon of the returns-earnings relation examination to include gradually up to nine years lagged returns. Consistent with the reversal of conservatism, the response coefficient (reported here in Table 2.4 which reproduces estimates from Table 2, *p.*152 in the study) increases towards a theoretical

[13] It has to be noted that the main objective of the Kothari (1992) study is to evaluate the use of different deflators in the returns-earnings relation as well as to explain why earnings levels rather than earnings changes should be employed in this context.

value of $1+1/r$, where r is an estimate of the average cost of equity capital, from 2.56 towards 5.45 over the four years. The authors also report that the corresponding coefficient for a six year measurement interval grows to 6.13 and for a nine year interval to 6.83. Note that the theoretical value of the response coefficient for their data should be around 6.83 taking into account a 17.15% rate (the CRSP portfolio return for the period 1926-1988) as an approximation of the cost of capital. In fact, the authors consider that the increase on the slope coefficient employing an interval up to three years is the most influential, and argue that adding further lagged returns does not particularly add to our understanding of "Prices Lead Earnings" as the main portion of news is captured within a three year period.

Table 2.4
Kothari and Sloan (1992)

Regression coefficients of price relatives on contemporaneous earnings deflated by price for different measurement intervals (1950-1988)

$$P_t / P_{t-\tau} = a_0 + a_1 e_t / P_{t-\tau} + u_t$$

Interval (t-τ)	One year	Two years	Three years	Four years
Mean a_1	2.56	4.69	5.08	5.45
Standard error	0.0701	0.0966	0.1016	0.1198

Kothari and Sloan (1992, pp. 152) conduct firm-specific regressions of price relatives $P_t/P_{t-\tau}$, that is one plus the buy-and-hold return, inclusive of dividends, over the interval t-τ to t on the respective earnings divided by the price at the beginning of the earnings measurement interval $e_t/P_{t-\tau}$.

Whereas Kothari and Sloan (1992) base their estimates on average firm level regressions controlling for residual autocorrelation, Warfield and Wild (1992) estimate pooled cross-sectional time series regressions and provide their evidence in terms of *R*-square, which increases as they extend their measurement interval. More specifically, associating future earnings up to two years ahead with current and one year previous returns, they find that the estimated *R*-square increases from 11.56% for current returns on current earnings regression to 32.66% for current and prior year returns on current and two year ahead earnings (see Table 2.5). Another interesting contribution of the Warfield and Wild study is acknowledging that different industries are characterized by different accounting lags, as the earnings measurement is likely to vary with "operating cycles, riskiness of receipts, reliability of data and availability of observable and verifiable market prices". Consistently, the respective estimated *R*-square of the examined returns and earnings relation are found to vary among groups of firms that are considered by the authors to have different earnings measurement sensitivity to recognition criteria according to their industry affiliation. More specifically, the *R*-square from a regression of two successive years' returns on two successive years' earnings increases from 28.33% for firms that are characterised as being highly sensitive, to 53.81% for firms deemed to be less sensitive to recognition criteria.

Table 2.5
Warfield and Wild (1992)

Regression *R*-squares

$$R_{t-\tau} = a_0 + \sum_{k=0}^{2} a_k e_{t-k} / P_{t-\tau} + u_{t-\tau}$$

	Current year's earnings	*Current and next year's earnings*	*Current and next two years' earnings*
Current period returns	11.56	16.03	16.87
Current period and one year lagged returns	27.20	32.34	32.66

Warfield and Wild (1992, p.838) present the estimated R-squares that they obtain from regression of the above described returns descriptions on different aggregations of earnings. The data cover the 1983-1986 period.

Following the same approach as Warfield and Wild (1992), *i.e.* evaluating the returns-earnings relation based on estimated *R*-square from regressions of aggregated returns and earnings, Easton, Harris and Ohlson (1992) take this examination a step further by extending the measurement interval up to ten years They propose the aggregation of earnings as an appropriate approach to examining the association between earnings and returns as they expect it to reduce the accounting error caused by: (*i*) value-relevant events occurring during the return interval which are recognized in earnings of subsequent periods, and (*ii*) value relevant events occurring prior to the return interval which are recognized in earnings during the interval.[14]This perspective is consistent with the reversal of conservatism, ensuring that conservative accounting rules do not have economic consequences. In the long run, when all conservatism has reversed, aggregated earnings and aggregated returns should correlate almost perfectly, a point which motivates the authors to expect that their long interval tests have a very high *R*-square, which is also supported by their findings. Shroff (2002) revisits Easton, Harris and Ohlson (1992) and discourages over-reliance on the very high *R*-square the authors obtain (62% for the 10 year interval), attributing it to the covariance of current earnings with the earnings measurement error (that is, anticipated future earnings triggered by current value relevant information), a covariance which signals some form of earnings persistence. Shroff (2002) argues this point and shows that, when earnings are orthogonalised with respect to the earnings measurement error (which is represented by

[14] Kothari and Sloan(1992) appear to disagree on this point; they believe that aggregation over long horizons is not as effective as adding lagged returns, because longer windows do not fully incorporate earnings anticipation.

the change in unrecorded goodwill)[15], the *R*-square in 10 year interval test decreases from 47.4% (when she replicates the Easton, Harris and Ohlson, 1992 study) to only 11.3% (10.7% for the five year interval and 10.3% for the two-year interval), which remains almost constant throughout all different measurement intervals (see Table 2.6). Nevertheless, her findings do not really invalidate the initial intuition of Easton, Harris and Ohlson (1992) that measurement errors cancel out in the long term; rather, these findings confirm that the increased *R*-square can be largely attributed to the effects of the reversal of conservatism (or the accounting lag, as she refers to it).

[15] Unrecorded goodwill is defined as the difference between the market and book value of equity.

Table 2.6
Easton, Harris and Ohlson (1992)

Regression coefficients of buy and hold returns on contemporaneously aggregated earnings deflated by price (1968-1986) for different measurement intervals

$$R_{t,t-\tau} = a_0 + a_1 e_{t,t-\tau} / P_{t-\tau} + u_{t-\tau}$$

	Easton, Harris and Ohlson (1992)		*Shroff (2002)-pooled regressions*	
	a_1	*R-square*	a_1	*R-square*
Ten- year interval	1.659***	0.63	1.870***	0.47(0.11)
Five-year intervals	1.340***	0.28	1.502***	0.25(0.11)
	1.559***	0.38		
Two-year intervals	0.767***	0.14	0.996***	0.10 (0.10)
	0.704***	0.14		
	1.066***	0.17		
	0.812***	0.14		
	0.935***	0.18		

Both dependent and independent variables in the Easton, Harris and Ohlson (1992) model are adjusted for dividend reinvestment. However, the authors find that such adjustment does not affect the empirical results.
The Shroff (2002) findings are also presented for comparison. Note that Shroff employs data that cover the 1985-1999 period, a fact that might partially explain lower *R*-square. The *R*-square presented in parentheses correspond to a two stage OLS regression which takes into account the accounting lag influence.

Finally, Collins, Kothari, Shanken and Sloan (1994) point out that prior evidence on the (weak) relationship between returns and contemporaneous earnings is due to the lack of timeliness of accounting earnings (rather than noise in earnings). In order to circumvent the lack of timeliness, the authors draw upon Easton, Harris and Ohlson (1992) and Warfield and Wild (1992) to include future earnings growth; however, one of the contributions of the Collins et al. (1994) study is to clarify that employing ex-post future earnings growth to proxy for expected earnings growth introduces measurement error in variables. They argue that, ideally, the explanatory variables (*i.e.* earnings surprise) in a return earnings regression should only reflect information that arrives during period *t*. In order to mitigate the measurement error in the explanatory variables, the authors include, together with future earnings growth, future returns as controls for the irrelevant components of future earnings (so that the remaining component of future earnings growth relates to information arriving at time *t*). Consistent with their predictions, as shown in Table 2.7, the proxies for expected earnings growth are positively associated with current returns (with magnitudes that decrease from 0.57 and 0.59 for current and one year ahead earnings growth to 0.26 and 0.25 for three and four years ahead growth). Furthermore, in accordance with the authors' argument that the realised unexpected component of earnings growth exceeding the anticipated growth in earnings lends a negative sign on the future returns included in the regression as controls, estimated coefficients are also found to be negative and significant for at least two periods ahead.

The Collins *et al.* (1994) study establishes the lack of timeliness of accounting earnings as a reason for the "Prices Lead Earnings" rule and, furthermore, accounts for proxies of expected growth in earnings to compensate for this lack of timeliness in the returns-earnings regression. It has to be noted that the Collins *et al.* (1994) tests do not consider the nature of the information arriving at time t and their results are most probably driven by the deferred recognition of economic gains in expected earnings, assuming that economic losses are promptly recognised. As discussed below, this has since, been demonstrated by Basu (1997), by means of a "reverse regression" of earnings on returns.

Table 2.7
Collins, Kothari, Shanken and Sloan (1994)

Regression coefficients of annual returns on contemporaneous and three future years' earnings growth, future returns and controls (1926-1989)

$$R_t = a_0 + a_1 \%e_t + a_2 \%e_{t+1} + a_3 \%e_{t+2} + a_4 \%e_{t+3} + a_5 R_{t+1} + a_6 R_{t+2} + a_7 R_{t+3} + Controls + u_t$$

	Coefficient	Std. error
a_0	-0.29	0.09
a_1	0.57	0.14
a_2	0.59	0.10
a_3	0.25	0.13
a_4	0.26	0.13
a_5	-0.53	0.12
a_6	-0.48	0.12
a_7	-0.16	0.12
R-square	44.9	

In Collins, Kothari, Shanken and Sloan (1994, p.307) R_{t+k} stands for continuously compounded annual percentage return calculated from the beginning and end-of-the-year price index and the dividends for the calendar year $t+k$ and $\%e_{t+k}$ for continuously compounded annual growth of S&P estimates value-weighted earnings before extraordinary items and discontinued operations. Controls refer to the lagged earnings multiple and a variable that proxies for current investment opportunities.

2.3 Evidence on the asymmetric reversal of conservatism

It has been shown above how accounting research gradually attributed the "Prices Lead Earnings" phenomenon to the delayed recognition of economic earnings as induced by conservative accounting. In Beaver, Lambert and Morse (1980) earnings are considered to follow a random walk with a drift, but progressively researchers have acknowledged that the earnings variable should be considered within a context described by accounting principles, and thus allow for accounting conservatism.

It is the seminal paper by Basu (1997) which makes clear that accounting conservatism is responsible for an asymmetry in the recognition of news in earnings conditionally on the nature of the news; that is, economic gains are recognized with a greater delay than economic losses. Basu's main innovation is that he introduces a dummy variable in the earnings returns regression in order to discriminate economic losses from gains when estimating their asymmetric recognition in current accounting earnings. Consistent with accounting conservatism, he shows that earnings are subject to considerable asymmetric timeliness in the recognition of contemporaneous economic gains and losses, denoted by the significant incremental influence of negative returns coefficients over the positive returns coefficient. Furthermore, drawing upon the *Easton et al.* (1992) argument that lengthening the aggregation interval reduces the relative lack of timeliness in earnings, Basu tests the asymmetric timeliness of four years accumulated earnings on four years accumulated returns. The findings in this case are of particular interest with respect to the (asymmetric) reversal of conservatism, as the asymmetric

timeliness appears to decrease. This can be better understood if one estimates the ratio of the positive to negative returns coefficients for each of the two horizons. In Table 2.8, which reproduces these results, it can be seen that, whereas the single period estimates give a very low ratio of 0.155 (by dividing 0.047/(0.256+0.047)), the respective ratio becomes larger taking a value of 0.39 over the longer period signalling that recognition of "good" and "bad" news becomes more symmetrical along the forecast horizon.

The Basu (1997) clarification of the differential influence of "bad" and "good" news (respectively negative and positive returns) has considerably influenced subsequent research on the association of earnings and market returns. Its advantage consists of enabling a connection with the contractual explanation of conservatism (as summarized in the first chapter), which is also employed to explain cross-country comparisons of earnings properties within different institutional contexts.

Table 2.8
Basu (1997)

Piecewise regression of earnings yield on returns

$$\frac{e_{t-3,t}}{P_{t-4,t-1}} = a_0 + a_1 D + a_2 R_{t-3,t} + a_3 DR_{t-3,t} + u_{t-3,t}$$

	a_0	a_1	a_2	a_3	*R-square*
Earnings and annual returns	0.030	0.014	0.047	0.256	12.48
t-stat	*(22.62)*	*(6.07)*	*(11.03)*	*(27.14)*	
Four-years cumulative earnings and returns	0.113	-0.024	0.137	0.215	29.29
t-stat	*(18.1)*	*(-2.84)*	*(20.35)*	*(19.3)*	

In the single period test, the earnings yield is regressed on the returns from 9 months before fiscal year-end t to three months after.
In the four-years cumulated earnings and returns test, the earnings yield is estimated by dividing earnings cumulated over fiscal years t-3 through t, on the share price at the close of fiscal year t-4 and regressed on the buy-and-hold return from 9 months before the fiscal year-end t-3 to three months after the fiscal year-end t.
In both tests, earnings yields are adjusted by its sample average for that year and returns are adjusted by the CRSP equal weighted index. D is a dummy variable that takes the value of zero if returns are positive and one if returns are negative.

Following this line of research, Pope and Walker (1999) compare the conservatism of UK and US earnings. In fact, the main contribution of Pope and Walker is not just their use of Basu's (1997) research design for an international comparison of earnings properties but, more importantly, lies in their enhanced theoretical positioning of the link between economic and accounting earnings under conservatism.[16]

With respect to the evidence on the reversal of conservatism Pope and Walker (1999) develop a multi-period test that enables an assessment of the timing of the reversal, which is in contrast to Basu (1997) who provides evidence based on cumulative earnings and returns. More specifically, they provide explicit empirical evidence on the asymmetric reversal of lagged economic shocks showing that the more lagged the positive shocks are, the more permanent is their effect on current earnings. As presented in Table 2.9, coefficients a_{20} to a_{23} stand for the recognition of the t-τ, τ=0,1,2,3 economic gains; with their magnitudes increasing from 0.029 to 0.083 in the U.S. sample, it follows that the impact of economic gains on accounting earnings becomes more permanent in the long term. On the other hand, asymmetric timeliness is a property that does not persist for long. In the U.S. sample, asymmetric timeliness ceases by time t-3 and in the U.K. by time t-2, as is evident with the incremental "bad news" coefficients a_{32} and a_{33} becoming insignificant. For instance, in the UK, a_{32}, which represents the incremental response coefficient for "bad news" for two years lagged returns, attains the magnitude of 0.05 (*t-stat*: 0.1) whereas for the U.S., the

[16] The theoretical framework of the reversal of conservatism in the previous chapter expands the theoretical background in Pope and Walker(1999).

lagged incremental "bad news" coefficient is marginally insignificant with respect to the three years lag taking the value of 0.045 (*t-stat*: 1.98).[17] Such differences may be driven by the joint ex-ante and ex-post conservatism influence; however, the research on ex-ante and ex-post conservatism is still in progress, as shown in the following section.

[17] Ryan and Zarowin (2003) also offer similar evidence of the transitory nature of the asymmetric timeliness of lagged news recognition based on a U.S. sample.

Table 2.9
Pope and Walker (1999)

Regression of earnings yield on current and lagged returns

$$\frac{e_t}{P_{t-4}} = a_0 + a_1 D + \sum_{\tau=0}^{3} a_{2\tau} R_{t-\tau} + \sum_{\tau=0}^{3} a_{3\tau} DR_{t-\tau} + u_t$$

	a_0	a_1	a_{20}	a_{21}	a_{22}	a_{23}	a_{30}	a_{31}	a_{32}	a_{33}	*R-square*
U.S.	0.103	-0.107	0.029	0.076	0.080	0.083	0.160	0.094	0.067	0.045	
t-stat	*(11.64)*	*(2.46)*	*(3.71)*	*(9.63)*	*(6.97)*	*(5.39)*	*(6.91)*	*(5.74)*	*(3.81)*	*(1.98)*	*40.3*
U.K.	0.099	-0.027	0.033	0.067	0.091	0.090	0.112	0.067	0.005	-0.032	
t-stat	*(14.75)*	*(4.16)*	*(3.94)*	*(5.15)*	*(6.72)*	*(9.35)*	*(7.09)*	*(2.13)*	*(0.1)*	*(0.93)*	*55.1*

$R_{t-\tau}$ is annual change in market price at time $t-\tau$ scaled by the market price at t-4. e_t stands for earnings before extraordinary items per share. Regression coefficients presented here are estimated by means of annual regressions (Table 6, pp. 82). D is a dummy variable that takes the value of zero if returns are positive and one if returns are negative

2.4 Recent research on earnings conservatism

Recent empirical tests on conservatism have been influenced considerably by the contributions of Pope and Walker (2003) and Beaver and Ryan (2005) on the impact of ex-ante and ex-post (or unconditional and conditional, correspondingly) conservatism in earnings as already discussed in Chapter 1. The contribution of Pope and Walker (2003) is mostly empirical; combining the lagged returns approach as in Pope and Walker (1999) with the book to market ratio (as a measure of the ex-ante or unconditional conservatism), they find that the speed of the recognition of news in earnings depends on the book to market value ratio. Providing an explanation, Pope and Walker (2003) argue that the exercise of certain conservative practices, such as expensing *R&D* and accelerated depreciation, lowers the book to market ratio and impedes ex-post conservatism. Ex-ante conservative practices bias the recognition of the value of assets at the beginning of the life of the asset, creating unrecognised goodwill, which can also be translated into unrecognised positive permanent earnings shocks. Generally, the more ex-ante conservative practices are applied, the more positive shocks are postponed to be recognised in the future creating "hidden reserves". Positive shocks postponed to be recognised in the future then create "cushions" that de-emphasize the impact of the arrival of bad news in subsequent years, leading to a lower asymmetric timeliness within firms with low book to market ratios (*i.e.* firms that are applying more ex-ante conservative practices). Thus, it is expected that these firms exhibit lower asymmetric timeliness than firms with high book to market ratios. Graph 2.1 plots the Pope and Walker (2003) estimated coefficients from their regressions of

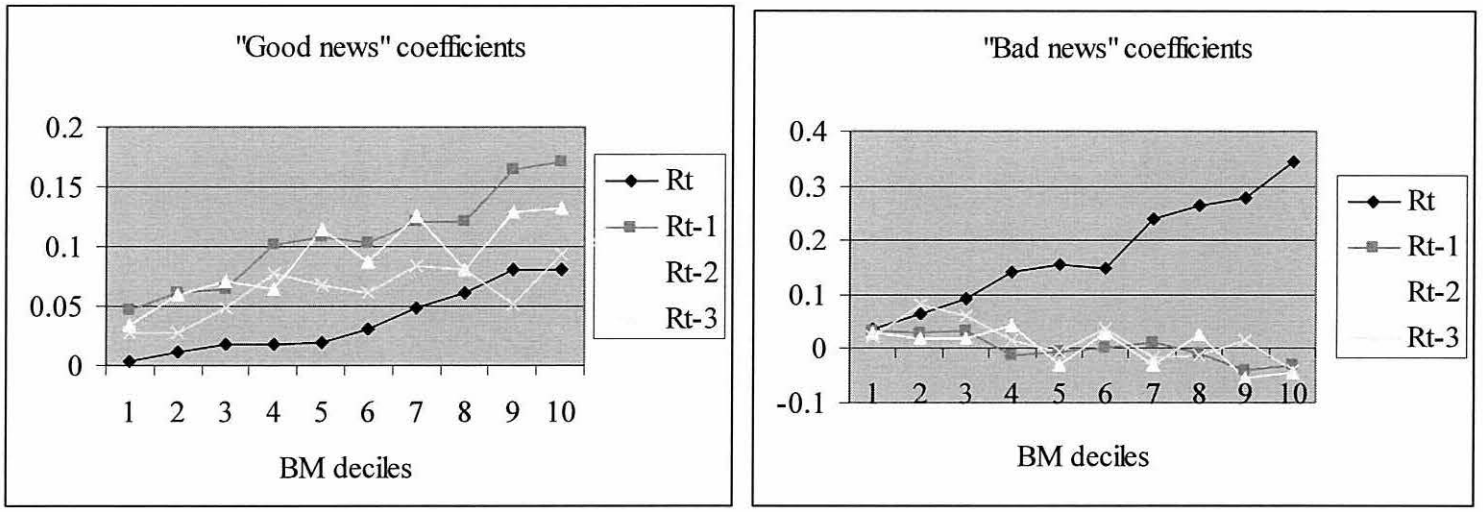
scaled earnings on scaled current and lagged price relatives conducted on sub-samples partitioned by the opening book to market ratio. The hypothesised relationship between the book to market and "bad news" (*i.e.* economic losses) coefficients is particularly obvious with respect to current price relatives. Incremental "bad news" coefficients a_{30} decrease dramatically from a magnitude of 0.343 for high book to market firms towards 0.037 for the lowest decile of the book to market firms confirming their prediction. Nevertheless, as it becomes clear from Graph 2.1 ("Bad news" coefficients), such a dramatic and monotonic trend is not repeated with respect to coefficients of lagged "news" and, there is a slight opposite direction of the trend described for current news (albeit, as seen in Table 2.10, with coefficients that are almost always insignificantly different than zero). On the other hand, with regard to the recognition of economic gains, it appears that higher "ex-ante" conservatism (*i.e*, lower book to market) is associated with slower recognition of "good news", as predicted

Table 2.10
Pope and Walker(2003)
Regression of earnings yield on current and lagged returns across Book to Market deciles

$$\frac{e_t}{P_{t-4}} = a_0 + a_1 D + \sum_{\tau=0}^{3} a_{2\tau} R_{t-\tau} + \sum_{\tau=0}^{3} a_{3\tau} DR_{t-\tau} + u$$

BM	*Decile*	a_0	a_1	a_{20}	a_{21}	a_{22}	a_{23}	a_{30}	a_{31}	a_{32}	a_{33}	R^2
	1	0.025	-0.037	0.004	0.047	0.034	0.027	0.037	0.034	0.029	0.021	0.427
		(3.057)	*(-4.101)*	*(0.677)*	*(6.459)*	*(3.367)*	*(2.208)*	*(2.841)*	*(3.236)*	*(1.272)*	*(0.825)*	
	2	0.044	-0.015	0.011	0.061	0.060	0.027	0.063	0.031	0.020	0.083	0.528
		(4.044)	*(-1.124)*	*(2.388)*	*(5.884)*	*(5.419)*	*(1.953)*	*(3.822)*	*(1.747)*	*(0.826)*	*(2.585)*	
	3	0.051	-0.002	0.017	0.065	0.071	0.049	0.094	0.034	0.020	0.060	0.469
		(6.789)	*(-0.374)*	*(3.157)*	*(7.279)*	*(7.483)*	*(5.527)*	*(6.564)*	*(2.204)*	*(0.812)*	*(3.290)*	
	4	0.049	0.002	0.018	0.101	0.065	0.077	0.140	-0.013	0.045	0.015	0.535
		(11.82)	*(0.224)*	*(2.210)*	*(12.68)*	*(5.498)*	*(5.546)*	*(3.693)*	*(-0.899)*	*(2.055)*	*(0.603)*	
	5	0.042	-0.004	0.019	0.108	0.114	0.068	0.154	-0.006	-0.029	-0.005	0.531
		(10.21)	*(-0.900)*	*(2.697)*	*(11.29)*	*(10.62)*	*(12.22)*	*(8.241)*	*(-0.401)*	*(-1.950)*	*(-0.367)*	
	6	0.056	0.000	0.031	0.104	0.087	0.061	0.150	0.003	0.029	0.035	0.519
		(11.13)	*(0.058)*	*(3.856)*	*(12.51)*	*(6.069)*	*(3.315)*	*(5.907)*	*(0.226)*	*(1.218)*	*(1.137)*	
	7	0.045	0.006	0.049	0.121	0.126	0.084	0.238	0.013	-0.031	-0.016	0.542
		(12.78)	*(1.176)*	*(5.085)*	*(7.594)*	*(10.41)*	*(6.589)*	*(5.058)*	*(0.725)*	*(-1.604)*	*(-0.875)*	
	8	0.048	0.010	0.061	0.121	0.080	0.081	0.262	-0.008	0.025	-0.011	0.491
		(7.083)	*(1.325)*	*(8.558)*	*(5.537)*	*(4.741)*	*(6.841)*	*(7.696)*	*(-0.258)*	*(1.110)*	*(-0.577)*	
	9	0.041	-0.005	0.081	0.165	0.129	0.052	0.279	-0.041	-0.056	0.016	0.469
		(5.034)	*(-0.654)*	*(6.397)*	*(14.31)*	*(11.99)*	*(2.895)*	*(6.765)*	*(-1.808)*	*(-2.639)*	*(0.636)*	
	10	0.033	-0.013	0.081	0.171	0.132	0.094	0.343	-0.031	-0.044	-0.040	0.400
		(3.530)	*(-2.487)*	*(4.807)*	*(4.464)*	*(5.936)*	*(5.018)*	*(6.6770*	*(-0.753)*	*(-1.374)*	*(-2.043)*	

Graph 2.1
Pope and Walker (2001) regression coefficients



Graph 2.1 presents plots of the estimated "good" and "bad" news coefficients by Pope and Walker (2003) as reported in Table 2.10 above.

However, research on ex-post and ex-ante conservatism is still ongoing. More recent studies by Roychowdury and Watts (2005) and Beaver and Ryan (2005) attempt to shed further light on the link between ex-post and ex-ante conservatism either by testing for conservatism within a multi-period setting or by theoretically modelling such a relation. Roychowdury and Watts (2005), regress a forward accumulation of earnings on the interaction of an indication of the current book to market ratio rank and forwardly cumulated returns, confirming that different degrees of ex-ante conservatism influence the alleged asymmetry in news recognition. Their evidence, presented in Table 2.11, which reproduces Table 4A of the Roychowdury and Watts (2005) study, shows a significant influence of the ex-ante conservatism on the way news is recorded in accounting earnings. Whereas both Pope and Walker (2003) and Roychowdury and Watts (2005) observe the asymmetric timelines of news recognition across the ranks of the beginning of the year book to market ratio, the latter study also provides a statistical assessment of this relation. More particularly, the latter authors interact the market to book ratio rank with returns and they observe a significantly negative (positive) influence of the increasing market to book (book to market) ratio in both the recognition of "good news" (coefficient a_5: -0.0203, -0.0265. -0.0280) and the asymmetric timeliness of "bad news" (coefficient a_7: -0.0911, -0.1458, -0.1508), confirming the evidence in Pope and Walker (2003).

Table 2.11
Roychowdury and Watts (2005)

Regression of future earnings on the current Market to Book ratio rank and future returns (1972-1999)

$$\frac{e_{t+1,t+k}}{P_{t-1}} = a_0 + a_1 MB_t + a_2 D_{t+1,t+k} + a_3 MB_t * D_{t+1,t+k} + a_4 R_{t+1,t+k} + a_5 MB_t * R_{t+1,t+k} + a_6 D_{t+1,t+k} * R_{t+1,t+k} + a_7 MB_t * D_{t+1,t+k} * R_{t+1,t+k} + u_{t+1,t+k}$$

	k=1	k=2	k=3
a_0	0.1078	0.2101	0.3568
	(9.87)	*(10.2)*	*(9.46)*
a_1	-0.0066	-0.0122	-0.0303
	(-3.25)	*(-3.19)*	*(-3.18)*
a_2	-0.0086	-0.0226	-0.0739
	(-0.65)	*(-1.51)*	*(-1.72)*
a_3	0.0031	0.0067	0.02142
	(0.8)	*(1.56)*	*(1.65)*
a_4	0.0899	0.1428	0.1701
	(7.45)	*(10.86)*	*(7.34)*
a_5	-0.0203	-0.0265	-0.028
	(-6.28)	*(-10.23)*	*(-4.11)*
a_6	0.4638	0.7571	0.8521
	(9.23)	*(6.87)*	*(8.95)*
a_7	-0.0911	-0.1458	-0.1508
	(-6.54)	*(-5.09)*	*(-5.85)*

$e_{t+1,t+k}$ is cumulative income before extraordinary items during years t+1 *to* t+k, where k varies from 1 to 3. The special case of k=1 represents earnings for years t+1, with no cumulation. P_t is market value of equity at the end of year t-1. $R_{t+1,t+k}$ is buy and hold returns, beginning the fourth month of fiscal year t and ending four months after the end of year t+k. $DR_{t+1,t+k}$ is a zero/one indicator set to 1 if $R_{t+1,t+k}$ <0 and MB_t is the quintile rank of the ratio of the market to book value of equity at the end of the year t.

The evidence in Table 2.11 is comparable to the evidence in Pope and Walker (2003), as described above in Graph 2.1, bearing in mind that Roychowdury and Watts employ the market to book ratio whereas Pope and Walker employ its inverse, *i.e.* the book to market ratio.

Beaver and Ryan (2005), on the other hand, examine the relationship between ex-ante and ex-post indicators from a theoretical perspective. The common point between the two studies is that they attach considerable attention to the mix of tangible and intangible assets of the firm as the key to unravelling the nature and interactions between these two forms of conservatism. This perspective (albeit still on the theoretical level and yet to be tested empirically) moves our attention away from the contractual underpinnings of conservatism to the firm level operating circumstances as determinants of accounting properties.[18] Beaver and Ryan (2005) conclude their study by arguing that growth-dependent biases in accounting numbers that result from unconditional conservatism depend on the application of conditional conservatism, in particular, the timing of the most recent write-down. They further comment that parameters such as frequency, timing, and amount of write-downs also have implications for earnings forecasting. This observation confirms the intuition developed in Chapter 1 that past accounting (conservative) choices determine ex-ante future earnings growth by means of conservatism reversal.

[18] Drawing upon an earlier draft of the study on ex-ante and ex-post conservatism by Pope and Walker(2003), Giner and Rees (2001) attempt to form homogeneous groups based on the typical book to market of an industry. The underlying argument is that industry specific rules affect ex-ante conservatism in a rather homogenous manner.

2.5 Conclusion

In this chapter, it has been shown that "Prices Lead Earnings" is an empirical regularity that stems from the accounting property of conservatism. The implications of the"Prices Lead Earnings" regularity, according to the findings of the studies reviewed here, consist mainly of the deferred recognition of economic gains which, in this thesis, is referred to as the reversal of conservatism. This perspective suggests that a more comprehensive evaluation of conservatism should take into account not only the initial bias introduced by the initial under-recognition of economic gains (or the eventual over-recognition of economic losses) but also its reversal. However, consistent with the framework developed in Chapter 1, the reversal of conservatism is assessed in this thesis ex-ante, *i.e.*, focusing on the expected reversal of the bias initiated by the under (over) recognition of current news. An empirical examination of the expected reversal of conservatism builds upon the studies reviewed here, but furthermore necessitates the use of a suitable proxy for market participants' earnings expectations and, in this respect, analysts' earnings forecasts are employed. Thus, the next chapter discusses analysts' forecasts in a returns-earnings context and assesses their suitability as proxies for earnings expectations.

Analysts' Forecasts and Earnings Expectations

3.1 Introduction

There is a long tradition of employing analysts' earnings forecasts in the context of the earnings-returns relationship. As early as 1987, Brown, Hagerman, Griffin and Zmijewski compared different estimates of earnings surprises with respect to their ability to explain unexpected returns. In that study it is shown that earnings surprises as estimated by analysts' forecasts are superior to earnings surprises estimated by time series procedures. Drawing upon this approach, Cornell and Landsman (1989) find that revisions in analysts' earnings forecasts for quarterly and annual earnings explain the stock reaction to earnings announcements. Consistently, Liu and Thomas (2000) find that revisions in long term growth in analysts' earnings forecasts add significant information when explaining returns. The effect of revisions of analysts' earnings forecasts on returns is analysed further by Copeland, Dolgoff and Moel (2004) who confirm the relationship between revisions (for one year ahead earnings forecasts and long term growth) and current returns. Helbok and Walker (2004) also find support for this association, although they do so in terms of a reverse regression of current year's earnings revisions on current returns.

The common point in the above studies is that they provide support to the theoretical premise that it is revisions in earnings expectations that drive change in market values; another common point is that all these studies employ analysts' forecasts to proxy for the consensus earnings expectations of market participants. Although the evidence

provided by the above studies concurs in the use of analysts' forecasts as proxy for earnings expectations, these have often been criticised as been irrationally optimistic. The next sections discuss why such criticism should be reviewed in the light of recent studies that consider the rationality and optimism of analysts' earnings forecasts within the context of analysts' motivation and the properties of reported earnings.

3.2 Analysts' rationality

The definition of rational expectations advanced by Muth (1961) states that expectations are rational if the forecast error is uncorrelated with the entire set of information available to the forecaster at the time the forecast is made. Based on the Muth (1961) definition, Basu and Markov (2004) propose a set of conditions to be met for a forecast to be rational, unbiased or efficient as follows:

$$AC_{t+1} = a_0 + a_1 F + b_k X_{kt} + u_{t+1} \tag{3.1}$$

where:

AC_{t+1} is the actual earnings reported for the year t+1;

F is the forecast of earnings at t+1;

X_{kt} is a vector of k variables known to the forecaster at the time of the forecast;

u_{t+1} is a zero mean error;

As Basu and Markov (2004), as well as Keane and Runkle (1998), clarify, analysts' forecasts may be characterised as:

1. *Rational* if α_0=0, α_1=1 and b_k =0.

2. *Unconditionally unbiased* if α_0=0 and α_1=1, where other information X is not considered.

3. *Conditionally unbiased* with respect to information X if α_0=0 and α_1=1 when other information X is considered.

4. *Efficient* with respect to X if b_k =0, that is to say, other information cannot improve the forecast F.

Previous literature sought to test the rationality and bias of analysts' forecasts based on versions of the Muth (1961) definition. In this line of research, De Bont and Thaler (1990) and Abarbanell and Bernard (1992) test for forecast bias by means of a regression of forecasted change in earnings on the actual change in earnings which is analogous to the Muth (1961) model if current actual earnings is subtracted from both sides. Whereas De Bondt and Thaler (1990) find significant evidence of optimistic bias employing forecasts eight months before the end of the fiscal year (signalled by the negative sign of the estimated coefficient α_0: -0.09), Abarbanell and Bernard (1992) show that such bias decreases as the forecast is prepared closer to the fiscal year end (from -0.31 to -0.09). As to the rationality of forecasts, whereas De Bondt and Thaler (1990) report that the estimate of the slope coefficient α_1 is significantly different from one, Abarbanell and Bernard (1992) find that this is not always the case, with slope coefficients α_1 in the second and fourth quarter being equal to zero (Table 3.1).

Table 3.1
Early evidence on optimistic bias in analysts' forecasts

$$AC_{t+1} - AC_t = a_0 + a_1(F - AC_t) + u_{t+1}$$

		α_0	α_1
De Bont and Thaler (1990)	*first quarter*	-0.09***	0.65***
Abarbanell and Bernard (1992)	*first quarter*	-0.31***	0.82***
	second quarter	-0.29***	1.02
	third quarter	-0.18***	1.05***
	fourth quarter	-0.09***	1.02

AC_t is the actual earnings reported for the year t,F is the earnings forecast for the earnings at t+1 and u_{t+1} is a zero mean error.

***,**,* indicates that the coefficient estimate is significant at the .01, .05 and .10 level in two tail tests, respectively. In the case of α_0 the estimated coefficient is compared with its theoretical value of 0, whereas in the case of α_1 the estimated coefficient is compared with its theoretical value of 1.

Motivated by the De Bondt and Thaler (1990) and Abarbanell and Bernard (1992) studies, subsequent research has given support to the notion of optimistic irrationality in earnings forecasts, focusing mostly on the efficiency of forecasts with respect to other information X_{kt} in (3.1) that has been proxied by past earnings changes (Abarbanell and Bernard, 1992; Easterwood and Nutt, 1999), previous forecasts revisions (Elliot, Philbrick and Wiedeman, 1995), previous forecast errors (Ali, Klein and Rosenfeld, 1992) and returns prior to the forecast release date (Lys and Sohn, 1990).

The De Bondt and Thaler (1990) and Abarbanell and Bernard (1992) studies have recently been challenged by Basu and Markov (2004), who point out that the assessment of forecast rationality should take into account the analysts' loss function, *i.e.*, the probability of their own job turnover when they under-perform. Studies such as Mikhail, Walther and Willis (1999) and Hong and Kubik (2003) show that analysts seek to minimize their absolute (and not square) forecast error in order to minimize their own loss function. This issue was understood as early as 1998 by Keane and Runkle (1998), but it has since been highlighted by Basu and Markov (2004) who conduct tests of analysts' rationality and bias employing a Least Absolute Deviation regression (which implies a linear loss function, consistent with analysts aiming to minimize their median forecast error) instead of an Ordinary Least Squares regression (which implies a quadratic loss function, consistent with analysts aiming to minimize their mean forecast error).

Table 3.2 partly reproduces the evidence in Basu and Markov (2004, Table 2, p. 181). The authors employ a version of (3.1) where they add AC_t and AC_{t-1} (*i.e.*, actual earnings at time t and t-1 respectively) to the set of independent variables as a proxy for X_{kt}. These variables are known to the forecaster at the time of the forecast, and therefore the research design provides a more straightforward test of analysts' forecasts rationality than De Bondt and Thaler (1990) or Abarbanell and Bernard (1992). Consistent with their predictions, the estimated intercept is not always different from zero and the slope coefficient not different from one, rejecting the analysts' forecasts irrational optimistic bias argument.

Table 3.2
Basu and Markov (2004) tests of analysts' bias and rationality

$$AC_{t+1} = a_0 + a_1 F + b_1 AC_t + b_2 AC_{t-1} + u_{t+1}$$

	OLS *(Quadratic loss function)*	*LAD* *(Linear loss function)*
a_0	-0.0012	-0.0001
a_1	0.8015***	1.0000
b_1	0.1548*	0.0099
b_2	-0.0652**	-0.0158*

***,**,* indicates that the coefficient estimate is significant at the .01, .05 and .10 level in two tail tests, respectively. In the case of α_0 the estimated coefficient is compared with its theoretical value of 0, whereas in the case of α_0 the estimated coefficient is compared with its theoretical value of 1.
AC_t is the actual earnings reported for the year t,F is the earnings forecast for the earnings at t+1 and u_{t+1} is a zero mean error.

The estimated coefficients and their significance levels are based on Fama MacBeth (1973) annual regressions (where annual regression coefficients are averaged and conclusions about the sample are drawn from the distribution of those point estimates). Basu and Markov (2004) argue that it is necessary to account for the cross-sectional dependence in the data as this results otherwise in understated standard errors in the pooled OLS regression. Their findings (not reported here) confirm this argument.

3.3 Analysts' forecast bias and accounting conservatism

The Basu and Markov (2004) findings are more than an empirical regularity. As they admit, their study extends the work of Gu and Wu (2003) who argue that, with the reported earnings distribution being skewed due to accounting conservatism together with analysts seeking to minimize their median forecast error, an optimistic bias can be introduced although such a bias is not intentional. Given that the earnings distribution is determined by accounting properties such as "conservatism" and "earnings management", this suggests that these properties can account for the bias in earnings forecasts. Indeed, conservatism and earnings management can also explain why this bias may vary during the year, as found by Abarbanell and Bernard (1992).

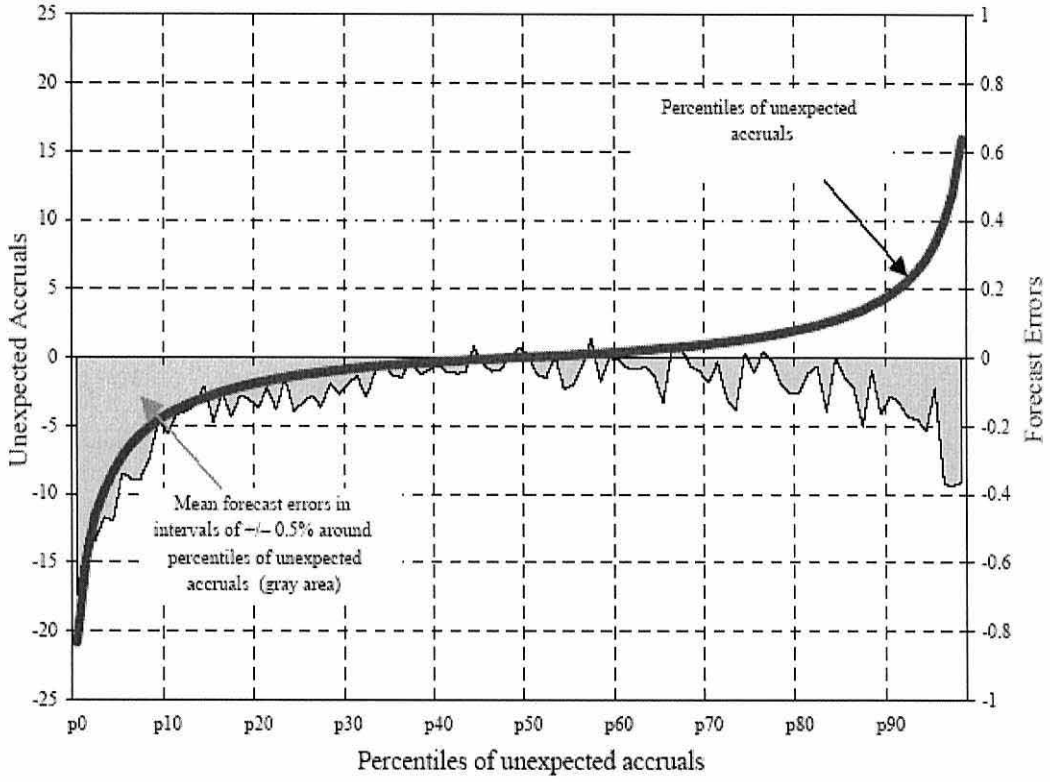
Gu and Wu (2003) were not the first to notice the effect of accounting conservatism on forecast bias. Keane and Runkle (1998) point out, that when discretionary special charges are taken into account (and here it is the effect of conservative practices which make possible such discretionary charges), there is no evidence for bias in analysts' forecasts. This point has been taken further by Abarbanell and Lehavy (2003a) who show that the forecast error (estimated as the actual quarterly earnings minus the last forecast made before the earnings announcement) is linked to unexpected accruals. Graph 3.1 shows that a considerable number of observations which may be characterized as optimistic forecast errors fall into the extreme percentiles of unexpected accruals. The left hand side of Graph 3.1 is likely to include observations that Keane and Runkle (1998) have excluded from their tests. Consistently, Abarbanell

and Lehavy (2003a) interpret the pronounced occurrence of optimistic forecast errors at the extreme percentiles of negative unexpected accruals as driven by an "unexpected earnings bath", that is to say, firms recognise operating expenses to a greater extent than is justified by the firm's actual performance for the period at the same time as they recognise large discretionary or nondiscretionary negative transitory operating and non-operating items[19]. To clarify the Abarbanell and Lehavy (2003a) argument, it is important to acknowledge that analysts are likely to focus on operating income, thus excluding most extraordinary or special items from their forecasts. However, earnings management does not necessarily take place only through extraordinary or special items but also through management discretion relating to the firm's operations. Note also that there is a lower occurrence of optimistic forecast errors in the right tail of unexpected accruals, for which Abarbanell and Lehavy (2003a) do not provide an explanation. A possible explanation might be that these firms attempt to beat the forecasts by managing earnings while not succeeding in doing so (thus the "optimistic" forecast error).

[19] The term "non-discretionary items" refers here to the impact on reported earnings of real transactions which, although inefficient, are undertaken in order to achieve the desired earnings figure (*i.e.*, "real earnings management", see Ewert and Wagenhofer, 2005).

Graph 3.1
Forecast error and unexpected accruals

Abarbanell and Lehavy (2003a)

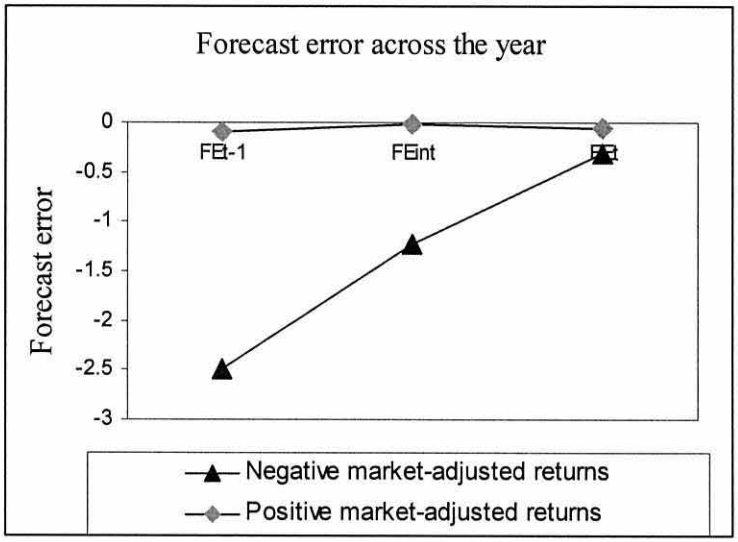


In a related study, Abarbanell and Lehavy (2003b) connect the unexpected accruals with the forecast error together with current value shocks. More particularly, they argue that the accumulation of optimistic forecast errors in extreme negative unexpected accruals is likely to occur when the value shocks experienced by the firm are negative as well. Their claim, drawn upon quarterly data, is not surprising, especially taking into account the inferences drawn from similar evidence provided by Helbok and Walker (2004). The latter argue that the first forecast for the current financial year after the previous year's earnings announcement comprises permanent components. If news during the remainder of the year proves to be negative in general, and assuming that there is no way for analysts or market participants to discern such bad news in advance, then the forecasts at the beginning of the year are biased optimistically without being irrational. On the other hand, if only good news occurs during the year, and assuming that conservative accounting is practised that defers the recognition of such news, then forecasts at the beginning of the year would be accurate. From these two examples, it can be seen that analysts can be biased and rational at the same time. More particularly, in the case of unpredictable bad news occurring later in the year, analysts' forecasts are biased and efficient, that is, they cannot be improved upon through the incorporation of any other contemporaneous information.

Whereas Abarbanell and Lehavy (2003b) focus on a "biased reported earnings" explanation, Helbok and Walker (2004) focus on a "conservatism" explanation of optimistic forecast errors occurring when the firm experiences negative value shocks. The two explanations are not inconsistent given that conservatism is more likely to be

exercised through accruals than cash flows, introducing bias into reported earnings. More to the point, Abarbanell and Lehavy (2003b) show that negative revisions within the lowest quintile of market adjusted returns are associated with both very high unexpected accruals and optimistic forecast errors (*i.e.*, analysts take into account the nature of the news as it arrives during the year). Helbok and Walker (2004) also associate poor market performance with optimistic forecast errors; thus, unexpected (negative) accruals in the Abarbanell and Lehavy (2003b) study may partly explain the Helbok and Walker (2004) finding. Another point of similarity between these two studies is that each appreciates that analysts revise their forecasts upon the arrival of news, therefore forecast error may vary across the year. Both studies find that the extremely optimistic error associated with negative returns is mitigated as the earnings announcement date approaches.

Graph 3.2
Forecast error under negative and positive value shocks
(Helbok and Walker, 2004)



FE_{t-1} is the beginning-of-period mean analysts' earnings forecast error (12th month before the I/B/E/S earnings announcement date), FE_{int} is the middle-of-period mean analysts' earnings forecast error (sixth months before the I/B/E/S earnings announcement date), FE_t is the end-of-period mean analysts' earnings forecast error (last month before the I/B/E/S earnings announcement date). All forecast errors are scaled by the price per share 12 months before the I/B/E/S period t earnings announcement.

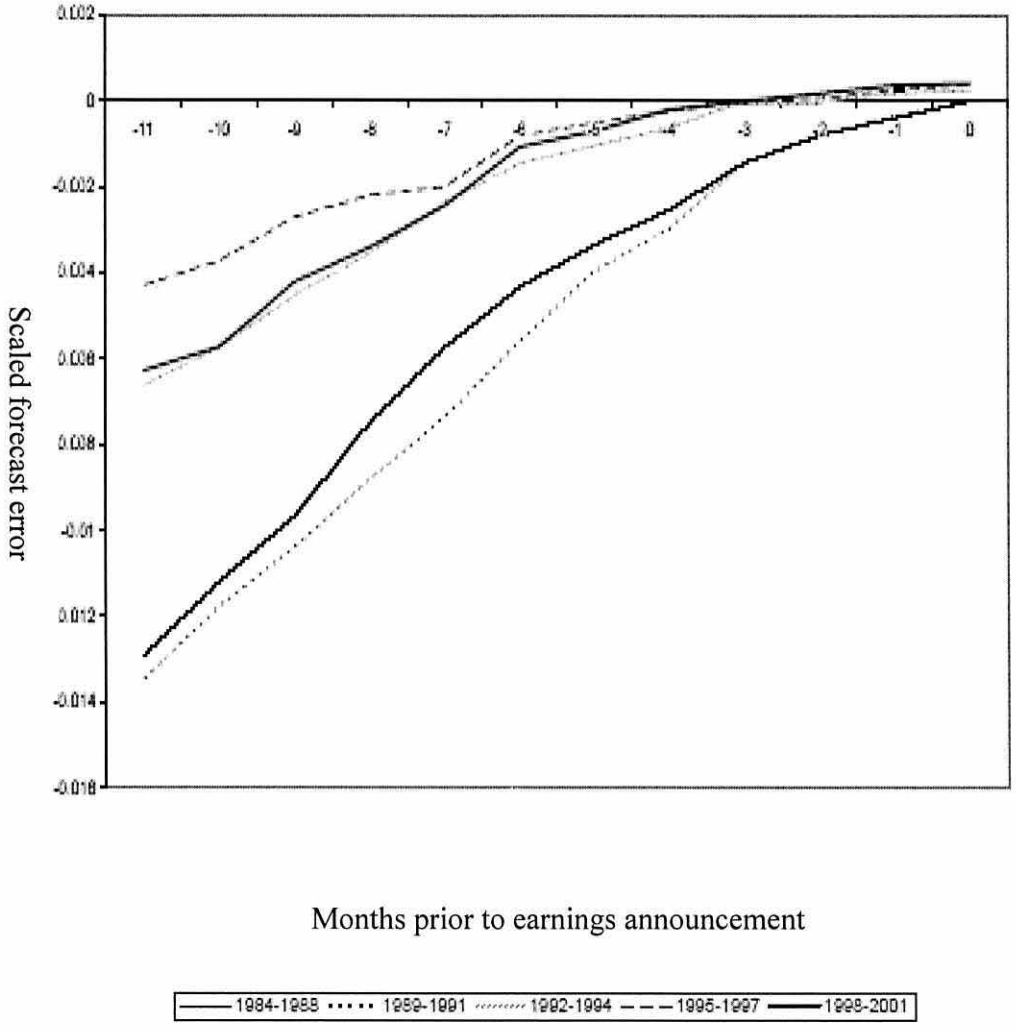
More particularly, Helbok and Walker (2004, *p.*62 see Graph 3.2) find that the optimistic forecast error when contemporaneous shocks are negative diminishes during the year and that when the contemporaneous value shock is positive, the mean forecast error is positive (*i.e.* pessimistic) and statistically insignificant.

These findings are consistent with analysts incorporating value shocks in their forecasts in accordance with conservative accounting rules that (*i*) prompt the recognition of bad news that was unexpected at the beginning of the year and (*ii*) delay the recognition of good news until later periods. Abarbanell and Lehavy (2003b) also find that analysts revise downwards their optimistic forecasts during the quarter when value shocks are negative. On the other hand, they find consistent evidence of small pessimistic errors under positive value shocks which they attribute to managers managing earnings to beat the forecasts. Such behaviour is also documented by Richardson, Teoh and Wysocki (2004) who nevertheless do not discriminate between positive and negative value shocks. These authors attribute the observed regularity to an "earnings guidance" game where analysts, during the last months before the earnings announcement, are guided by managers to bias (or "walk down") their forecasts downwards to create a benchmark which managers can beat. For the moment, it is still difficult to attribute the small pessimistic errors to a "biased earnings" explanation (Abarbanell and Lehavy, 2003a,b) or to a "biased forecasts" explanation (Richardson, Teoh and Wysocki, 2004). However, the latter findings show that, at approximately the end of the fiscal year (that is 2 or 3 months before the earnings announcement for the US, especially in the late nineties as is shown in Graph 3.3), earnings forecasts are likely to be quite accurate,

which reinforces the belief that analysts are able to make unbiased forecasts when all relevant information is available.

The studies discussed here advance our understanding of analysts' forecasts as they highlight the fact that the forecasted variable is subject to accounting manipulations and rules such as conservatism, explaining that bias is a necessary characteristic of forecasts which does not always rule out the rationality of these forecasts. However, there are other studies that also examine the bias in analysts' forecasts, this time taking into account the conditions under which analysts produce these forecasts. For instance, as already mentioned in the case of Richardson, Teoh and Wysocki (2004), it is not unusual for analysts during the last months before the earnings announcement to be guided by managers to bias their forecasts downwards to create a benchmark that managers can beat. Analysts rely on multiple sources of information, including managers, to construct their forecasts and within this context "earnings guidance" can be possible. A more detailed discussion of these "contextual" explanations for analysts' bias follows in the next section.

Graph 3.3
Optimistic bias switching to pessimistic bias across the year
(Figure 1 from Richardson, Teoh and Wysocki, 2004)



3.4 Contextual explanations for analysts' optimistic bias

Willis and Francis (2003) describe three general classes of explanation for analysts' forecast bias: bias driven by their environment, bias driven by selective following and cognitive biases.

The environment bias explanation supports the notion that analysts inflate their forecasts to promote the business of their employers, such as services, underwriting fees etc. (Dugar and Nathan, 1995; Dechow, Hutton and Sloan, 2000) or to cultivate good relationships with managers (Francis and Philbrick, 1993). The evidence for this explanation is not particularly strong with respect to current and short term earnings forecasts and refers more to long term growth expectations and to sell/hold/buy recommendations. As Irvine (2004) points out, the individual analysts' forecast error is not associated with increased brokerage firm trading; instead it is found that positive stock recommendations generate trading commissions. Lin and McNichols (1998) also find no evidence that affiliated analysts' earnings forecasts, either for the current year or for one year ahead, exhibit greater optimism than do unaffiliated analysts (where affiliated analysts are defined as analysts employed by brokerage firms that provide, or have provided in the recent past underwriting arrangements or investment banking services for the followed firm). However, both Lin and McNichols (1998) and Dechow, Hutton and Sloan (2000), as well as Michaely and Womack (1996), report greater optimism with respect to long term earnings growth which is more consistent with optimistic recommendations. The drawback in these studies however is that they

observe the association between affiliated analysts and optimism under the special circumstances of an equity offering, where substantial underwriting fees (see Dechow, Hutton and Sloan,2000 on the positive association of underwriting fees and optimism) are involved as well. We don't know whether analysts exhibit such a bias on a daily basis.

With respect to bias driven by the relationship of analysts with managers, Francis and Philbrick (1993) find that optimistic forecasts accompany reports with less favourable recommendations. However, less favourable recommendations or less predictable earnings may be associated with more optimistic forecasts to the extent that the "bad news" for which analysts were uncertain at the time of the forecast issue (and which therefore was not quantified in the earnings forecasts) arises later in the year. In this respect, Francis and Soffer (1997) report that earnings forecasts and recommendations are complementary sources of investor's information. The extent to which other information that analysts transmit via their recommendations is not quantifiable due to uncertainty and therefore not appropriate to be included in the earnings forecasts is still an open empirical question. However, such an approach would also accommodate the Das, Levine and Sivaramakrishnan (1998) finding of a positive association between optimism and less predictable earnings.

The second explanation discussed by Willis and Francis (2003), that of bias driven by selective following, refers to bias arising from analysts' following only firms about which they hold positive views. As a result of this behaviour, the distribution of

analysts' forecasts is truncated, increasing the probability of estimating an optimistic bias which would not be present if the entire distribution were visible (McNichols and O'Brien, 1997).

Cognitive bias also implies that analysts learn from their own forecast errors. Mikhail, Walther and Willis (2003) find that analysts become more accurate as their experience with forecasting for a specific firm increases. In a similar vein, when Markov and Tamayo (2003) relax the assumption of complete information, they claim that each value shock introduces uncertainty which is dealt with by analysts by means of a learning procedure, which is consistent with the Mikhail, Walther and Willis (2003) finding. A learning explanation can also be consistent with rational forecasts to the extent that learning is about the good or bad news that was unpredictable at the beginning of the fiscal year.

3.5 Conclusion

As mentioned in the introduction of this chapter, whilst analysts' forecasts have been repeatedly (and successfully) employed to proxy for the consensus market participants' earnings expectations within the context of the earnings-returns relation, they have often been criticised as irrationally optimistic. In contrast, the present chapter has argued that bias is a characteristic that arises from the nature of accounting earnings and, most importantly, that bias does not rule out analysts' rationality. More important, the analysis in this thesis shows how analysts incorporate the effect of accounting

conservatism in their forecasts; moreover, this feature of analysts' forecasts is of particular interest in the empirical assessment of the reversal of conservatism. Chapters 5 and 6 present evidence on these issues for firms domiciled in the various member states of the EU, based on available analysts' earnings forecasts. Before that, in the next chapter, an overview is provided of relevant prior international accounting research that will inform the research design for the cross-country study.

International Accounting Research

4.1 Introduction

Recent studies in capital market research in accounting are increasingly orientated toward testing hypotheses in an international context. The international context offers the opportunity to include a number of varying factors in the research design that enhance the understanding of the mechanisms that link accounting numbers and the underlying economics. For example, having a contractual explanation, accounting conservatism is more fully understood when examined within an international context that is characterized by a variety of legal provisions which affect the contracts between managers and the rest of the parties to the firm. The above example illustrates just one of the possible contributions of international comparison in accounting research. However, this branch of research covers a plurality of topics; according to two prevalent journals on international accounting, their aim is not only to advance the understanding of accounting theory from an international perspective, but also to analyse the role of accounting in the interpretation of international economic transactions and to assess its origins and development in an increasingly interdependent global economy (see the mission statement of the *International Journal of Accounting*). Elsewhere, this line of research is seen as increasing our understanding of international reporting practices, the differences that may exist between countries, and the institutional and cultural factors that shape practices in individual countries but which may also have international implications (see the mission statement of the *Journal of International Accounting*).

Chapter 4 International Accounting Research and the European Capital Market

It is a common perception that international accounting research is testing whether a certain model holds in a particular national setting. However, replicating a well established model within the context of distinct national environments does not particularly assist in the understanding of the present and potential ability of accounting to aid in the recording and interpretation of economic transactions unless the research design addresses the features that make this environment unique. Knowing that, for example, earnings numbers in Germany are more conservative than in France leaves a number of issues unanswered *e.g.*, what drives French companies to be different from German companies in terms of accounting conservatism? Is it accounting regulation? Is it the preparers' incentives? Is it a statistical issue rather than attributable to systemic differences? Has this difference reduced through time, given the financial integration and accounting harmonization efforts taking place?

However, it is only recently that international accounting research has broken through the tradition of arguing about the potential effects of institutional and economic factors on accounting diversity in order to start seeking empirical evidence to provide answers to the above questions. Indeed, this particular branch of research is still in its infancy. Many of the studies that set the trend in testing empirically such research questions have been published from 2000 onwards.

4.2 Recent advances in international empirical research in accounting[20]

Earlier examples of international accounting research, for example Alford, Jones, Leftwich and Zmijewski (1993) and Joos and Lang (1994) are confined to confirming empirically the existence of accounting diversity among different countries, primarily by means of value relevance tests. It is notable that at this early stage of international market-based research, the possible causes of accounting diversity are discussed by the authors but not included in the modelling.

Ali and Hwang (2000) also draw conclusions about accounting diversity in terms of the value relevance of earnings and they also segment their sample according to the country of origin of the firms. Since partitioning the sample on a country basis imposes no particular form on the relationship between country heterogeneity and its causal factors, these authors lend their results more informativeness by associating their estimates of country level measures of earnings value relevance with a number of country level indicators. In another study, carried out at the same time, Guenther and Young (2000) associate an accounting measure of performance (the return on assets ratio) with national level indicators of economic growth to assess how accounting reflects economic activity.

[20] This review covers the most recent and visible studies in the market based accounting research that are assessed to examine related questions to the present thesis. Other important studies in international accounting research examine the effect of cross listing on accounting properties, apply valuation methods to different countries and compare their efficiency or assess accounting harmonisation by means of various statistical methods. However, here the focus on how recent research explains accounting diversity (mainly in terms of earnings management and conservatism) and the studies cited are selected upon this criterion.

Taking a different approach, Ball, Kothari and Robin (2000) attempt to quantify accounting diversity by segmenting their sample not by country of origin but by a classification of the country legal origin, *i.e.* common versus code law, which is intended to proxy for political influence in accounting. More particularly, they argue that governments in the code law countries establish and enforce accounting standards, typically with representation from major political groups such as labor unions, banks and business associations, whereas accounting practices in common law countries are determined in the private sector. Such classification, it is argued, captures the demand for timely accounting information which is assumed to vary according to the degree to which accounting is employed as a means of resolving information asymmetries between managers and the various other contracting parties to the firm. Consistent with their predictions, the authors find that in "shareholder oriented - common law" countries earnings are more conservative than in "stakeholder oriented - code law" countries.

The evolving research design in these and similar studies has greatly influenced the methodology of the most recent research, which attempts to explain accounting diversity by introducing factors that are related to the underlying institutional arrangements and economic conditions. For example, a recent analysis by Bushman and Piotroski (2005) employs a rich set of country level institutional and legal variables that include indices of the efficiency of the judicial system and the enforcement of security and trading laws, and other measures of government involvement, the provenance of

firm funding (bank versus market economy), taxation and ownership concentration.[21] Others have created their own second order factors; for instance, Leuz, Nanda and Wysocki (2003) combined a rich set of country level institutional and legal variables in order to classify countries into three distinct clusters: (1) outsider economies with large stock markets, dispersed ownership, strong investor rights and legal enforcement (*e.g.*, UK and US); (2) insider economies with less developed stock markets, concentrated ownership, weak investor rights, but strong legal enforcement (*e.g.* Germany and Sweden); and, (3) insider economies with weak legal enforcement (*e.g.*, Italy and India).

Whereas the initial cross-country comparisons in Joos and Lang (1994) and Alford, Jones, Leftwich and Zmijewski (1993) capture the joint effect on accounting diversity of national accounting standards, institutional and legal settings, economic parameters and managerial incentives on accounting diversity, it is only by introducing these factors into the model that we may disentangle their influences. This approach allows a quantified assessment of their influence on cross-country differences and sheds light on the primary forces that shape accounting numbers. As mentioned, this is a particularly timely issue for users and preparers of accounting standards as there is a strong trend towards the convergence of national accounting systems. An example of how this type of research could shed light on the effects of accounting convergence can be seen in Ball, Robin and Wu (2003). They find that the application of accounting standards that

[21] A summary of the factors employed to date in pertinent international accounting research is provided in the Appendix.

were developed in a "shareholder-oriented" context has no visible effect on the properties of earnings in countries where firms are mostly owned by family or insiders. The implication of such findings are that it reduces the emphasis on accounting standards as the main determinant of accounting practice and draws attention instead towards managers' incentives.

While these studies constitute a considerable research effort in international accounting, it has to be noted that they have a number of shortcomings, thus leaving further issues to be explored by future research. With very few exceptions, the institutional, legal and economic factors are represented either by country averages of the variables of interest or by country aggregate measures, or ordered as categorical indicators of institutional settings. Using such indicators at the country level, as in Ball, Kothari and Robin (2000), yields interesting insights. However, the results may conceal the effects of other underlying drivers of heterogeneity whose effects are at the firm level. If accounting conservatism or earnings management are products of the contract between managers, shareholders, creditors and other stakeholders (*e.g.* employees), then partitioning countries on the basis of the underlying legal system captures the first order effects of legal provisions on the contracts that shape accounting in the average firm. Legal aspects being just one of the forces that shape the above described contracts, there is a considerable risk of oversimplification by emphasising one factor over others that are equally influential on the individual firm.

Second, country wide institutional arrangements may not impact all firms to the same extent, suggesting that interactions between firm level and country level variables should be further explored before drawing conclusions about differences between countries. In this context, in a paper arising in part from the analysis reported in this thesis, Dargenidou, McLeay and Raonic (2006) show that institutional arrangements with respect to investor protection affect accounting properties only among those firms with more concentrated ownership, whereas the presence of such arrangements tends to be irrelevant among widely-held firms. As an example of the need to consider such interactions, take the Ball, Robin and Wu (2003) study described above. The discussion of this paper by Holthausen (2003) points out that the estimate for any given country is a weighted average across the firms domiciled there - even in insider economies, there are companies which seek funding from equity investors. In other words, if an "external financing" or "ownership structure" variable were introduced within the Ball, Robin and Wu (2003) tests, which would respond the Holthausen's concerns, the results may no longer hold. The Holthausen argument also applies to a common characterisation of countries as either "market" oriented or "bank" oriented, which McLeay (2005) has questioned on the grounds that the distribution of debt to equity provides little evidence that country characterisations are meaningful.

Other recent studies that have been conducted at the firm level identify a number of factors that could also drive accounting diversity. For instance, Beekes, Pope and Young (2004) find that earnings conservatism is influenced by board composition; Kelley, Shores and Tong (2004) point to the firm-auditors relationship; and Huijgen

and Lubberink (2004) reveal the influence of US cross-listing on the earnings conservatism of Dutch firms. Whereas these are single country studies, researchers can draw upon them to define a better model of accounting diversity. For instance, Raonic, McLeay and Asimakopoulos (2004), who employ an extensive database of cross-listed European firms, examine the influence of their exposure to foreign institutional factors, assessing what really drives accounting properties (in their case accounting conservatism) and acknowledging the possibility that institutional factors interact with each other. The originality of this study is that the research design goes round the simplistic approach of attributing a certain "label" to all firms in a country, opening up a new avenue on how to approach the determinants of accounting properties.

Third, a common feature of the institutional indicators used in recent international accounting research is that they are often indices based on the (subjective) judgment of the researcher or based on surveys (sometimes conducted by professionals rather than academics), which introduces a considerable degree of subjectivity. For example, the anti-director rights index constructed by La Porta et al. (1998); employing this measure of investor protection in a country assumes investors are better protected when these provisions are in place, excluding the possibility that investors may also be protected by other mechanisms such as corporate governance provisions (Dargenidou, McLeay and Raonic, 2006). There is no doubt that international accounting researchers have to trade off between the precision of the variables they use and data availability, which is an important problem in this kind of research. Reviewing studies such as Piotroski and Bushman (2005), Leuz, Nanda and Wysocki (2003) and Bushman, Piotroski and Smith

(2005) for example, one can see that they employ a country-specific ownership structure estimated by LaPorta, Lopez-de-Silanes,Shleifer and Vishny (1998) which is the average percentage of common shares owned by the three largest shareholders in the 10 largest non-financial, privately owned domestic firms in a given country, a statistic which obviously far from represents the characteristics of the corporate ownership distribution. Leuz, Nanda and Wysocki (2003) and Piotroski and Bushman (2005) each employ the legal origin and tradition variables from La Porta et al. (1998) who in turn draw their data from Reynolds and Flores (1989). As discussed above, the usual variable to proxy for cross-listing is cross-listing in the U.S. However, although the U.S. financial markets are characterised by some distinct institutional settings *e.g.* increased risk of litigation, as Huigen and Lubberink (2004) explain, they are not the only host for firms that wish to expand their investor base beyond national borders. Such a picture is evident in Raonic, McLeay and Asimakopoulos (2004) and Lombardo and Pagano (2002), where it is shown that the Frankfurt stock exchange is also a very popular destination among European firms. However, it has to be noted that these shortcomings seem to be overcome as more data resources become available. For instance, Peek, Buijnik and Coppens (2004), motivated by a UK study on accounting conservatism among private and public firms, extend this examination in a European setting using the firm level information on private and public firms in the Amadeus database.

Another approach is to describe accounting diversity using country summary measures. Ali and Hwang (2000) estimate summary measures of value relevance of earnings and

associate them with summary measures of institutional factors; Guenther and Young associate an accounting summary measure of accounting performance (ROA) with GDP growth[22]. More recently, Ball, Robin and Sadka (2005) explore the relationship between accounting conservatism and use of debt attempting to assess whether the demand for accounting conservatism lies in equity or debt markets employing country level variables only.[23] Their basic proposition that the debt market drives the demand for accounting conservatism is a well founded one and the findings in this study are consistent with this. However, their second finding that the demand for conservatism is negatively related to equity market importance could imply that in a hypothetical country where firms rely exclusively on equity, accounting conservatism (and possibly financial reporting) would be obsolete. Accounting conservatism has stemmed from a need to deal with uncertainty and even shareholders in an all equity firm (who nevertheless are the residual claimants) need a degree of reliable information to enter into equity investment transactions. Accounting conservatism offers this notion of reliability by, for example, not registering economic gains before these take place. A possible cause of such a non-plausible finding could lie in the methodological approach of Ball, Robin and Sadka (2005). In fact, Raonic, McLeay and Asimakopoulos (2004)

[22]GDP growth rates and other economic parameters, such as interest rates, are widely used in international accounting research as controls or deflators (e.g. Ball, Kothari and Robin,2000 deflates the earnings – price changes regression by the risk free rate). Evidence on their influence is empirical, and these factors are found to be significant in any case, contributing to the overall explanatory power of tests. So far, there is no sound analytical model that explains how these factors affect accounting diversity. As a first approximation, one could argue that interest rates affect earnings; however, such influence depends on the interest rate exposure of the firm which depends on the operating circumstances of the firm and its hedging practices.

[23] The data of this study cover the 1992 – 2003 period and include 22 countries of which 10 are European. As the institutional factors employed in the study are drawn from La Porta et al. (1997, 1998) the findings of this study are also subject to the criticisms presented in this section. At the time of writing this section, this paper is still unpublished; however it has been selected to be presented in the Journal of Accounting Research conference (July, 2005) with a view to appear later in this journal.

conducting firm level tests find that the importance of equity markets (the same measure that Ball, Robin and Sadka, 2005 employ, borrowed by La Porta et al. 1997) enhances the asymmetric timeliness of earnings. Furthermore, by interacting equity market importance and legal enforcement, they find that these factors have opposing effects when these forces are present together.

In conclusion, by reviewing the most recent and visible studies in international accounting, it appears that there is considerable reliance on characterisations and summary measures that might not reflect the dynamics of convergence, that has taken place, especially within the European Union. The next section proposes a new approach to examining accounting diversity within economies and institutions that are converging, based on recent developments in international finance.

4.3 Accounting diversity within the integrating European market

Considering the more specific case of the European market, it has to be acknowledged that convergence efforts have affected the economic and institutional characteristics in this geographic area. McLeay (2005) points out that there has also been a major drive towards legal harmonization over several decades, especially with respect to commercial legislation, casting doubts over the popular "common" versus "code" law classification. Classifications such as common versus code law, and bank versus market financial systems, may have reflected the institutional settings in prior decades. Note also that the indicators used tend to be derived from earlier research studies: for

instance, Ali and Hwang (2000) take the bank versus market classification from Mueller, Gernon and Meek (1994) and Berglof (1990) and La Porta et al. (1998) draw their civil-code law indications from Reynolds and Flores (1989). Within the specific context of the European Union under discussion, the use of such classifications is particularly questionable, especially with respect to recent years. For instance, a rough indication based on the median of the ratio of Total Debt to Total Assets of listed non financial firms in France, Germany and the UK reveals that the median for debt-financed firms during the period 1990–1999 was 20.9% in France, 18.4% in Germany and 17.8% in the UK (McLeay, 2005).[24] There is no evidence in these statistics that firms in the UK still show greater preference for equity finance over bank finance than their counterparts in France and Germany. Instead, there has been considerable effort towards economic convergence and, on the accounting front, both the fourth and the seventh directives were implemented either by way of parliamentary laws or delegated orders throughout the EU during the 1980s.

In anticipation of the implementation of IFRS for listed companies in the EU by 2005, there have been advance provisions to prepare the ground for a smooth transition. Although these convergence procedures are far from complete, then as long as these mechanisms become effective, it can be expected that country effects will dissipate in favour of firm level effects. These firm level effects should be relatively independent of the institutional, legal and economic parameters, and should represent the operating

[24] As variables such as leverage are readily available, it is puzzling why researchers persist in employing the La Porta et al. debt indicator which was estimated in 1994.

circumstances of the firm itself that create the need for alternative accounting representations.

It is common practice in the studies mentioned above to employ industry affiliation as a control factor to allow for different operating circumstances. Positive accounting theory (Watts and Zimmerman, 1986 and 1990) suggests that firms with different characteristics, such as industry membership and size, will adopt different accounting practices. Indeed, Joos and Wysocki (2003) observe that firms in different industries choose drastically different inventory management techniques or different systematic customer and supplier financing arrangements. Industry affiliation is clearly an important determinant of a firm's operating environment, and it captures factors such as operating cycles, inventory methods, and the propensity to extend or receive trade credit. At the firm level, these factors affect accruals (Dechow, 1994) and, in turn therefore, earnings and their properties. In the context of the examination of the earnings-returns relationship, sector effects have been considered in several studies, mainly employing U.S. data (*e.g.* Kollins, Kothari, Shanken and Sloan, 1994; Kollins and Kothari, 1989).

As mentioned above, industry structure has been a prevalent control factor in cross-country comparisons as well. At a first glance, the initial impression is that incorporating sector effects does not alter the initial evidence that each study provided. However, as the international finance literature shows, the study of sector effects can be of particular interest as country effects disappear within converging economies. If

country effects capture the sum of the institutional, legal and economic effects as discussed above, and if this heterogeneity dissipates gradually, sector effects would emerge as more pronounced determinants of accounting properties. [25] The next section presents a summarized review of the international finance research on the dominance of industry over country effects in stock returns as an indication of financial convergence, and the following section will discuss the implications of these international finance research findings for international accounting research.

4.4 Industry and country effects in the European capital market

Given the above, within the integrating European financial market, it would be expected that country differences would dissipate in favour of sector effects. Finance research already demonstrates an increased synchronization of macroeconomic activities, converging equity premia and a decrease in the importance of country factors in this area (Adjaoute and Danthine, 2004).[26] Finance practitioners were the first to notice such a development. Galati and Tsatsaronis (2001) report that 75% of European equity managers believe in the superiority of allocation strategies based on industries and 10% on allocation strategies based on countries, whereas back in 1997 these

[25] McLeay and Jaafar (2004) find significant evidence of the industrial structure effect on accounting choice; however, country effects are more important than sector effects in the period they examine (1991-1999).

[26] Concurrent with the efforts towards economic convergence in the European context, there has been pressure towards securities exchange consolidation as well, reflecting the decrease in cross country investment barriers. For instance, the dominant exchanges in Europe, London Stock Exchange and Deutsche Böerse have discussed a merger on more than one occasion. Stock exchanges in Sweden, Denmark, Iceland, Finland, Norway, Estonia and Latvia form a common Nordic equity market (NOREX). On the other hand, Paris, Brussels and Amsterdam and Lisbon form Euronext. Developments like these, evoke the US example where the number of exchanges dropped from around 100 to a handful (Wright, 2005).

proportions were 20% and 50% respectively (surveys of asset managers conducted on behalf of Merill Lynch). In the same vein, Moerman (2004) finds that an investment strategy focused on diversification over industries yields more efficient portfolios than diversification over countries. Not surprisingly, Estrada *et al* (2003) also report that investment banks, institutional investors and asset managers have restructured their research and trading departments, previously organized along country lines, to emphasise industry specialisation.

The empirical evidence appears to support the rationality of such an emphasis on industry factors over country factors, especially in recent years. Perhaps the most influential study in this area is Heston and Rouwenhorst (1994) who first initiated a fixed effects model for this purpose. In their analysis, excess returns R_{it} are decomposed into their industry and country components as follows:

$$R_{i,t} = a + \sum_{k=1}^{K} \gamma_k \cdot C_{ik} + \sum_{j=1}^{J} \delta_j \cdot I_{ij} + \varepsilon_i \qquad i = 1,2,....N \tag{4.1}$$

where

a is a constant;

γ_k, δ_j are respectively the "pure" country k and industry j component of return;

C_{ik} is a dummy variable that equals 1 if the firm i belongs to country k and zero otherwise;

I_{ij} is a dummy variable that equals 1 if the firm i belongs to industry j and zero otherwise and,

ε_i is an idiosyncratic disturbance term.

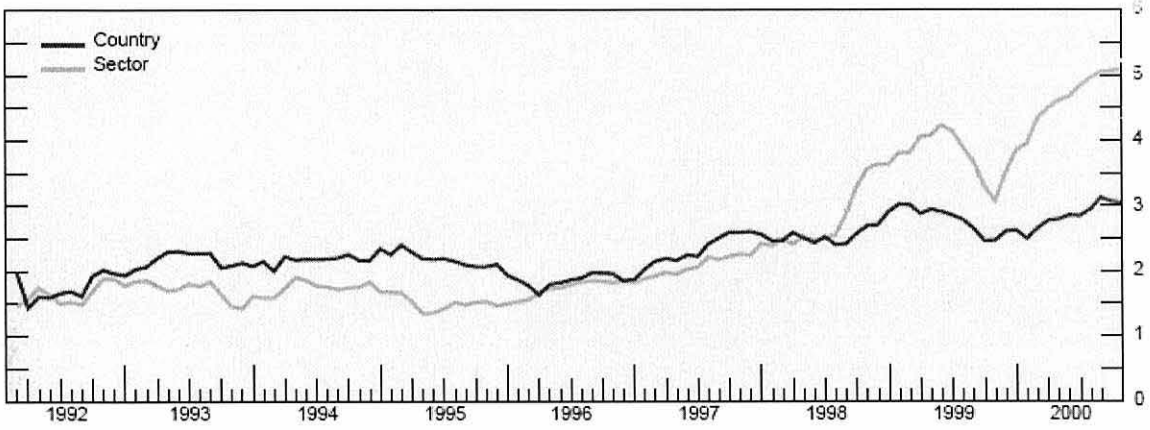
Employing this methodology, other researchers have also provided evidence on financial integration. Not surpringly, in the early studies of Heston and Rouwenhorst (1995), Rouwenhorst (1999), Beckers, Connor and Curds (1996), and Griffing and Karolyi (1998), the evidence supports country over sector effects. On the other hand, research in the same vein that employs more recent data documents an emergence of industry factors over country factors (Arnold, 2001; Baca,Garbe and Weiss, 2000; Cavaglia, Brighman and Aked, 2000; Brooks and DelNegro, 2002(a) and 2002(b); Galati and Tsatsaronis, 2003; Isaakov and Sonney, 2003; and Adjaoute and Danthine, 2004). This market integration seems to have been more of a process than a discrete change, with increasing convergence around the introduction of the euro. Graph 4.1, from Tsatsaronis and Galati (2001), shows that sector effects appear to subsume country effects in realized returns starting from 1998.[27]

Furthermore, financial integration and the dominance of sector over country factors have also been measured by means of their contribution to expected returns employing an asset pricing model As stock markets become more integrated, the cost of equity in a particular sector should converge across countries due to the elimination of local risk as Hardouvelis, Malliaropoulos and Priesley (2001) point out. The empirical findings of

[27] Estimates based on the Heston and Rouwenhorst (1994) methodology in 9 Eurozone counties

the latter study show how the dispersion of the estimated cost of equity across countries within a given sector decreases over time. Graph 4.2, drawn by Hardouvelis, Malliaropoulos and Priesley (2001), presents their estimates of the cross-country variation in the cost of equity in the Eurozone, which declines dramatically between 1997 and 1998.

Graph 4.1
Country versus sector effects in realised returns -Eurozone
(Tsatsaronis and Galati, 2001)



Graph 4.2
Average cross country variation in the cost of equity across sectors -Eurozone
(Hardouvelis, Malliaropoulos and Priesley, 2001)

Given the overall evidence on the prevalence of sector effects[28], which points to homogeneous pricing mechanisms, several questions arise. Were accounting diversity considered as an investment barrier, why do pricing mechanisms converge despite existing diversity? How can market participants see through accounting diversity? Finally, is there any accounting diversity after all? The European environment, especially in recent years, offers the opportunity to test how different accounting systems record similar economic events promoting our knowledge on the present and potential uses of accounting.

4.5 Industry versus country effects in international accounting research

Country effects in returns may arise due to regulatory barriers which do not allow investors to take advantage of arbitrage opportunities and, more important due to factors that do not allow homogeneous pricing mechanisms across countries. It has been argued that one of these factors is accounting diversity, whose importance as an obstacle for further financial convergence can be inferred from the decision of the EU to impose IFRS from 2005. However, even before this landmark, there had already been other efforts in the form of harmonised company law along with attempts by local standard setters to 'internationalise' their domestic GAAP, most recently with a view to a smooth transition to IFRS. However, what has not been established so far is the state

[28] There is no doubt that, across integrating economies, firms may cross list more and expand their operations beyond their national boundaries. Such circumstances may render the country of origin indication less powerful as a determinant of returns within the context of the above proposed tests. Similarly, to the extent that firms expand their operations beyond their main object of activity, the sector characterization becomes less powerful as well. However, it is not necessary that such integration is apparent in all sectors (e.g. it might be observed that country factors persist in sectors that are more likely to be subject to local regulation).

of comparability before this landmark and whether the lack of comparability indeed still has economic consequences that justify the costs of transition.

Within a context of integrating financial markets and relatively homogeneous pricing mechanisms, economic events would be recorded similarly were accounting unbiased. However, accounting numbers are biased, mostly because economic gains are recorded with prudence in current earnings. In recent international accounting research, it is common place to assess and explain diversity on the basis of the bias in current earnings, particularly with respect to economic gains and losses in the same period. Acknowledging that such bias is expected to be restored gradually in future earnings (as discussed in chapter 1), it is proposed that accounting diversity should be assessed not only with respect to the bias in current earnings but with respect to the timing of the recognition of economic events in accounting earnings. Instead of characterising accounting practices, or systems, as "more" or "less" conservative, we would assess whether they are "faster" or "slower" in capturing economic events. The notion of the timing and the speed of recognition allows us to shed light on how market participants unravel the particularities of local accounting practices and, accordingly, to explain whether or not accounting diversity is an investment barrier.

More specifically, recall from the model presented in Chapter 1 that current earnings are subject to accounting conservatism as defined by the parameters λ_0, θ_0 and γ_0 when

$$e_t = (1-\lambda_0)E_{t-1} + \varepsilon_t - \theta_0\varepsilon^+ + \gamma_0\varepsilon_t^- \qquad (1.11)$$

Country and sector effects can be modelled as components of λ, θ and γ. The institutional and economic conditions surrounding all firms in a given location are defined as country component of λ, θ and γ, denoted here as λ_c, θ_c and γ_c. As mentioned above, conservatism is determined not only by these country level arrangements, such as investor protection and enforcement provisions, but also by firm level attributes and their interaction with country factors.

Here, it is hypothesised that, as institutional structures, economic conditions and accounting standards converge, the permanent earnings shock ε_t should be recognised in a similar manner across countries as long as the firm is subject to similar operating circumstances. In this respect, there is a component λ_s, θ_s and γ_s that corresponds to the accounting conservatism that is idiosyncratic to the operating circumstances of the firm or sector effects. It is acknowledged that sector effects do not affect earnings in a uniform fashion; firms within the same industry can be in a different stage of their life cycle and, of course, managers deal with specific industry constraints in different ways. However, it is assumed that both life cycle and managerial abilities, which are firm level characteristics and difficult to model, interact more meaningfully with the industry affiliation variable. It is also assumed that these sector level characteristics are less influenced by institutional convergence. Thus, although earnings here are decomposed into their sector (s) and country (c) components, firm level characteristics are inbuilt in the following model as well:

$$e_t = (1-\lambda_{0,c,s})E_{t-1} + \varepsilon_t - \theta_{0,c,s}\varepsilon^+ + \gamma_{0,c,s}\varepsilon_t^- \qquad (4.2)$$

$$e_t = [(1-\lambda_{0,c})E_{t-1} + \varepsilon_t - \theta_{0,c}\varepsilon_t^{+} + \gamma_{0,c}\varepsilon_t^{-}] + [(1-\lambda_{0,s})E_{t-1} + \varepsilon_t - \theta_{0,s}\varepsilon_t^{+} + \gamma_{0,s}\varepsilon_t^{-}] \quad (4.3)$$

Correspondingly, country and sector effects on the reversal of conservatism can be assessed by means of their impact on one year ahead expected earnings and the expected change in earnings as follows:

$$e_{t+1} = [(1-\lambda_{1,c})E_{t-1} + \varepsilon_t - \theta_{1,c}\varepsilon_t^{+} + \gamma_{1,c}\varepsilon_t^{-}] + [(1-\lambda_{1,s})E_{t-1} + \varepsilon_t - \theta_{1,s}\varepsilon_t^{+} + \gamma_{1,s}\varepsilon_t^{-}] \quad (4.4)$$

If accounting diversity is driven by country differences in accounting conservatism that converge in the short term, then we would observe more comparable earnings in terms of one year ahead expected earnings after controlling for sector effects. Whereas the $\lambda_{0,c}$, $\theta_{0,c}$ and $\gamma_{0,c}$ parameters inform us of country variation in accounting conservatism, variation in $\lambda_{1,c}$, $\theta_{1,c}$ and $\gamma_{1,c}$ let us know whether accounting diversity is due to accounting differences that are corrected in the short term. To appreciate this point, consider two countries A and B and assume that $\theta_{0,A} < \theta_{0,B}$. To the extent that accounting diversity is resolved in the short term, that is $\theta_{1,A} = \theta_{1,B}$, it is argued that accounting is relatively harmonised. However, if $\theta_{1,A} < \theta_{1,B}$, then the accounting results of these two firms, which operate in different countries, are no longer comparable. It should be noted that accounting convergence is less likely to happen with respect to economic gains than economic losses, since gains take longer to be fully recognised.

Moreover, contrary to the existing evidence that controlling for sector effects does not alter the inferences about cross-country differences in accounting (Ball, Kothari and Robin, 2000; Giner and Rees, 2001), it is argued here that industry information is more influential in the determination of λ_1, θ_1 (and to a lesser extent γ_1) as long as industry affiliation affects operating cycles which also affect the recognition of economic gains. In other words, whereas the recognition of economic gains in current earnings might differ only slightly between firms with different lengths of operating cycle (because nearly all of the economic gain is deferred to the future), they are likely to be more promptly recognised in the following years among firms that have shorter operating cycles. Therefore, when considering the timing of the reversal of conservatism, it is particularly important that industry influences are taken into account.

In this respect, it is interesting too to examine how the *magnitude* of reversal of conservatism is affected by country and sector effects. An indication of the magnitude of reversal could be detected by subtracting (4.3) from (4.4), as follows:

$$\begin{aligned} e_{t+1} - e_t = & [(\lambda_{0,c} - \lambda_{1,c})E_{t-1} + (\theta_{0,c} - \theta_{1,c})\varepsilon_t^{+} - (\gamma_{0,c} - \gamma_{1,c})\varepsilon_t^{-}] \\ & + [(\lambda_{0,s} - \lambda_{1,s})E_{t-1} + (\theta_{0,s} - \theta_{1,s})\varepsilon_t^{+} - (\gamma_{0,s} - \gamma_{1,s})\varepsilon_t^{-}] \end{aligned} \tag{4.5}$$

A further dimension of cross-country comparability of accounting results relates to the pricing of earnings. Accounting diversity may be of no consequence if market participants can see through it. As already shown in (1.13), the pricing of one year ahead expected earnings depends on the reversal of conservatism as follows:

$$\frac{e_{t+1}}{P_t} = r - \frac{\left[\lambda_1 E_{t-1} + \theta_1 \varepsilon_t^+ - \gamma_1 \varepsilon_t^-\right]}{P_t} =$$
$$r - \frac{\left[\lambda_{1,c} E_{t-1} + \theta_{1,c} \varepsilon_t^+ - \gamma_{1,c} \varepsilon_t^-\right]}{P_t} - \frac{\left[\lambda_{1,s} E_{t-1} + \theta_{1,s} \varepsilon_t^+ - \gamma_{1,s} \varepsilon_t^-\right]}{P_t} \quad (4.6)$$

As discussed above, if accounting is relatively harmonised between countries A and B, one would observe $\theta_{1,A} = \theta_{1,B}$ (and $\lambda_{1,A} = \lambda_{1,B}$). In this case, it would be difficult to detect country effects in the pricing of earnings. There is enough evidence, as already shown, that expected returns tend to have less country variation in more recent years within Europe. This could be attributed to both the convergence of risk free rates and, secondly and more importantly, convergence in the pricing of risk. Thus, it can be relatively safely assumed that the country variation in the earnings multiple, especially within the context of integrating markets, may be attributed to differences across countries in the timing of the recognition of economic income.

4.6 Conclusion

Initially, empirical international accounting research was concerned primarily with establishing cross-country differences. Subsequent research has begun to introduce a number of institutional factors in order to explain such cross-country differences, mainly within the context of accounting conservatism and earnings management. However, if one considers the role of accounting as a means to communicate information to market participants, the evidence so far does not tell us whether market participants can see through this accounting diversity, nor how they do so. It may be

argued that the degree of conservatism bias in current earnings would not matter if market participants could assess its reversal. The focus of this thesis is to develop a research design to assess the implications of accounting conservatism in terms of its reversal in earnings expectations and their valuation, and to provide appropriate evidence.[29] The empirical application of the models developed in this and previous chapters follows in Chapters 5 and 6.

[29] It is not the aim of this thesis to examine institutional effects. Here, between-country variability is captured in the statistical model by country fixed effects. Further research could introduce institutional factors in these research designs to evaluate the contribution of the institutional setting in the way market participants form their expectations - see Dargenidou, McLeay and Raonic (2006).

Conservatism in Analysts' Forecasts: European Evidence

5.1 Introduction

The present chapter draws upon the previous discussion on the implications of accounting conservatism for the way market participants form their earnings expectations. It is well established that the accounting earnings figure is likely to be biased downwards due to the accounting principle of conservatism, according to which the recognition of good news is postponed until the transaction can be verified whilst bad news is likely to be recognised immediately, or even over-recognised. The empirical analysis carried out here will provide evidence on another aspect of conservatism, its reversal. It is argued that, in order to compare the properties of earnings between jurisdictions or between different accounting standard regimes, we should consider not only the initial bias in news recognition that has received much attention in the recent research literature, but also its consequences. For example, two sets of accounting standards might be similar with respect to the principles governing income recognition and its inclusion in current earnings, but they might differ with respect to the pace at which current news is expected to be incorporated in subsequent earnings. Thus, it is proposed that, instead of assessing accounting diversity in terms of the conservatism in current earnings, we should focus on the timing of recognition of economic gains and losses in earnings, i.e. not whether accounting systems or practices are *more or less conservative* but whether they are *slower or faster*. To date, accounting conservatism has been examined in terms of earnings and balance sheet conservatism, and for the most part researchers have yet to reconcile their

different evaluations based on these metrics. Recent research on ex-ante and ex-post conservatism (*e.g.* Pope and Walker, 2003; Beaver in Ryan, 2005; Roychowdury and Watts, 2005) has just started to unravel this link, turning attention to a multi-period examination of accounting conservatism that is consistent with the framework developed here.

As defined in the previous chapter, the properties of the reversal of conservatism may be determined by institutional and economic factors that affect earnings conservatism but also by the firm-specific component that is related to its operating circumstances. In this context, the European setting in recent years represents a unique environment to test the properties of conservatism and its reversal. As pricing mechanisms converge due to economic factors and financial market integration, it is possible to examine how much accounting has converged by considering whether similar events (which are very likely to be priced homogeneously) are accounted for in the same manner. Whilst the empirical evidence so far has shown that there is considerable diversity with respect to current earnings conservatism (*e.g.* Garcia Lara and Mora, 2004), it is still an open question whether these differences are reconcilable in the short term (timing differences) or whether they have a permanent character and what the role of country, industry and firm-specific effects is in explaining the nature of these differences. Drawing upon the models developed in Chapter 4, the following section shows how an appropriate research design may be developed to evaluate these different effects.

5.2 Empirical implementation issues

Recall from Chapter 1 that permanent earnings are defined in (1.9) as

$$E_t = E_{t-1} + \varepsilon_t = E_{t-1} + r\varphi_t = rP_{t-1} + r(P_t - P_{t-1}) = rP_t$$

In a regression setting, reported earnings e_t may be modelled as follows:

$$e_t = a_0' E_{t-1} + b_0' \varepsilon_t + u_t = a_0' rP_{t-1} + b_0' r(P_t - P_{t-1}) + u_t = a_0 P_{t-1} + b_0 (P_t - P_{t-1}) + u_t \tag{5.1}$$

The intercept a_0' and the coefficient b_0' capture the proportion of permanent earnings and earnings shock recognised in current earnings. However, an estimate of the parameters a_0' and b_0' assumes a knowledge of the cost of capital. Instead, the annual value change is applied, with the drawback that the estimated intercept α_0 and coefficient β_0 are a function of the conservatism parameters and of the cost of capital together, as $a_0 = ra_0'$ and $b_0 = rb_0'$. Note that with respect to current earnings, earnings expectations at the end of the fiscal year under way are employed instead of reported earnings. This happens for two reasons. First, the earnings definitions need to be consistent with respect to the exclusion of extraordinary items in both current and expected earnings; second, as the value shock is estimated based on year-end prices, earnings expectations need to be taken with respect to public information available at that time (which is well before the earnings announcement) and not on a perfect foresight basis as the use of reported earnings implies.

Furthermore, the dependent and independent variables in (5.1) are divided by the market capitalisation at the beginning of year t (or, P_{t-1}) to control for scale effects. Thus, the actual regression that would be estimated (separately for positive and negative value shocks) is as below[30]:

$$\frac{e_t}{P_{t-1}} = a_0 + b_0 \frac{(P_t - P_{t-1})}{P_{t-1}} + u_t \qquad (5.2)$$

Given that $a_0 = ra_0'$ and $b_0 = rb_0'$, the magnitudes of a_0 and b_0 would approximate the cost of capital to the extent that all prior and current news is fully recognised until time t, implying unbiased accounting. It is important to note however that the coefficient b_0 has a different interpretation depending on the sign of the value change; it takes the value of $r(1-\theta_0)$ if the value change is positive and $r(1+\gamma_0)$ if the value change is negative. [31]

The same regression may also be fitted with respect to earnings expectations one year ahead as follows:

[30] It is commonplace in the recent literature on earnings conservatism to employ a dummy variable in order to assess the incremental effect of negative value shocks in earnings. This approach has been criticised by Dietrich et al. (2003) in that positive and negative value shocks are characterised by different properties (the distribution of negative value shocks is truncated whereas this is not the case for positive value shocks as firms can grow infinitely) and the dummy variable being endogenous.

[31] Although these coefficients have been extensively employed to compare groups of firms, there has not been enough attention to their interpretation, and more particularly to the point that they are a function of the cost of capital. Findings that larger firms are more conservative than smaller firms (Giner and Rees, 2001) could be attributed to the fact that the cost of capital is lower for these firms rather than to a visibility explanation.

$$\frac{e_{t+1}}{P_{t-1}} = a_1 + b_1 \frac{P_t - P_{t-1}}{P_{t-1}} + u_t \tag{5.3}$$

Here, b_1 captures the initial under-recognition (over-recognition) of the current positive (negative) value shock and the expected reversal of conservatism at time t+1. Thus, it is expected that $b_1 > b_0$ when the value shock is positive and $b_1 \leq b_0$ when negative. A further validation test of this expected outcome, which also captures the speed of reversal, is conducted by running the above regression with the scaled change in earnings as the dependent variable as follows:

$$\frac{e_{t+1} - e_t}{P_{t-1}} = a_2 + b_2 \frac{P_t - P_{t-1}}{P_{t-1}} + u_t \tag{5.4}$$

In order to test empirically the above models, one year ahead earnings expectations e_{t+1} are proxied by analysts' forecasts. As discussed in Chapter 3, not only have analysts' forecasts been shown to enhance the earnings returns relation, an indication of their adequacy as proxies of earnings expectations, but they are also shown to be quite rational. It is commonly argued that these forecasts are not accurate; however, in the present context, the accuracy is not a necessary feature. Instead, the employed variables need to represent the consensus earnings expectations of market participants.[32] Consistently, the

[32] Within the context of semi-strong market efficiency assumption, market participants being aware of publicly known information does not entail that market participants' earnings expectations are accurate. For

expected earnings employed here are the consensus forecasts of professionals as provided by IBES, as the best available approximation of market participants' consensus expectations. One other possible criticism with respect to using analysts' earnings forecasts to assess accounting diversity is that analysts recalculate core earnings so that many of the idiosyncratic features of accounting standards are eliminated. However, it is this very issue that guides the research design for this thesis. That is to say, if market participants are able to reformulate earnings so that their core earnings estimates have similar properties internationally, then accounting diversity is not such a severe investment barrier as thought before. [33]

Applying industry and country effects requires the incorporation of the respective components in the intercept a and the slope coefficient b of the regression models introduced above. First, recall that, in (4.3), it was shown that earnings may be separated into country (c) and industrial sector (s) components as follows:

$$e_t = (1-\lambda_{0,c,s})E_{t-1} + \varepsilon_t - \theta_{0,c,s}\varepsilon_t^{+} + \gamma_{0,c,s}\varepsilon_t^{-} =$$
$$(1-\lambda_{0,c})E_{t-1} + \varepsilon_t - \theta_{0,c}\varepsilon_t^{+} + \gamma_{0,c}\varepsilon_t^{-} + [(1-\lambda_{0,s})E_{t-1} + \varepsilon_t - \theta_{0,s}\varepsilon_t^{+} + \gamma_{0,s}\varepsilon_t^{-}]$$

instance, information private to managers determines the extent of earnings management prior to earnings announcement.

[33] As stated in the introduction, this thesis proposes an evaluation of accounting diversity based on the perspective of (expert) users of accounting and models not the reported accounting earnings but the earnings expectations that these users of accounting employ for equity valuation.

Thus, with regard to current earnings, country effects in the intercept and the slope coefficient may be estimated, after controlling for industry affiliation, by (5.5):

$$\frac{e_t}{P_{t-1}} = a_0 + \sum_{s=1}^{S} a_s I_s + \sum_{c=1}^{C} a_c K_c + \sum_{c=1}^{C} b_c K_c \frac{P_t - P_{t-1}}{P_{t-1}} + \sum_{t=1}^{T} a_t Y_t + L_t + u_t \quad (5.5)$$

Similarly, sector effects in the intercept and the slope coefficients may be estimated, controlling for country effects, by (5.6):

$$\frac{e_t}{P_{t-1}} = a_0 + \sum_{s=1}^{S} a_s I_s + \sum_{c=1}^{C} a_c K_c + \sum_{s=1}^{S} b_s I_s \frac{P_t - P_{t-1}}{P_{t-1}} + \sum_{t=1}^{T} a_t Y_t + L_t + u_t \quad (5.6)$$

where:

a_s, a_c, a_t represents the fixed component of each sector s, country c and year t effect[34];

I_s, K_c, Y_t are dummy variables equal to 1 if the firm belong to sector s, country c and year t respectively and zero otherwise.

b_c represents the country c specific response to price changes;

b_s represents the sector s specific response to price changes;

[34] Ryan and Zarowin (2003) report temporal variation in conservatism in the U.S. environment. Turning to the European context, there have also been considerable efforts towards accounting harmonisation during the examined period either by means of the adoption of Fourth and Seventh directive guidelines or by adjusting local GAAP in view of the application of IFRS for listed companies after 2005, especially during more recent years.

L_t is the natural log of market capitalisation in US dollars, a control variable for size effects.

Cross-country variation then is assessed by testing for the equality of the country-specific response to price changes b_c in (5.5); industry variation is evaluated by testing for the equality of the industry-specific response to price changes b_s in (5.6)

When the same regression is repeated with the scaled one year ahead earnings e_{t+1}, it is noted that, to the extent that conservatism reverses and it does so quicker when shocks are negative, we would expect to find that cross-country differences are mitigated in this regression of one year ahead earnings expectations on the value shock, especially when this is negative. On the other hand, as accounting is likely to take longer to register positive value shocks, cross-country differences are likely to persist in the window under consideration in the current study.

If sector effects contribute significantly in the cross-country variation in conservatism and its reversal, measured here by the estimated country-specific coefficients b_c, it is expected that cross-country variation would decrease when sector effects are considered. This is especially likely to happen when earnings one year ahead are considered if cross-country accounting diversity dissipates in the short term.

Whereas the empirical evidence from (5.5) provides an assessment of accounting diversity at the cross-country level, the evidence from (5.6) reinforces the notion of sector effects determining conservatism. Industry components in the slope coefficient are expected to persist in both current and forthcoming earnings regressions even after controlling for country effects, indicating the necessity to acknowledge them in (5.5).

Finally, if countries are ranked based on the estimates provided by coefficients b_c under different specifications, these rankings might vary if conservatism reverses faster in certain countries or industries.

5.3 Data

The sample consists of firms reporting under their local GAAP, originating from 16 European jurisdictions (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Ireland, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and UK). Not all of the countries involved are member states of the EU, but Norway and Switzerland are included due to their close economic ties with the rest of Europe.

The sources employed are IBES for earnings forecasts for the current year and one and two years ahead, and also for industry classification, and Worldscope for market capitalisation data necessary to deflate earnings forecasts and to calculate ex-dividend returns. The sample includes those firms for which all the above data are available for a

firm year observation, for both active firms at the census date and inactive firms that ceased operations during the period 1994 to 2003. It should be noted that, before 1994, coverage of analysts' forecasts for these markets was not representative, especially with respect to Ireland and Greece.

An important issue that arises when combining data from various databases concerns the different adjustment factors employed to render earnings per share and prices comparable over time, mostly by adjusting for capital issues and stock splits. To circumvent this problem, earnings per share forecasts in IBES are multiplied by the number of shares provided in IBES and then divided by market capitalisation at the beginning of the year. The sample is restricted to firms that report in local GAAP with a December year end. The model requires earnings forecasts for the year underway and the year following the current forecast. The current forecast is the median of December forecasts for the accounting year ending on that date. For the predictions of forthcoming earnings, the median of December forecasts is again employed, this time for the accounting year ending 12 months later. Appropriate controls have been taken to ensure that the forecasts satisfy the 12 month period. By requiring no missing observations for the current and one year ahead earnings yield and ex-dividend return, the sample selection procedure yielded 17,606 firm-year observations. Descriptive statistics are provided in Table 5.1 (Panels A,B,C and D).

In Table 5.1, it can be seen that there is substantial variation in the representation of the countries in the sample (from Ireland: 229 firm-year observations, to the UK: 3397), mostly due to the relative size of the domestic economies. Note also that the sampling procedure relies heavily on the IBES following of each of these markets, and therefore the number of firm-year observations represents the most visible firms in each market. It has also to be noted that, especially after 2000, the representation of Austria, Germany and Switzerland has diminished as more of the firms domiciled in these countries have switched to reporting under IFRS than has occurred elsewhere.

With regard to the descriptive statistics presented in Panels B, C and D, it can be observed that high current earnings yields (*e.g.*, Ireland: 0.0937) tend to be accompanied by high scaled value shocks (Ireland: 0.1963) and, similarly, low current earnings yields (*e.g.*, Germany: 0.0464) are accompanied by low average scaled value shocks (Germany: 0.0312), with earnings yields overall being characterised by less cross-country variation than scaled value shocks. One year ahead earnings yields are consistently higher than current earnings yields, a regularity that supports the effect of the reversal of conservatism in expected future earnings as described in Chapter 1.[35]A more informed empirical examination of the impact of the reversal of conservatism follows.

[35] Equation (1.12) shows that the predicted sign of the expected earnings growth is positive either due to the deferred recognition of prior and current good news or to the correction of the over-recognition of prior and current bad news. Note that positive permanent earnings shocks or good news stem from a competitive advantage of the firm. Since the competitive advantage of the firm is more likely to affect the short term expected accounting earnings (as it can be reasonably expected that it erodes in the long term), expected short term growth rates are also likely to be higher than the expected long term growth rate. In this spirit, it

Table 5.1
Descriptive statistics

Panel A: number of firm-year observations

	Number of observations
Austria	298
Belgium	576
Denmark	624
Finland	757
France	2565
Germany	1877
Greece	851
Ireland	229
Italy	1339
Netherlands	1158
Norway	763
Portugal	340
Spain	953
Sweden	1338
Switzerland	541
UK	3397
Total	17606

Panel A presents the country distribution of the 17606 firm-year observations selected based on the procedure described in 5.3 (i.e. no missing observations for the current and one year ahead earnings yield and ex-dividend current returns for a given firm-year observation that satisfies the local GAAP criterion).

is plausible that the growth rates between current and one year ahead earnings implied by the descriptive statistics below (ranging between 10% and 25%) are higher than a long term nominal economy-wide growth rate of , for example, 5%.

Panel B: current earnings yield

	Mean	Standard deviation	Median
Austria	0.0610	0.0497	0.0590
Belgium	0.0615	0.0419	0.0650
Denmark	0.0688	0.0536	0.0640
Finland	0.0636	0.0591	0.0590
France	0.0602	0.0495	0.0585
Germany	0.0464	0.0414	0.0440
Greece	0.0687	0.0553	0.0560
Ireland	0.0937	0.0589	0.0910
Italy	0.0541	0.0458	0.0530
Netherlands	0.0850	0.0525	0.0840
Norway	0.0720	0.0718	0.0680
Portugal	0.0567	0.0473	0.0580
Spain	0.0780	0.0487	0.0750
Sweden	0.0526	0.0567	0.0520
Switzerland	0.0588	0.0464	0.0570
United Kingdom	0.0718	0.0535	0.0700

Panel B presents summary statistics on a country basis for the current earnings yield (*i.e.* the December median earnings forecast for the current year divided by market capitalisation at the beginning of the year). Note that 642 observations, amounting to 3.6% of the initial sample of 17606 observations, have been characterised as outliers after the application of Huber and biweight iterations in a STATA routine (*rreg*) and are not taken into account in the above estimates. The *rreg* routine applies the Cook's distance criterion to characterise an observation as an outlier, attaching to each observation a weight that takes a value between 0 and 1 (Huber weights and Tukey biweights). The outlier deletion procedure repeats itself until a certain default *tolerance* level. The procedure is a robust estimation alternative to deleting the top and bottom 1% of the distribution, which is a more commonly used technique. The observations for which this procedure gives a zero weight are characterised as outliers.

Panel C: one year ahead earnings yield

	Mean	Standard deviation	Median
Austria	0.0708	0.0485	0.0650
Belgium	0.0772	0.0403	0.0750
Denmark	0.0856	0.0526	0.0800
Finland	0.0825	0.0565	0.0740
France	0.0767	0.0500	0.0720
Germany	0.0579	0.0434	0.0520
Greece	0.0807	0.0620	0.0660
Ireland	0.1134	0.0591	0.1050
Italy	0.0664	0.0479	0.0640
Netherlands	0.0992	0.0537	0.0960
Norway	0.0889	0.0651	0.0840
Portugal	0.0720	0.0476	0.0690
Spain	0.0913	0.0471	0.0860
Sweden	0.0684	0.0556	0.0640
Switzerland	0.0702	0.0449	0.0660
United Kingdom	0.0877	0.0563	0.0830

Panel C presents summary statistics on a country basis for the one year ahead earnings yield (*i.e.* the December median earnings forecast for the forthcoming year divided by market capitalisation at the beginning of the current year). Note that 368 observations, amounting to 2.1% of the initial sample of 17606 observations has been characterised as outliers after the application of Huber and biweight iterations in a STATA routine (*rreg*) and are not taken into account in the estimates of the above summary statistics.

Panel D: scaled value shock

	Mean	Standard deviation	Median
Austria	0.0221	0.3019	-0.0160
Belgium	0.0555	0.3525	0.0245
Denmark	0.0961	0.4157	0.0420
Finland	0.1340	0.4662	0.0770
France	0.0728	0.4359	0.0270
Germany	0.0312	0.3828	-0.0080
Greece	0.0346	0.5496	-0.0800
Ireland	0.1963	0.4902	0.1580
Italy	0.0913	0.4053	0.0315
Netherlands	0.1226	0.4264	0.0500
Norway	0.0843	0.4828	0.0445
Portugal	0.1428	0.4307	0.0580
Spain	0.1422	0.3820	0.1070
Sweden	0.1030	0.4825	0.0700
Switzerland	0.0875	0.3817	0.0400
United Kingdom	0.0753	0.4457	0.0330

Panel D presents summary statistics of the scaled value shock (i.e. the difference in market capitalisation between the beginning of the year and the year end scaled by the market capitalisation at the beginning of the year) on a country basis. Note that 454 observations, amounting to 2.6% of the initial sample of 17606 observations has been characterised as outliers after the application of Huber and biweight iterations in a STATA routine (rreg) and are not taken into account in the estimates of the above summary statistics.

5.4 Cross-country differences in earnings conservatism

In the spirit of the above analysis, accounting diversity is evaluated by means of the recognition of negative and positive value shocks in current and one year ahead earnings forecasts. This is achieved by means of a set of regressions of the scaled earnings forecast on the current scaled value shock

The first regression employs the current earnings yield as the dependent variable. The estimated country-specific coefficients b_c. then tell us about the recognition of value shocks in current earnings in a specific country, when

$$\frac{e_t}{P_{t-1}} = a_0 + \sum_{c=1}^{C} a_c K_c + \sum_{c=1}^{C} b_c K_c \frac{P_t - P_{t-1}}{P_{t-1}} + L_t + u_t \qquad \text{(I)}$$

Efficient estimation procedures with respect to country effects will involve a factor structure that requires a reference level, where the latter is aliased in the fit and where parameter estimates for the remaining country sub-samples are incremental to the reference level.[36]

Regression (I) is similar to the approach widely used in prior empirical research into earnings conservatism.[37] In expected earnings, however, accounting conservatism is

[36] The procedure used here is *lincom* in STATA. Note that, in order to enable a direct comparison at the country level, the increments are added to the reference level.
[37] See next section for a comparison of prior research's and this thesis estimates based on IBES earnings forecasts.

predicted to reverse, as shown in earlier chapters of this thesis. In order to provide empirical evidence on the reversal of conservatism, a similar regression to (I) is also estimated where the dependent variable is the one year ahead earnings yield. Given the reversal of conservatism, the response coefficients b_c. in this regression should be larger than the coefficients in regression (I) when value shocks are positive and smaller when value shocks are negative.

It has also been argued that, once the -short term- reversal of conservatism is allowed for, accounting systems would be relatively harmonised if recognition of news in earnings is similar. Regression (II) offers the opportunity to test for the equality of the country-specific slope coefficients which now incorporate the effect of the reversal of conservatism

$$\frac{e_{t+1}}{P_{t-1}} = a_1 + \sum_{c=1}^{C} a_c K_c + \sum_{c=1}^{C} b_c K_c \frac{P_t - P_{t-1}}{P_{t-1}} + L_t + u_t \qquad \text{(II)}$$

Acknowledging that the country heterogeneity estimated in regressions (I) or (II) might be attributed to differences in industry structure rather than country level factors, the regressions (I) and (II) are repeated as regressions (III) and (IV), this time including sector and time fixed effects. As already explained, different industries are characterised by different operating cycles and thus, likewise, by different rates of conservatism reversals. Controlling for time and sector effects, the estimated country-

specific response coefficients as well as the related test of their equality is expected to provide more reliable evidence on the comparability of accounting results.

Taking into account sector and time effects, the regression of the scaled current earnings forecast on the current scaled value shock is estimated as below:

$$\frac{e_t}{P_{t-1}} = a_0 + \sum_{s=1}^{S} a_s I_s + \sum_{c=1}^{C} a_c K_c + \sum_{c=1}^{C} b_c K_c \frac{P_t - P_{t-1}}{P_{t-1}} + \sum_{t=1}^{T} a_t Y_t + L_t + u_t \qquad \text{(III)}$$

Similarly, when the dependent variable the forthcoming one year ahead earnings forecast, the regression is estimated as follows:

$$\frac{e_{t+1}}{P_{t-1}} = a_1 + \sum_{s=1}^{S} a_s I_s + \sum_{c=1}^{C} a_c K_c + \sum_{c=1}^{C} b_c K_c \frac{P_t - P_{t-1}}{P_{t-1}} + \sum_{t=1}^{T} a_t Y_t + L_t + u_t \qquad \text{(IV)}$$

As already mentioned, due to the impact of the reversal of conservatism, the response coefficients b_c. in the regression using the one year ahead earnings yield as the dependent variable (regressions II or IV) should be larger than the coefficients in regression using the current earnings yield (regressions I or III) when value shocks are positive and smaller when value shocks are negative. In this respect, regression (V) assesses statistically the hypothesised changes in the magnitude of the response

coefficients by using the change between current and one year ahead earnings yield as the dependent variable.[38]

$$\frac{e_{t+1}-e_t}{P_{t-1}} = a_2 + \sum_{s=1}^{S} a_s I_s + \sum_{c=1}^{C} a_c K_c + \sum_{c=1}^{C} b_c K_c \frac{P_t - P_{t-1}}{P_{t-1}} + \sum_{t=1}^{T} a_t Y_t + L_t + u_t \qquad \text{(V)}$$

Regressions (I) through (V) are conducted separately for positive and negative shocks[39]. The regressions have also been conducted acknowledging that firm-year observations within a firm are not independent, applying therefore a robust regression with regard to this characteristic.[40] Consistently, the *F*-statistics of the Wald tests[41] for the equality of country-specific estimates are estimated based on a number of degrees of freedom specified by the number of firms and not firm-years as is usual. For each of these regressions, an iterative process applies the Cook's distance criterion to characterise an observation as an outlier, attaching to each observation a weight that takes a value between 0 and 1 (Huber weights and Tukey biweights). The outlier deletion procedure repeats itself until a certain default tolerance level, and the observations for which this procedure gives a zero weight are characterised as outliers. The procedure is a robust

[38] The magnitudes of the slope coefficients in Regression V can be interpreted based on the equation (4.6) in the previous chapter.

[39] Note also that in the regressions, firm year observations with negative book equity values are excluded.

[40] The procedure used here is the *cluster* option in STATA, where the cluster is specified as the firm.

[41] Wald tests use the corrected variance-covariance matrix (which here controls for the non –independent observations within the same firm). Note that whilst the corresponding statistic for the Wald test is the chi-square, here *F*-statistics are reported, as STATA converts the chi-square to an *F*-statistic.

estimation alternative to deleting the top and bottom 1% of the distribution, which is a more commonly used technique.[42]

The estimates of the recognition of negative shocks in current and forthcoming earnings forecasts is reported in Table 5.2, Panel A. It can be seen that the response coefficients are always significant, signalling that economic losses are likely to be fully and immediately recognised. As expected, their magnitude, which ranges between 5.9% and 12.8%, is consistent with an acceptable range of values of the cost of capital.

Evidence on cross-country differences is apparent across all regressions (I to IV) when the 16 European countries are considered, as the respective Wald tests of the equality of country slope coefficients yield *F*-statistics whose *p-value* does not even approach a threshold of 5%. If slope coefficients tend to an approximation of the cost of capital when the news recognition is full, then cross-country differences might be affected by differences in the underlying risk free rates or country-specific risk premia. To the extent that this assumption holds, divergence among country coefficients should not be observed across the Eurozone, especially when one year ahead earnings are considered. Consistent with this prediction, the test for the equality of Eurozone member states coefficients yields *F*-statistics whose *p-value* is sufficiently high to reject any divergence (respective *p-values* for regressions II and IV: 0.13 and 0.42). The addition of industry effects does not alter the inferences drawn by the tests of equality of

[42] The procedure used here is *rreg* in STATA.

country-specific coefficients based on regressions (I) and (II).[43] Overall, drawing especially upon the Eurozone evidence, the recognition of economic losses does not appear to contribute to accounting diversity.

It should be noted that the coefficient estimates in regression (V) show either a significant negative coefficient, which indicates a correction to over-recognition of current negative shocks, or no statistically significant coefficients at all. These findings are consistent with the initial intuition of negative shocks having a full effect on earnings in accordance with the contractual explanation of conservatism. [44]

Turning to the recognition of positive shocks in Panel (B), in line with prior international evidence on conservatism, slope coefficients in most cases are either insignificantly different from zero or weakly significant. In the remaining cases, although significant, the coefficients are quite low, around 1% or 2%, and nowhere near an estimate of the cost of capital. The overall magnitude of the slope coefficients does not change when industry and time controls enter the regression; however, it is noted that the R^2 increases from 10.20% in regression (I-current earnings) to 21.00% in regression (IV-forthcoming earnings and industry effects). Note that the addition of information on the reversal of conservatism reinforces the explanatory power of value shocks for earnings (R^2 increases between (I) and (II) by 5.6% and between (III) and

[43] Note however that the addition of sector effects increases the explanatory power by 5.7% between regressions I and III and by 6.5% between regressions II and IV)
[44] Note that a separate outlier deletion procedure is followed for each regression. Coefficients in V do not necessarily correspond to the difference in coefficients between III and IV.

(IV) by 5.2%, whereas the respective percentages under bad news in Panel A were 2.1% and 2.9%). The magnitude of the positive shocks coefficients and their significance appears to increase between (I- current earnings) and (IV-forthcoming earnings and industry controls). The extent to which this difference is significant is confirmed by means of regression (V-change between current and forthcoming earnings and industry controls), with coefficients being almost always significant. It may be concluded that accounting diversity is more evident with respect to the recognition of economic gains.

Motivated by the premise that under conservatism economic losses are recognised in accounting earnings more promptly than economic gains, international comparisons so far have been conducted in terms of the asymmetric timeliness of shocks recognition. The evidence provided above in this chapter contributes in our understanding of accounting diversity by showing that market participants perceive it with respect to the deferred recognition of economic gains rather than the recognition of economic losses. This finding highlights the importance of another dimension of conservatism, that is, the deferral of good news recognition. In other words, now it becomes clear that the main determinant of accounting diversity lies in the variation in the deferral of good news recognition.[45]

[45] Despite analyst forecasts being standardised to some degree in order to focus on 'core' earnings, accounting diversity can still be observed with respect to the recognition of positive shocks. Nevertheless, it is interesting that the same does not apply with respect to the recognition of negative shocks in integrating financial markets. Further research could employ a similar methodology to assess the accounting diversity comparing IBES earnings and reported earnings providing evidence on whether the similarities in the recognition of negative shocks is due to analysts' interpretation of accounting earnings or the properties of the reported accounting earnings.

Table 5.2
Conservatism in the recognition of value shocks on country basis

Panel A: Negative value shocks recognition

Dependent variable	*Current earnings*		*Forthcoming earnings*		*Current earnings (industry and time controls included)*		Forthcoming earnings *(industry and time controls included)*		*Change in earnings (industry and time controls included)*	
	I		II		III		IV		V	
	Coefficient	t stat	*Coefficient*	t stat	*Coefficient*	T stat	Coefficient	t stat	Coefficient	t stat
AUSTRIA	0.0875	2.81	0.0670	3.00	0.0930	3.06	0.0757	3.52	0.0000	0.01
BELGIUM	0.0914	5.35	0.0810	5.65	0.0820	5.41	0.0729	5.60	-0.0004	-0.09
DENMARK	0.0906	5.57	0.1053	7.33	0.0958	6.69	0.1068	8.48	0.0040	0.88
FINLAND	0.1285	9.81	0.0963	9.34	0.1173	9.15	0.0842	9.21	-0.0087	-1.74
FRANCE	0.0983	14.38	0.0957	14.75	0.0871	12.52	0.0851	13.35	0.0030	1.25
GERMANY	0.0591	8.27	0.0635	7.31	0.0594	8.22	0.0638	7.43	-0.0070	-2.45
GREECE	0.0826	8.58	0.0833	7.74	0.0938	9.31	0.0938	8.49	0.0051	1.73
IRELAND	0.1047	5.06	0.0928	5.18	0.1012	4.35	0.0906	4.88	0.0086	0.97
ITALY	0.0909	8.75	0.1012	10.03	0.0797	7.90	0.0918	9.43	0.0032	0.93
NETHERLANDS	0.0947	8.05	0.0985	8.22	0.0880	7.65	0.0926	8.12	-0.0007	-0.20
NORWAY	0.1260	9.02	0.1160	10.06	0.1194	8.93	0.1104	9.67	-0.0088	-1.67
PORTUGAL	0.0737	2.97	0.0605	2.42	0.0680	2.81	0.0554	2.29	-0.0042	-0.65
SPAIN	0.0828	4.38	0.0830	5.62	0.0897	4.83	0.0912	6.22	0.0051	1.34
SWEDEN	0.1257	13.50	0.1059	13.66	0.1112	12.27	0.0914	11.61	-0.0102	-3.02
SWITZERLAND	0.0728	4.57	0.0474	3.00	0.0679	4.81	0.0454	3.29	-0.0070	-1.26
UK	0.0972	15.04	0.0985	17.06	0.0912	15.05	0.0913	17.24	0.0004	0.21

Panel A: Negative value shocks recognition (regression diagnostics)

Dependent variable	*Current earnings*	*Forthcoming earnings*	*Current earnings (industry and time controls included)*	Forthcoming earnings *(industry and time controls included)*	*Change in earnings (industry and time controls included)*
	I	II	III	IV	V
Number of firms	3111	3137	3111	3137	3115
R-square	21.2	23.3	26.9	29.8	11.46
EUROPE-16 countries					
Equality of country slope coefficients	3.54	2.29	2.53	1.89	2.17
(p-value)	(0.00)	(0.03)	(0.00)	(0.02)	(0.01)
EUROZONE-11 countries					
Equality of country slope coefficients	3.01	1.52	2.14	1.03	1.79
(p-value)	(0.00)	(0.13)	(0.02)	(0.42)	(0.06)

Panel B: Positive value shocks recognition

Dependent variable	*Current earnings*		*Forthcoming earnings*		*Current earnings (industry and time controls included)*		Forthcoming earnings *(industry and time controls included)*		*Change in earnings (industry and time controls included)*	
	I		II		III		IV		V	
	Coefficient	t stat	*Coefficient*	t stat	*Coefficient*	T stat	Coefficient	t stat	Coefficient	t stat
AUSTRIA	0.0541	3.07	0.0522	2.39	0.0519	2.98	0.0500	2.41	0.0096	3.36
BELGIUM	0.0109	1.74	0.0175	2.63	0.0163	2.33	0.0237	3.05	0.0067	9.55
DENMARK	0.0170	2.18	0.0198	1.67	0.0206	2.56	0.0220	1.77	0.0070	3.11
FINLAND	0.0100	1.66	0.0196	2.68	0.0159	2.69	0.0249	3.20	0.0070	3.63
FRANCE	0.0096	3.23	0.0187	5 08	0.0132	4.22	0.0222	5.86	0.0068	7.81
GERMANY	0.0089	3.63	0.0185	5.16	0.0100	3.75	0.0201	5.36	0.0064	7.74
GREECE	0.0040	2.28	0.0058	2.86	0.0045	2.62	0.0063	2.96	0.0038	4.08
IRELAND	0.0222	2.02	0.0343	2.89	0.0277	3.00	0.0397	3.88	0.0084	3.55
ITALY	0.0070	13.19	0.0137	28.20	0.0073	12.27	0.0141	22.26	0.0066	32.61
NETHERLANDS	0.0144	2.05	0.0154	1.62	0.0192	2.84	0.0203	2.10	0.0074	5.61
NORWAY	0.0134	2.68	0.0159	2.58	0.0158	3.06	0.0171	2.66	0.0099	4.75
PORTUGAL	0.0033	0.66	0.0117	1.76	0.0047	0.93	0.0129	1.95	0.0026	1.60
SPAIN	0.0224	4.71	0.0235	3.35	0.0229	4.75	0.0240	3.40	0.0075	6.87
SWEDEN	0.0047	21.18	0.0143	3.48	0.0051	12.17	0.0207	5.41	0.0051	4.26
SWITZERLAND	0.0115	24.86	0.0151	29.90	0.0115	19.38	0.0154	22.26	0.0031	1.57
UK	0.0032	1.72	0.0098	3.77	0.0058	3.19	0.0129	4.12	0.0063	12.56

Panel B: Positive value shocks(regression diagnostics)

Dependent variable	*Current earnings*	*Forthcoming earnings*	*Current earnings (industry and time controls included)*	Forthcoming earnings *(industry and time controls included)*	*Change in earnings (industry and time controls included)*
	I	II	III	IV	V
Number of firms	3047	3096	3047	3096	2934
R-square	10.2	15.8	15.8	21.0	21.74
EUROPE-16 countries					
Equality of country slope coefficients	14.35	2.42	7.99	2.68	1.65
(p-value)	(0.00)	(0.00)	(0.00)	(0.00)	(0.05)
EUROZONE-11 countries					
Equality of country slope coefficients	2.61	2.78	3.48	3.53	1.75
(p-value)	(0.00)	(0.00)	(0.00)	(0.00)	(0.06)

The F-tests take into account the estimation of coefficient standard errors using a robust-cluster (firm level) procedure, the degrees of freedom being conditional on the number of firms rather than the number of firm-year observations.
Table 5.2. presents the estimates for the country-specific slope coefficient from the regressions described below.

Regression I: $$\frac{e_t}{P_{t-1}} = a_0 + \sum_{c=1}^{C} a_c K_c + \sum_{c=1}^{C} b_c K_c \frac{P_t - P_{t-1}}{P_{t-1}} + L_t + u_t$$

Regression II: $$\frac{e_{t+1}}{P_{t-1}} = a_1 + \sum_{c=1}^{C} a_c K_c + \sum_{c=1}^{C} b_c K_c \frac{P_t - P_{t-1}}{P_{t-1}} + L_t + u_t$$

Regression III: $$\frac{e_t}{P_{t-1}} = a_0 + \sum_{s=1}^{S} a_s I_s + \sum_{c=1}^{C} a_c K_c + \sum_{c=1}^{C} b_c K_c \frac{P_t - P_{t-1}}{P_{t-1}} + \sum_{t=1}^{T} a_t Y_t + L_t + u_t$$

Regression IV: $$\frac{e_{t+1}}{P_{t-1}} = a_1 + \sum_{s=1}^{S} a_s I_s + \sum_{c=1}^{C} a_c K_c + \sum_{c=1}^{C} b_c K_c \frac{P_t - P_{t-1}}{P_{t-1}} + \sum_{t=1}^{T} a_t Y_t + L_t + u_t$$

Regression V: $$\frac{e_{t+1} - e_t}{P_{t-1}} = a_2 + \sum_{s=1}^{S} a_s I_s + \sum_{c=1}^{C} a_c K_c + \sum_{c=1}^{C} b_c K_c \frac{P_t - P_{t-1}}{P_{t-1}} + \sum_{t=1}^{T} a_t Y_t + L_t + u_t$$

5.5 Comparisons of conservatism in forecasted earnings and reported earnings

Table 5.3 presents a comparison between the estimated coefficients in this study and evidence from reported earnings in previous research. More particularly, the coefficients estimated by means of regression (I-*i.e.*, current earnings yield on current scaled value shock) are presented next to corresponding estimates by previous researchers for reasons of comparison.

The main feature of this comparison is that employing reported earnings provides estimates of slope coefficients b_c that are systematically higher than the coefficients estimated in this study by means of IBES consensus forecasts for the current year's earnings at the fiscal year end, before this number becomes published. For example, with respect to the recognition of negative shocks in Germany, prior research employing reported earnings either after extraordinary and special items (Garcia Lara and Mora, 2004; Giner and Rees, 2001) or before extraordinary and special items (Ball, Kothari and Robin, 2000; Garcia Lara, Garcia Osma and Mora, 2005) estimate a slope coefficient b_c that takes values from 0.15 to 0.26, in contrast to the estimated coefficient in the present study which is equal to 0.06.

A possible explanation for this divergence could be sought in a recent study by Garcia Lara, Garcia Osma and Mora (2005) who evaluate conservatism in both reported and "unmanaged" earnings, *i.e.*, earnings from which discretionary accruals have been deducted. Picking up from the discussion on the link between analysts' forecasts and

earnings management in Chapter 3 (relying mostly on Abarbanell and Lehavy, 2004a and Richardson, Teoh and Wysocki, 2004), earnings forecasts at the year end are likely to represent "unmanaged" earnings. This is consistent with the Garcia Lara, Garcia Osma and Mora (2005) finding that coefficients under "unmanaged" earnings are lower than coefficients under reported earnings. Referring to the example of Germany as above, whilst the estimated coefficient under reported earnings in the Garcia Lara, Garcia Osma and Mora (2005) study takes the value of 0.26, the same test employing "unmanaged" earnings as dependent variable yields an estimate of 0.12, which comes considerably closer to the Table 5.2 estimate of 0.06.

Turning to the recognition of positive shocks, Table 5.3 shows that the coefficients reported here are considerably lower than estimates from prior research. On the other hand, despite the larger magnitude of prior research coefficients, these appear often to be not significantly different from zero. For example, whereas employing IBES earnings as the dependent variable in this study yields a significant estimate of 0.01 for Germany, the use of reported earnings in other studies produces considerably higher estimates (*e.g.*, Garcia Lara and Mora, 2004: 0.03 or Garcia Lara, Garcia Osma and Mora, 2005: 0.04) which are nevertheless not significantly different from zero. Appealing to the earnings management explanation given above, it is observed that when employing "unmanaged" earnings, the coefficient's magnitude decreases from 0.04 to 0.02, remaining non significantly different from zero. With respect to

coefficients for France and the UK under "unmanaged" earnings, it has to be noted that, similarly, these coefficients also become insignificantly different from zero.[46]

[46] The present analysis does not provide a definitive answer with regard to the divergence of estimated coefficients between reported earnings (under various databases and definitions) and IBES earnings forecasts. Further research would examine IBES earnings across the forecast horizon as well as IBES actual earnings in terms of conservatism, and could contribute to our understanding of the properties of earnings forecasts and their properties, namely bias, in the spirit of the discussion in Chapter 3 (see for instance the analysis in Helbok and Walker, 2004 as summarised in Graph 3.2).

Table 5.3
Comparison with previous research

Panel A: Conservatism in the recognition of current negative shocks

	Current earnings I		*Garcia Lara and Mora (2004)*	*Giner and Rees (2001)*		*Ball, Kothari and Robin (2000)*	*Garcia Lara, Garcia Osma and Mora (2005) - reported earnings*	*Garcia Lara, Garcia Osma and Mora (2005) - unmanaged earnings*
	Coefficient	*t stat*	*Coefficient*	*Coefficient*	*t stat*	*Coefficient*	*Coefficient*	*Coefficient*
AUSTRIA	0.09	*2.81*						
BELGIUM	0.09	*5.35*	0.43					
DENMARK	0.09	*5.57*						
FINLAND	0.13	*9.81*						
FRANCE	0.10	*14.38*	0.34	0.29	*8.30*	0.16	0.24	0.20
GERMANY	0.06	*8.27*	0.15	0.24	*7.96*	0.16	0.26	0.12
GREECE	0.08	*8.58*						
IRELAND	0.10	*5.06*						
ITALY	0.09	*8.75*	0.14					
NETHERLANDS	0.09	*8.05*	0.18					
NORWAY	0.13	*9.02*						
PORTUGAL	0.07	*2.97*						
SPAIN	0.08	*4.38*	0.53					
SWEDEN	0.13	*13.50*						
SWIZERLAND	0.07	*4.57*	0.37					
UK	0.10	*15.04*	0.28	0.32	*18.06*	0.19	0.27	0.22

Panel B: Conservatism in the recognition of current positive shocks

	Current earnings I		*Garcia Lara and Mora (2004)*		*Giner and Rees (2001)*		*Ball, Kothari and Robin (2000)*	*Garcia Lara, Garcia Osma and Mora (2005) - reported earnings*		*Garcia Lara, Garcia Osma and Mora (2005) - unmanaged earnings*	
	Coefficient	*t stat*	*Coefficient*	*T stat*	*Coefficient*	*t stat*	*Coefficient*	*Coefficient*	*t stat*	Coefficient	*t stat*
AUSTRIA	0.05	*3.07*									
BELGIUM	0.01	*1.74*	0.01	*0.38*							
DENMARK	0.02	*2.18*									
FINLAND	0.01	*1.66*									
FRANCE	0.01	*3.23*	0.05	*2.68*	0.04	*3.86*	0.08	0.04	*3.14*	0.05	*1.02*
GERMANY	0.01	*3.63*	0.03	*1.92*	0.03	*2.30*	0.05	0.04	*1.95*	0.02	*0.69*
GREECE	0.00	*2.28*									
IRELAND	0.02	*2.02*									
ITALY	0.01	*13.19*	0.08	*2.73*							
NETHERLANDS	0.01	*2.05*	0.06	*2.31*							
NORWAY	0.01	*2.68*									
PORTUGAL	0.00	*0.66*									
SPAIN	0.02	*4.71*	-0.24	*-0.81*							
SWEDEN	0.00	*21.18*									
SWIZERLAND	0.01	*24.86*	0.04	*2.68*							
UK	0.00	*1.72*	0.02	*2.34*	0.03	*5.59*	0.04	0.03	*3.49*	0.01	*0.39*

Garcia Lara and Mora (2004, Table 6) employ earnings after extraordinary items from the Extel database covering the years between 1987-2000; Giner and Rees (2001, Table 5) employ earnings after extraordinary items from the Extel database covering the years between 1990-1998; Ball, Kothari and Robin (2000, Table 3) employ earnings before extraordinary items from the Global Vantage database covering the years between 1985-1995; Garcia Lara, Garcia Osma and Mora (2005, Table 2) employ earnings before extraordinary ítems from Datastream covering the years between 1990-2001.

5.6 Comparisons of conservatism in current and one year-ahead earnings

The empirical evidence provided above has confirmed the reversal of conservatism in expected earnings in a manner that is consistent with the theoretical predictions developed in earlier chapters. However, it is possible that conservatism might reverse faster in one country than in another. If this is the case, the estimated slope coefficients would provide country rankings in terms of value shock recognition that would change as the earnings forecast horizon becomes longer. That is to say, earnings in countries that may be characterised as very conservative based on the estimates produced with the current earnings yield as the dependent variable, may be also be characterised as less conservative once the reversal of conservatism during year one is accounted for. Thus, this section examines the differences in such country rankings by means of correlations of the country-specific estimates of good and bad news recognition under different specifications as presented in Table 5.2.

More specifically, a weak correlation between the coefficients from regression (I-current earnings) and regression (II-one year ahead earnings) suggests a significant change in the ranking of the country-specific coefficients when the reversal of conservatism is accounted for. The estimates in Table 5.2 support the theoretical prediction of the impact of the reversal of conservatism in terms of an increase (decrease) in the magnitude of slope coefficients between regressions using current and forthcoming earnings as the dependent variables, when good (bad) news are considered. When the shift in the magnitude of the coefficients between the two regressions

changes the ranking of the country-specific news recognition coefficients significantly, then it can be argued that there is cross-country diversity with respect to the reversal of conservatism, that is, conservatism reverses faster in one country than in another.[47] However, note that in the context of the regressions (I) and (II), time or industry effects can also determine the reversal of conservatism. A more robust test then, is to compare the rankings of country-specific coefficients once the industry and time effects have been accounted for, *i.e.* the correlation between the coefficients from regressions (III) and (IV).

Table 5.4 presents the Spearman correlations between the estimated country-specific coefficients (regressions I to IV in Table 5.2).[48] The estimates in this table suggest that there is significant variation with respect to the reversal of conservatism related to the positive value shocks' recognition whereas there is no significant indication of cross-country variation in the reversal of conservatism related to the negative shocks' recognition (regression I and II: significant 0.73 correlation for negative shocks and a non-significant 0.37 for positive shocks). This finding is expected, as negative news has already been fully recognised and established its permanent effect in current earnings whereas this is not the case for positive news. However, the high correlation between the estimates from regressions (III) and (IV) suggests that, after controlling for industry

[47] The regression (IV) in Table 5.2 which employs the change in earnings as the dependent variable provides also a test of the accounting diversity with respect to the reversal of conservatism. However, the Spearman correlations here provide a test of the similarity of country rankings answering the question whether earnings in countries that may be characterised as very conservative based on the estimates produced with the current earnings yield as the dependent variable can be also be characterised as very conservative once the reversal of conservatism is accounted for.

[48] Coefficients with a p-value higher than 0.1 are set to zero.

composition, the reversal of conservatism does no longer influence the country ranking of countries in terms of the recognition of either positive and negative news. Especially with respect to economic gains, the contradicting evidence provided by first, the weak correlation between the coefficients of (I) and (II) and second, the strong correlation between the coefficients of (III) and (IV) implies that the industry or time specific components of the reversal of conservatism can decisively influence the cross-country variation in the reversal of conservatism. The importance of the industry-specific component in the reversal of conservatism is further assessed in the following section.

Table 5.4
Spearman correlations
between country-specific news recognition coefficients under different measures of earnings conservatism

Panel A: Negative shocks

	Current earnings *(I)*	*Forthcoming earnings* *(II)*	*Current earnings (industry and time controls included)* *(III)*
Forthcoming earnings (II)	**0.73** **(0.00)**		
Current earnings (industry and time controls included) (III)	0.73 (0.00)	0.66 (0.06)	
Forthcoming earnings (industry and time controls included) (IV)	0.41 (0.11)	0.85 (0.00)	**0.61** **(0.01)**

Panel B: Positive shocks

	Current earnings *(I)*	*Forthcoming earnings* *(II)*	*Current earnings (industry and time controls included)* *(III)*
Forthcoming earnings (II)	**0.37** **(0.16)**		
Current earnings (industry and time controls included) (III)	0.74 (0.01)	0.56 (0.02)	
Forthcoming earnings (industry and time controls included) (IV)	0.36 (0.17)	0.87 (0.00)	**0.66** **(0.00)**

Table 5.4 presents the Spearman correlations between the estimates of country-specific coefficients of news recognition as presented in Table 5.3. Coefficients with a p-value higher than 0.1 are set to zero.

5.7 Industry sensitivity of the reversal of conservatism

While the findings in the previous section imply that information on the industry component of the reversal of conservatism has important implications for the cross-country assessment of the recognition of positive value shocks, this section examines whether the addition of industry effects is indeed justified in evaluating international differences in conservatism. So far, industry effects have been taken into account only as a fixed effect that is additional to country-specific responses. Now, however, in Table 5.5 below, evidence is provided concerning the industry-specific response coefficient.

In an empirical setting, the industry components of value shock recognition are evaluated with the model set out in (5.6), which replaces the country-specific slope coefficients with industry-specific slope coefficients. Again, five regressions (I to V) are employed, in a manner analogous to that described above.

The estimated coefficients and corresponding *R*-squares for the industry-specific model presented in Table 5.5 are of a comparable magnitude to those presented previously in Table 5.2 for the country-specific model. The Wald test for the equality of industry-specific coefficients reveals that, when the country component has been taken out (regressions III and IV), there is significant heterogeneity in industry-specific recognition of negative and positive news.

Table 5.5
Conservatism in the recognition of value shocks on industry basis

Panel A: Negative value shocks

Dependent variable	*Current earnings*		*Forthcoming earnings*		*Current earnings country and time controls included*		*Forthcoming earnings, country and time controls included*		*Change in earnings, country and time controls included*	
	I		II		III		IV		V	
	Coefficient	*t stat*	*Coefficient*	*t stat*	*Coefficient*	t stat	*Coefficient*	t stat	*Coefficient*	*t stat*
BASIC INDUSTRIES	0.0651	*6.60*	0.0723	*8.20*	0.0828	*8.47*	0.0857	*10.10*	0.0012	*0.43*
CAPITAL GOODS	0.0837	*13.21*	0.0746	*12.84*	0.0893	*14.59*	0.0800	*14.17*	-0.0021	*-0.99*
CONSUMER DURABLES	0.0739	*4.61*	0.0740	*4.76*	0.0835	*5.87*	0.0830	*6.25*	0.0095	*1.73*
CONSUMER NON-DURABLES	0.0604	*7.06*	0.0523	*6.57*	0.0730	*8.38*	0.0614	*7.84*	-0.0039	*-1.38*
CONSUMER SERVICES	0.0729	*11.24*	0.0771	*11.46*	0.0787	*12.29*	0.0831	*12.81*	-0.0003	*-0.15*
ENERGY	0.1167	*8.29*	0.0972	*6.77*	0.1255	*8.98*	0.1099	*7.79*	-0.0117	*-2.12*
FINANCE	0.0859	*11.28*	0.0766	*10.24*	0.0880	*11.45*	0.0783	*10.77*	-0.0036	*-1.33*
HEALTH CARE	0.1185	*9.21*	0.1122	*10.31*	0.1264	*9.37*	0.1223	*10.91*	0.0020	*0.40*
PUBLIC UTILITIES	0.1172	*7.11*	0.1013	*6.36*	0.1333	*8.99*	0.1211	*7.98*	-0.0061	*-0.91*
TECHNOLOGY	0.0871	*11.20*	0.0837	*13.54*	0.0916	*11.85*	0.0902	*14.56*	0.0000	*0.01*
TRANSPORTATION	0.0934	*6.62*	0.1286	*8.74*	0.1021	*7.51*	0.1337	*9.56*	0.0069	*1.24*
R-square	0.20		0.23		0.27		0.30		0.11	
Equality of industry slope coefficients	3.17		3.75		3.11		4.36		1.37	
(p-value)	(0.00)		(0.00)		(0.00)		(0.00)		(0.19)	

Panel B: Positive value shocks

Dependent variable	*Current earnings*		*Forthcoming earnings*		*Current earnings country and time controls included*		*Forthcoming earnings, country and time controls included*		*Change in earnings, country and time controls included*	
	I		II		III		IV		V	
	Coefficient	*t stat*	*Coefficient*	*t stat*	*Coefficient*	t stat	*Coefficient*	t stat	*Coefficient*	*t stat*
BASIC INDUSTRIES	0.0063	*3.43*	0.0083	2.73	0.0063	*3.28*	0.0086	*2.78*	0.0045	*3.13*
CAPITAL GOODS	0.0130	*5.67*	0.0161	5.60	0.0122	*5.60*	0.0157	*5.62*	0.0066	*8.06*
CONSUMER DURABLES	0.0273	*1.82*	0.0262	1.93	0.0261	*1.84*	0.0263	*2.10*	0.0053	*3.06*
CONSUMER NON-DURABLES	0.0140	*4.72*	0.0195	7.49	0.0145	*5.19*	0.0207	*8.19*	0.0056	*7.78*
CONSUMER SERVICES	0.0078	*2.64*	0.0142	3.58	0.0084	*2.71*	0.0152	*3.67*	0.0064	*8.24*
ENERGY	0.0095	*1.31*	0.0087	1.20	0.0102	*1.41*	0.0094	*1.23*	0.0094	*4.29*
FINANCE	0.0095	*5.77*	0.0159	10.43	0.0098	*5.88*	0.0164	*9.89*	0.0065	*27.78*
HEALTH CARE	-0.0051	*-0.71*	0.0086	1.06	-0.0074	*-1.01*	0.0066	*0.82*	0.0055	*2.92*
PUBLIC UTILITIES	0.0044	*37.57*	-0.0010	-0.13	0.0046	*36.30*	-0.0037	*-0.44*	0.0073	*5.16*
TECHNOLOGY	0.0044	*3.54*	0.0091	5.05	0.0044	*3.51*	0.0091	*4.81*	0.0059	*13.76*
TRANSPORTATION	0.0204	*3.00*	0.0272	3.40	0.0198	*2.87*	0.0281	*3.58*	0.0026	*0.81*
R-square	0.09		0.15		0.16		0.21		0.21	
Equality of industry slope coefficients (p-value)	4.58 (0.00)		2.59 (0.00)		4.49 (0.00)		2.93 (0.00)		0.86 (0.57)	

The F-tests take into account the estimation of coefficient standard errors using a robust-cluster (firm level) procedure, the degrees of freedom being conditional on the number of firms rather than the number of firm-year observations.
Table 5.5. presents the estimates for the country-specific slope coefficient from the regressions described below.

:

Regression I: $$\frac{e_t}{P_{t-1}} = a_0 + \sum_{s=1}^{S} a_s I_s + \sum_{s=1}^{S} b_s I_s \frac{P_t - P_{t-1}}{P_{t-1}} + L_t + u$$

Regression II: $$\frac{e_{t+1}}{P_{t-1}} = a_1 + \sum_{s=1}^{S} a_s I_s + \sum_{s=1}^{S} b_s I_s \frac{P_t - P_{t-1}}{P_{t-1}} + L_t + u$$

Regression III: $$\frac{e_t}{P_{t-1}} = a_0 + \sum_{s=1}^{S} a_s I_s + \sum_{c=1}^{C} a_c K_c + \sum_{s=1}^{S} b_s I_s \frac{P_t - P_{t-1}}{P_{t-1}} + \sum_{t=1}^{T} a_t Y_t + L_t + u$$

Regression IV: $$\frac{e_{t+1}}{P_{t-1}} = a_1 + \sum_{s=1}^{S} a_s I_s + \sum_{c=1}^{C} a_c K_c + \sum_{s=1}^{S} b_s I_s \frac{P_t - P_{t-1}}{P_{t-1}} + \sum_{t=1}^{T} a_t Y_t + L_t + u$$

Regression V: $$\frac{e_{t+1} - e_t}{P_{t-1}} = a_2 + \sum_{s=1}^{S} a_s I_s + \sum_{c=1}^{C} a_c K_c + \sum_{s=1}^{S} b_s I_s \frac{P_t - P_{t-1}}{P_{t-1}} + \sum_{t=1}^{T} a_t Y_t + L_t + u$$

The Spearman correlations between the industry-specific coefficients under different earnings forecast horizons are presented in Table 5.6. In an analogy to the interpretation of the country-specific coefficients in Table 5.5, when the shift between the magnitude of the coefficients (estimated by a regression employing current earnings and the coefficients estimated by a regression employing one year ahead earnings as the dependent variable), affects the ranking of the industry-specific news recognition coefficients significantly, then it can be argued that there is cross-industry diversity with respect to the reversal of conservatism, that is, conservatism reverses faster in one industry than in another. However, note that in the context of the regressions (I) and (II), time or country effects can also determine the reversal of conservatism. A more robust test then, is to compare the rankings of industry-specific coefficients once the country and time effects have been accounted for. Reviewing the correlation estimates in Table 5.6 it can be seen that there are not significant changes in the industry-specific coefficients' rankings even after controlling for country and time effects.[49] Whereas industry effects can affect country rankings as demonstrated in Table 5.4, here it is seen that country effects are not significantly influential.

These findings concerning the prevalence of industry factors over country factors in the reversal of conservatism, along with evidence of a lack of country heterogeneity with respect to the recognition of negative value shocks (at least within the Eurozone area),

[49] However, it can still be observed that the correlation of positive shocks recognition weakens considerably after country and time effects (Spearman correlation between coefficients of I and II: 0.96, p-value<0.001; Spearman correlation between coefficients of III and IV: 0.61, p-value=0.05).

points towards relatively harmonised accounting as perceived by market participants. However, it should also be recognised that convergence and harmonisation are processes rather than events. In this respect, therefore, the cross-country tests in 5.2 are revisited in the following section in order to identify the trend in harmonisation and to assess the effect of integrating markets on the estimated coefficients.

Table 5.6
Spearman correlations
between industry-specific news recognition coefficients under different measures of earnings conservatism

Panel A: Negative shocks

	Current earnings (I)	*Forthcoming earnings* (II)	*Current earnings (country and time controls included)* (III)
Forthcoming earnings (II)	**0.89** **(0.00)**		
Current earnings (country and time controls included) (III)	0.97 (0.00)	0.83 (0.00)	
Forthcoming earnings (country and time controls included) (IV)	0.76 (0.01)	0.87 (0.00)	**0.77** **(0.01)**

Panel B: Positive shocks

	Current earnings (I)	*Forthcoming earnings* (II)	*Current earnings (country and time controls included)* (III)
Forthcoming earnings (II)	**0.96** **(0.00)**		
Current earnings (country and time controls included) (III)	0.99 (0.00)	0.94 (0.00)	
Forthcoming earnings (country and time controls included) (IV)	0.63 (0.04)	0.69 (0.02)	**0.61** **(0.05)**

Table 5.6 presents the Spearman correlations between estimates of industry-specific coefficients of news recognition as presented in Table 5.4. Coefficients with a *p-value* higher than 0.1 are set to zero.

5.8 Time sensitivity of the reversal of conservatism

The empirical estimates of country-specific news recognition provided so far are based on a pooled sample. In this sense, it is difficult to know whether there is a trend in cross-country harmonisation and what the effect of integrating markets on the estimates coefficients is. For instance, as markets and economies integrate, risk free rates should converge and country premia variation should lose importance, then after controlling for industry effects, country coefficients should become more similar.

In order to shed light on the above question, the regressions (III) and (IV) are conducted for three sub-periods (1994-1996; 1997-1999; 2000-2003).[50] There is particular interest in the second period as this covers the time when the more decisive efforts on economic convergence were pending (*e.g.* Euro adoption), and also in the third period when financial integration has started to take effect.

Table 5.7 presents the Wald test for the equality of country-specific coefficients across the three sub-periods. The first column considers all 16 European countries whereas the second column presents the estimates for a Wald test conducted on Eurozone member states only.

With regards to the recognition of negative shocks, despite the initial evidence of heterogeneity from the pooled regressions in Table 5.2, when European countries are

[50] Ideally, these tests would be repeated on an annual basis; however, the corresponding number of observations is not sufficient.

considered, the estimates in Table 5.7 show that this result is attributable to both the early and late sub-periods. On the other hand, heterogeneity is apparent within the Eurozone sub-sample only in the early period and, more specifically, only when current earnings is the dependent variable. Overall, there is substantial evidence of convergence of the recognition of negative shocks among the Eurozone member states, whereas this does not hold for the extended European sample, especially in the last years. A likely explanation for the contradicting results (Europe: heterogeneity - Eurozone: homogeneity) in the 2000-2003 period is the pronounced integration that took place within the Eurozone at that time. Such findings confirm the prior discussion on the need to take into account the underlying economics when cross-country comparisons are made in international accounting research.

On the contrary, and despite the convergence that has occurred, there is no evidence in any period for homogeneity in the recognition of good news, which suggests that accounting is perceived by market participants as yet to be fully harmonised.

Table 5.7
Country effects in shocks recognition within integrating markets

Panel A: Negative shocks

Current earnings on negative value shocks including controls (III)			Forthcoming earnings on negative value shocks including controls (IV)		
1994-1996	*Europe*	*Eurozone*	**1994-1996**	*Europe*	*Eurozone*
Equality of slope coefficients	3.19	2.18	*Equality of slope coefficients*	1.46	1.66
p-value	(0.00)	(0.00)	*p-value*	(0.11)	(0.09)
R-square	18.15		*R-square*	20.58	
Number of firms	1564		*Number of firms*	1581	
1997-1999			**1997-1999**		
Equality of slope coefficients	1.33	1.07	*Equality of slope coefficients*	0.91	0.77
p-value	(0.17)	(0.38)	*p-value*	(0.56)	(0.73)
R-square	23.65		*R-square*	26.88	
Number of firms	1423		*Number of firms*	1424	
2000-2003			**2000-2003**		
Equality of slope coefficients	2.68	1.53	*Equality of slope coefficients*	2.17	1.16
p-value	(0.00)	(0.12)	*p-value*	(0.01)	(0.32)
R-square	34.94		*R-square*	39.36	
Number of firms	1890		*Number of firms*	1914	

Panel B: Positive shocks

Current earnings on positive value shocks including controls (III)			Forthcoming earnings on positive value shocks including controls (IV)		
	Europe	*Eurozone*	**1994-1996**	*Europe*	*Eurozone*
Equality of slope			*Equality of slope*		
coefficients	6.39	8.24	*coefficients*	3.15	2.81
p-value	(0.00)	(0.00)	*p-value*	(0.00)	(0.00)
R-square	21.06		*R-square*	28.72	
Number of firms	1832		*Number of firms*	1851	
1997-1999			**1997-1999**		
Equality of slope			*Equality of slope*		
coefficients	5.01	2.90	*coefficients*	5.19	5.14
p-value	(0.00)	(0.00)	*p-value*	(0.00)	(0.00)
R-square	21.97		*R-square*	29.76	
Number of firms	1956		*Number of firms*	1963	
2000-2003			**2000-2003**		
Equality of slope			*Equality of slope*		
coefficients	2.33	2.79	*coefficients*	2.96	4.02
p-value	(0.00)	(0.00)	*p-value*	(0.00)	(0.00)
R-square	16.39		*R-square*	19.50	
Number of firms	1713		*Number of firms*	1751	

The table reports the Wald tests of equality of country-specific estimated response coefficients b_c controlling for industry effects, as well as the relevant R-square from the respective regressions.

5.9 Conclusion

The empirical evidence presented here considers not only current earnings conservatism but also its reversal, and it does so in an international setting. This new perspective refocuses attention from the asymmetric timeliness of earnings that is usually employed as a measure of conservatism. It now becomes clear that, when considering accounting diversity in terms of conservatism, one should explore the timing of the recognition of positive shocks rather than of negative shocks. Accounting recognition of negative shocks is almost unbiased and, especially within integrated markets, it does not contribute to accounting diversity. On the other hand, the recognition of positive shocks does not converge across countries in any of the cases examined here. The evidence demonstrates how accounting systems can be characterised as either "slow" or "fast" in their recognition of positive news, instead of the widely used notion of either more or less conservative.

The Pricing of Earnings and the Reversal of Conservatism

6.1 Introduction

Accounting diversity may entail information barriers, which create an impediment to further capital markets integration. For instance, information disadvantages to foreign investors will result in less foreign investment (Gordon and Bovenbeg, 1996) whereas information advantages to domestic investors will lead to a home bias in investing attitudes (Gehrig, 1996). In this study, accounting diversity is considered as one such information barrier, which is assumed to cause a lack of comparability in accounting based market multiples that are widely used to support decision making in a number of different circumstances (*e.g.*, the reports and recommendations of sell side analysts, investment bankers' fairness opinions, initial public offerings, seasonal equity offerings, buyout transactions and other merger and acquisition activities - Bhojraj, Lee and Ng, 2003).

The previous chapter demonstrated that the main source of accounting diversity lies in the timing of recognition of positive value shocks. Taking into account the framework developed in Chapter 1, which describes how the deferred recognition of positive value shocks determines expected earnings and expected earnings growth, this chapter examines whether market participants can see through accounting diversity when pricing earnings.

More particularly, this study examines three different measures of earnings pricing, which incorporate different information on the reversal of conservatism in the form of expected earnings growth beyond $t+1$, and assesses whether and when country and industry effects persist in valuations.

6.2 Accounting diversity and expected earnings growth

The reformulation of (1.13) to incorporate industry and country effects leads to the following model, which was presented earlier in (4.6):

$$\frac{e_{t+1}}{P_t} = r - \frac{[\lambda_1 E_{t-1} + \theta_1 \varepsilon_t^+ - \gamma_1 \varepsilon_t^-]}{P_t} =$$
$$r - \frac{\left[\lambda_{1,c} E_{t-1} + \theta_{1,c} \varepsilon_t^+ - \gamma_{1,c} \varepsilon_t^-\right]}{P_t} - \frac{\left[\lambda_{1,s} E_{t-1} + \theta_{1,s} \varepsilon_t^+ - \gamma_{1,s} \varepsilon_t^-\right]}{P_t}$$

This suggests that earnings multiples could become more comparable across integrated countries and within the same industry once the variation in the country component of news recognition (λ_c, θ_c, γ_c) is mitigated.

The findings in the previous chapter show that there is significant evidence for the presence of country-specific variation in the recognition of economic gains (but not losses) in one year ahead forecasted earnings, even within integrating markets.[51] Equation (4.6) therefore suggests that it is very likely that there will also be cross-country variation in the earnings multiple in any examined period. The subsequent

[51] Chapter 5 examines the country components in $\theta_{1,c}$, $\gamma_{1,c}$ but not in $\lambda_{1,c}$. If conservatism reverses within the medium term (as previous research suggests e.g. Pope and Walker, 1999) then the influence of $\lambda_{1,c}$ should not considerably affect the results reported here.

question that arises then is whether country effects persist in the valuation of earnings even after incorporating information on the reversal of conservatism beyond t+1.

It has already been shown that the portion of shocks to be recognised beyond t+1, $\lambda_1 E_{t-1} + \theta_1 \varepsilon_t^+ - \gamma_1 \varepsilon_t^-$ is equivalent to the expected growth in abnormal earnings $\frac{e_{t+2} - e_{t+1} - r(e_{t+1} - d_{t+1})}{(r-g)}$ in (1.15) where $e_{t+2} - e_{t+1} - r(e_{t+1} - d_t)$ represents abnormal earnings (that is, the surplus over the normal earnings expected from the reinvestment of the previous period's earnings) and g is an expression for the long term growth in abnormal earnings.

The expected growth in abnormal earnings $\frac{e_{t+2} - e_{t+1} - r(e_{t+1} - d_{t+1})}{(r-g)}$ introduces two expected earnings growth parameters. The first one is the dividend irrelevant short term earnings growth from t+1 to t+2 (abnormal earnings) and the second is the long term growth of abnormal earnings g. It can be shown that the long term growth of abnormal earnings g defines also the assumption of the long term growth in earnings.[52] Here, two special cases are examined. It is assumed that either abnormal earnings remain constant (and earnings growth reverts to zero under an asymptotic dividend policy that

[52] As Ohlson and Juettner (2005) show, setting an abnormal earnings growth g in the abnormal earnings growth model, implies that the short term growth earnings growth reverts towards this rate g in the long term, or $e_{t+1}/e_t \to 1+g, as\ t \to \infty$ given a sufficiently generous asymptotic dividend policy. In other words, the parameter g defines also the rate of decay of the short term growth in earnings. Thus, taking into account the equation (4.6) short-term growth in earnings together with different assumptions for g reflect different assumptions for the reversal of conservatism i.e., the parameters λ_1, θ_1, γ_1.

is sufficiently generous) or that abnormal earnings grow at a rate g (and long term earnings growth reverts to this rate g).

Consistently, the present empirical study considers three measures of earnings pricing. The first is the forward earnings multiple (*i.e.*, one year ahead forecasted earnings divided by current price) which, under conditions of unbiased accounting (*i.e.*, $\lambda_1= \theta_1= \gamma_1=0$, in equation 4.6) would provide a good estimate of the cost of capital. It is shown already in this thesis that one year ahead earnings incorporates, to some extent, information on the reversal of conservatism. In the same vein, Liu, Nissim and Thomas (2005) find that valuations based on the forward earnings multiple measure outperform valuations based on the current earnings multiple or the cash flow multiple, even in an international setting.

The second measure is also a form of the rate of return implied by earnings expectations which attempts to remedy the bias in the forward earnings multiple by assuming that the abnormal earnings remain constant, *i.e.*, setting g=0 in (1.15). That is,

$$\lambda_1 E_{t-1} + \theta_1 \varepsilon_t^+ - \gamma_1 \varepsilon_t^- = \frac{e_{t+2} - e_{t+1} - r(e_{t+1} - d_{t+1})}{r} \tag{6.1}$$

In this case, the relevant implied rate of return is r_{peg}:

$$r_{peg} = \left(\frac{d_{t+1}}{P_t}\right)\Big/2 + \sqrt{\left(\frac{d_{t+1}}{P_t}\right)^2\Big/4 + \frac{e_{t+2} - e_{t+1}}{P_t}} \tag{6.2}$$

Easton (2004) notes that this measure relies heavily on the PEG ratio, which is extensively employed by professionals along with the forward earnings multiple. Botosan and Plumlee (2005) also find that a related measure of implied expected returns is superior to other forms of implied rate of return (mostly based on the residual income model) as it correlates reasonably with risk proxies.[53]

Finally, if one assumes that abnormal earnings at t+2 grow at a rate g, then a measure of implied rate of return which attempts to remedy the conservatism bias in the forward earnings multiple by assuming that the abnormal earnings grow at a rate g can be defined as

$$r_{oj} = A + \sqrt{A^2 + \frac{e_{t+2} - e_{t+1}}{P_t} - \frac{e_{t+1}}{P_t} g}$$

where (6.3)

$$A = \frac{\left[d_{t+1} / P_t + g \right]}{2}$$

This measure of implied rate of return is commonly referred to as the Ohlson Juettner (2005) model.

6.3 Research Design

The empirical tests here examine the relative importance of country and industry effects in the three alternative forms of earnings pricing described above. Evidence on the

[53] Note though that the Botosan and Plumlee (2005) measure, instead of the short term growth e_{t+2} -e_{t+1} employs a proxy for the medium term growth in earnings. This approach is consistent with a full reversal of conservatism in the medium term; this approach however, would compromise considerably the representation of smaller firms and those from smaller markets.

above is provided by tests of the joint significance of industry effects, or the joint significance of country effects, through the following regression:

$$\text{Earnings pricing}\,(EP, r_{peg}, r_{oj}) = \alpha_0 + \sum_{s=1}^{S} a_s I_s + \sum_{c=1}^{C} a_c K_c + \sum_{t=1}^{T} a_t Y_t + L_t + rf + u_t \quad (6.4)$$

where:

a_s,a_c, a_t represent the fixed component of each industry s, country c and year t effect;

I_s,K_c, Y_t are dummy variables that are equal to 1 if the firm belongs to industry s, country c and year t respectively and zero otherwise;

L_t is the natural log of market capitalisation in US dollars as a control variable for size effects, and

rf for the risk free (*i.e.*, 10 year government bond yield) rate for each country and year.

Based on the results reported in the previous chapter, there is significant evidence on country variation in the recognition of positive value shocks even in one year ahead earnings in any period or sample examined. Thus, it is expected that country effects would remain significant in the forward earnings multiple as well. As country effects in the forward earnings yield are likely to stem mostly from the conservative bias introduced by the deferred recognition of good news, equation (1.15) suggests that once information on earnings growth (which captures the deferred recognition of good news after t+1) is introduced to the valuation model, the corresponding implied rate of return should reflect more reasonably the underlying economics, *i.e.*, no country effects in

integrating markets. As shown above, the earnings growth information refers to a dividend-irrelevant earnings growth quantity referred to as abnormal earnings which is assumed to either remain constant (in r_{peg}) or grow at an economy-wide rate g (in r_{oj}).

If these implied rates of return are reasonably reflecting the underlying economics, industry effects are nevertheless expected to be significant in any case and more so under integrated markets since different industries are likely to bear different risk premia.[54]

Land and Lang (2003) also compare trailing earnings multiples in testing for international convergence.[55] However, not only is their approach purely an empirical exercise without an adequate theoretical background to support the predicted outcomes, it is also limited to the examination of current reported earnings, focusing on their cash flow and accruals components. The present approach draws instead upon a valuation framework which incorporates the implications of accounting conservatism for the way in which market participants form earnings expectations and thus offers an informed prediction of the empirical outcomes.

[54] Note that the focus of this exercise is not on conducting a comparison of the validity among these earnings pricing indicators as proxies for the cost of equity capital employing a large number of potential risk factors. Note also that constructs of implied rates of return based on either the residual income model or the dividend growth model are not employed here as they involve other parameters without contributing to shedding light on the reversal of conservatism by means of earnings expectations. As already pointed out in Chapter 1, the residual income and the dividend growth model are just different versions of the earnings growth model employed here. Whereas it is feasible to describe the reversal of conservatism within the context of these models, this is an exercise that is beyond the scope of this thesis.

[55] Note also that Land and Lang(2003) examine a set of countries whose underlying economics are not similar. Therefore their evidence is compromised.

6.4 Data

Similarly to Chapter 5, the sample consists of firms reporting under their local GAAP, originating from 12 member states that adopted the Euro (Austria, Belgium, Finland, France, Germany, Greece, Italy, Ireland, Netherlands, Portugal and Spain) as well as the UK, Switzerland, Norway and Denmark. The period examined in the study comprises the years from 1994 to 2003, and the sample includes both active firms at the census date and inactive firms that ceased operations during the period. It should be noted that, before 1994, coverage of analysts' forecasts for these markets was not representative, especially with respect to Ireland and Greece.

Annual data on market capitalisation and the dividend payout ratio are drawn from the Worldscope database in Thomson Financials. The dividend payout ratio is averaged over the three years prior to the relevant point estimates. The sample is restricted to firms that report with a December year end. At the end of December, the current forecast is for the accounting year ending on that date. The model requires earnings forecasts for the year following the current forecast and for the year after that. For these predictions of forthcoming earnings, the median of December forecasts is employed for each of the two accounting years ending 12 months and 24 months later. Appropriate controls have been taken to ensure that the forecasts satisfy the 12 and 24 months year end. Furthermore, firms whose one year ahead earnings forecast and growth is negative are excluded since it is possible neither to reinvest negative earnings nor to perpetuate

negative earnings growth.[56] Furthermore, besides the earnings forecasts and current price, an assumption concerning the long term growth in abnormal earnings g is required for the estimate of r_{oj}. Although there is no consensus for a suitable proxy for this variable, Ohlson and Juettner (2005) suggest that g represents an economy wide growth rate and shows that, in the long term, g tends to the long term growth in earnings.[57] However, when the conservatism bias has reversed, (cum-dividend) earnings are likely to behave like unbiased earnings from a savings account, *i.e.* growing at the risk free rate. It is therefore assumed that the asymptotic growth rate in earnings is the risk free rate (note that in the long term firms are liquidated). The variable employed here for the risk free rate is the yield of 10-year government bonds as collected from OECD. Note also that the spread between the short and long term government bond rates is determined by expectations of GDP growth and inflation, making the long term bond rate a more suitable input in valuation models.

For the primary analysis, these specifications yielded the cost of capital for 6954 firm year observations that are designated by Worldscope as reporting under local GAAP. Descriptive statistics on the earnings multiple, the risk free rate and the three measures of implied expected returns EP, r_{peg} and r_{oj} are presented in Table 6.1, Panels 1, 2 and 3 correspondingly. Note that this is merely descriptive evidence and cannot assist us in drawing conclusions on cross-country and industry variation. For example, the country

[56] A potential remedy to this limitation is to replace the short growth in earnings with the average growth in the medium term. This strategy however would compromise considerably the representation of smaller firms and those from smaller markets.

[57] Gode and Monahan(2004) employ the risk free minus an assumption of the average real GDP growth in the US, *i.e.*, 3% and Leuz and Hail (2004) use inflation rates for their applications of the Ohlson Juettner(2005) model.

medians are determined on the mix of industries included in this country and the corresponding representation of firms through time. Perhaps the more obvious feature of the data in Table 6.1 are the differences in the magnitude of the estimates, with the forward earnings multiple EP being the lowest and r_{oj} being the higher.

The average risk free rates are also presented in Panel A of Table 6.1. Note that, if a possible range for the risk premium lies between 5% and 8%, which is appropriate for the period examined, then the present estimates appear to be reasonable.

Table 6.1
Descriptive statistics

Panel A: Median *EP*, r_{peg}, and r_{oj} by country

	Number of observations	*EP*	r_{peg}	r_{oj}	*rf*
AUSTRIA	157	0.0680	0.1232	0.1342	0.0586
BELGIUM	431	0.0703	0.1214	0.1350	0.0528
DENMARK	480	0.0737	0.1198	0.1315	0.0550
FINLAND	584	0.0682	0.1351	0.1480	0.0514
FRANCE	1855	0.0649	0.1174	0.1324	0.0504
GERMANY	826	0.0548	0.1103	0.1282	0.0520
GREECE	300	0.0585	0.1248	0.1490	0.0595
IRELAND	99	0.0847	0.1207	0.1282	0.0507
ITALY	860	0.0574	0.1171	0.1359	0.0530
NETHERLANDS	950	0.0885	0.1198	0.1262	0.0528
NORWAY	541	0.0713	0.1389	0.1550	0.0601
PORTUGAL	228	0.0624	0.1208	0.1357	0.0528
SPAIN	664	0.0733	0.1178	0.1336	0.0520
SWEDEN	931	0.0605	0.1190	0.1373	0.0524
SWIZERLAND	368	0.0648	0.1103	0.1193	0.0355
UNITED KINGDOM	2121	0.0748	0.1166	0.1309	0.0539

Panel B:. Median *EP*, r_{peg}, and r_{oj} by industry

	Number of observations	*EP*	r_{peg}	r_{oj}
BASIC INDUSTRIES	1057	0.0812	0.1405	0.1547
CAPITAL GOODS	2619	0.0779	0.1253	0.1382
CONSUMER DURABLES	300	0.0919	0.1375	0.1501
CONSUMER NON-DURABLES	1081	0.0733	0.1162	0.1283
CONSUMER SERVICES	1995	0.0595	0.1106	0.1269
ENERGY	313	0.0701	0.1278	0.1440
FINANCE	2021	0.0671	0.1096	0.1238
HEALTH CARE	426	0.0501	0.0992	0.1156
PUBLIC UTILITIES	343	0.0521	0.0969	0.1158
TECHNOLOGY	822	0.0473	0.1291	0.1462
TRANSPORTATION	418	0.0767	0.1361	0.1500

Panel C: Median *EP*, r_{peg}, and r_{oj} by year

	Number of observations	*EP*	r_{peg}	r_{oj}
1994	870	0.0678	0.1310	0.1580
1995	977	0.0769	0.1265	0.1462
1996	1172	0.0659	0.1135	0.1303
1997	1305	0.0614	0.1072	0.1221
1998	1349	0.0647	0.1104	0.1191
1999	1203	0.0632	0.1073	0.1197
2000	1278	0.0679	0.1184	0.1309
2001	1149	0.0708	0.1279	0.1392
2002	1063	0.0862	0.1451	0.1564
2003	1029	0.0670	0.1186	0.1307

6.5 Country and industry effects within integrating markets

The first set of tests examines the sector and country effects in earnings pricing. These tests are conducted separately for the sub-periods 1994-1996, 1997-1999 and 2000-2003, as in Chapter 5. This is in order to capture any time variation that could be attributed to the increased integration of European financial markets, particularly the partial integration stemming from the introduction of a common currency in those member-states involved.

It is expected that the sector effect would contribute most to the variation in earnings pricing and that the country effect would add relatively little explanatory power over and above the sector effect. Thus, in fitting the model, industry effects a_s are introduced first and then country effects a_c are added. The extent to which the introduction of country effects contribute to the variation of the earnings pricing indicators as indicated by the incremental *R*-square (*i.e.* the difference in *R*-squares before and after the addition of country effects) varies across time periods and the dependent variable employed. According to Table 6.2, country effects contribute 6%, 7% and 4% of the total variation of the forward earnings multiple in the respective sub-periods (1994-1996, 1997-1999 and 2000-2003). With regard to both r_{peg} and r_{oj}, the incremental *R*-square is of a lower magnitude that declines monotonically from 3% to 2% and 1% in the respective sub-periods. The lower magnitude of the incremental *R*-squares under r_{peg} and r_{oj} can be explained by the country-specific variation in shock recognition, which is characterised by less variation at time t+2 as conservatism reverses.

Table 6.2
***R*-squares**
from the regression of *EP*, r_{peg} and r_{oj} on industry, country and time effects

Panel A: *EP*

	R^2 (industry, county and time effects)	*Incremental R^2 from adding country effects*
1994-1996	0.14	0.06
1997-1999	0.27	0.07
2000-2003	0.20	0.04

Panel B.:r_{peg}

	R^2 (industry,county and time effects)	*Incremental R^2 from adding country effects*
1994-1996	0.21	0.03
1997-1999	0.24	0.02
2000-2003	0.24	0.01

Panel C:r_{oj}

	R^2 (industry, county and time effects)	*Incremental R^2 from adding country effects*
1994-1996	0.24	0.03
1997-1999	0.21	0.02
2000-2003	0.22	0.01

The above adjusted *R*-squares are estimated based on the regression (6.4)

$$\text{Earnings pricing}\,(EP, r_{peg}, r_{oj}) = \alpha_0 + \sum_{s=1}^{S} a_s I_s + \sum_{c=1}^{C} a_c K_c + \sum_{t=1}^{T} a_t Y_t + L_t + rf + u$$

The importance of country effects is evaluated by means of a Wald test in Table 6.3, based on the full definition of (6.4). Country variation remains significant when examined in the context of the 16 European countries under all three earnings pricing specifications. On the other hand, when the Wald test is applied to the Eurozone member states, it becomes evident that within integrated markets (*i.e.*, during the 2000-2003 sub-period) country effects in r_{peg} and r_{oj} cease to be significant (*p-values*: 0.51 and 0.41 respectively) whereas the country variation in the forward earnings multiple remains significant in the same sub-sample. Moreover, there is weak evidence on country heterogeneity among the Eurozone member states with respect to r_{peg} (*p-value*: 0.06), even in the 1997-1999 sub-period. Note that international finance studies find that capital markets started exhibiting indications of integration around this time as well (see Chapter 4). On the other hand, as predicted, industry effects are not expected to dissipate as well. Indeed, as Table 6.4 shows, there is no evidence of convergence in any of the periods examined, which is consistent with different industry-specific premia.

The empirical evidence presented in Chapter 5 and in this section concurs in that once conservative bias has reversed, country effects in earnings and in earnings pricing become insignificant in integrating markets. Chapter 5 has already shown that this is happening with respect to the recognition of negative shocks in one year ahead earnings during the 1997-2000 and 2001-2003 sub-periods.[58] In this section, adopting a different

[58] It has already been discussed that on average, negative shocks are fully recognised in one year ahead expected earnings.

approach, it is shown that once the conservatism bias in one year ahead earnings is compensated by means of the expected abnormal earnings growth, we obtain earnings pricing indicators which do not exhibit any country effects in integrating markets. [59] Overall, the evidence above supports the argument developed earlier in the thesis that the problem arising from accounting diversity lies not on whether accounting systems or practices are *more or less conservative* but whether they are *slower or faster*.

Further tests in the next chapter (which summarises and interpolates the evidence from Chapter 5 and Chapter 6) discuss this argument further showing that country effects are more likely to dissipate within industries that are "fast" in recognising positive value shocks than within industries that are "slow".

[59] On the other hand, in contrast to the country effects, note that industry effects remain significant in the recognition of negative shocks even in one year ahead earnings (see Table 5.5, Panel A). Similarly, there is consistent evidence of significant industry variation in the r_{peg} and r_{oj} estimates (see Table 6.4) through all sub-periods examined. These results are most likely being driven by significant variation in the industry-specific risk premia

Table 6.3
Tests of significance of country effects
in the regression of *EP*, r_{peg} , and r_{oj} on industry, country and time effects

Panel A: *EP*

	Europe		*Eurozone*	
	F-statistic	*p-value*	*F-statistic*	*p-value*
1994-1996	9.89	0.00	13.17	0.00
1997-1999	16.39	0.00	10.72	0.00
2000-2003	9.71	0.00	9.78	0.00

Panel B: r_{peg}

	Europe		*Eurozone*	
	F-statistic	*p-value*	*F-statistic*	*p-value*
1994-1996	4.89	0.00	5.06	0.00
1997-1999	4.07	0.00	1.80	0.06
2000-2003	3.30	0.00	0.92	0.51

Panel C: r_{oj}

	Europe		*Eurozone*	
	F-statistic	*p-value*	*F-statistic*	*p-value*
1994-1996	5.59	0.00	5.59	0.00
1997-1999	3.65	0.00	2.58	0.00
2000-2003	2.91	0.00	1.04	0.41

The above F-statistics are estimated by means of Wald tests on country coefficients a_c based on the regression (6.4) in its full definition:

$$\text{Earnings pricing}\,(EP, r_{peg}, r_{oj}) = \alpha_0 + \sum_{s=1}^{S} a_s I_s + \sum_{c=1}^{C} a_c K_c + \sum_{t=1}^{T} a_t Y_t + L_t + rf + u$$

Due to considerable correlation of the earnings pricing indicators within the same firm in this pooled sample, a robust procedure that takes into account these "clusters" of firms is applied.

Table 6.4
Tests of significance of industry effects
in the regression of *EP*, r_{peg} , r_{mpeg} and r_{oj} on industry, country and time effects

Panel A: *EP*

	F-statistic	*p-value*
1994-1996	10.18	0.00
1997-1999	10.18	0.00
2000-2003	32.15	0.00

Panel B: r_{peg}

	F-statistic)	*p-value*
1994-1996	31.01	0.00
1997-1999	11.20	0.00
2000-2003	15.51	0.00

Panel C: r_{oj}

	F-statistic	*p-value*
1994-1996	7.40	0.00
1997-1999	9.81	0.00
2000-2003	11.63	0.00

The above F-statistics are estimated by means of Wald tests on industry-specific coefficients a_s based on the regression (6.4) in its full definition:

$$\text{Earnings pricing}\,(EP, r_{peg}, r_{oj}) = \alpha_0 + \sum_{s=1}^{S} a_s I_s + \sum_{c=1}^{C} a_c K_c + \sum_{t=1}^{T} a_t Y_t + L_t + rf + u$$

Due to considerable correlation of the earnings pricing indicators within the same firm in this pooled sample, a robust procedure that takes into account these "clusters" of firms is applied.

6.6 Conclusion and implications

The present chapter is motivated by the initial finding in this thesis that accounting diversity is driven mainly by the recognition of positive value shocks in current and expected earnings, as demonstrated in Chapter 5. The tests presented in Chapter 6 have evaluated country effects using various earnings pricing constructs. It is argued that country effects in earnings pricing are attributed either to country effects in the risk free rate and country-specific risk premia or to accounting diversity arising from different rates of recognition of positive value shocks. The results demonstrate that capital market integration within the Eurozone is reflected in the convergence of country effects in the earnings pricing indicators examined, despite the accounting diversity detected in Chapter 5.

The tests reported here do not reveal whether these results are attributable to clusters of firms where information barriers set by accounting diversity are less influential. It might be argued that the longer it takes for conservatism to reverse, the higher the information barriers are. Thus, if the operating circumstances of the firm define the reversal of conservatism (as shown in Chapter 5), then the results reported here might not hold throughout in a uniform manner, with country effects being persistent within industries that prescribe longer cycles of conservatism reversal. This question is examined further in the following chapter.

Synthesis of Findings and Conclusion

7.1 Synthesis

The present chapter combines the findings from Chapter 5 and Chapter 6, attempting to assess how the speed of news recognition in earnings, as estimated in Chapter 5, affects earnings pricing as analysed in Chapter 6, given the prevalent conditions of market integration that were discussed in Chapter 4. Here it is hypothesised that the longer it takes conservatism to reverse with respect to recognition of positive news, the more likely it is that the examined earnings pricing indicators will exhibit country effects; if so, then information barriers might arise due to the additional effort needed to understand the implications of conservatism reversal. Based on the industry-specific estimates of news recognition reported in Chapter 5, a final test is conducted to assess whether country effects persist in earnings pricing within clusters of industries characterised by different speeds of news recognition.

As pointed out, all news recognition coefficients are a function of the cost of capital; in order to eliminate this parameter from the assessment of the rate of news recognition, each industry slope coefficient for positive value shocks is divided by the respective slope coefficient for negative value shocks. [60] It has already been made clear that negative value shocks are most likely fully recognised in one year ahead earnings and therefore this ratio effectively provides a standardized measure of the percentage of recognition of positive value shocks.

[60] A similar measure is also employed by Francis *et al.*(2004) in order to measure the association between the cost of equity capital and earnings attributes such as conservatism.

The next step is to rank these measures of the percentage of positive news that is recognised and form groups based on this indication. Table 7.1 provides the details of this procedure. A cluster analysis suggests the existence of three groups; the first group "Slow" is characterised by low recognition of positive shocks, comprising industries such as Health Care and Public Utilities with extended operating cylces. [61] This is in contrast to the third group 'Fast' that is characterised by much speedier recognition of positive shocks. The remaining industries are classified as "Average".

In a fashion similar to Chapter 6, country effects are assessed within the three groups for the period when there is an acknowledged degree of capital market integration in the Eurozone at least. Although it might have been consistent to test country effects as in the previous chapters through the three periods 1994-1996, 1997-1999 and 2000-2003, there are anyway insufficient firm-year observations in these clusters, and therefore the period from 1998 onwards was chosen based on the indications provided by Tsatsaronis and Galati (2001, see graph 4.1) and Hardouvelis, Priestley and Malliaropoulos (2001, see graph 4.2).

Table 7.2 reports summary descriptive statistics for three earnings pricing indicators. It can be seen that industries with "Fast" recognition of positive value shocks are systematically characterised by higher EP, r_{peg} and r_{oj} than "Slow" industries.

[61] Cluster analysis (k-means) is an iterative procedure that partitions the data into k clusters minimizing the variability within clusters and maximizing the variability between clusters.

Moreover, the differences are always significant (t-statistics for EP, r_{peg} and r_{oj} are respectively 10.40, 5.07 and 3.58).

Table 7.1
Classification of industries based on the recognition of positive value shocks

Group	*Industry*	*Negative shocks coefficient*	*Positive shocks coefficient*	*Ratio*
Slow	ENERGY	0.1099	0.0000	0.0000
Slow	HEALTH CARE	0.1223	0.0000	0.0000
Slow	PUBLIC UTILITIES	0.1211	0.0000	0.0000
Average	BASIC INDUSTRIES	0.0857	0.0086	0.1004
Average	TECHNOLOGY	0.0902	0.0091	0.1009
Average	CONSUMER SERVICES	0.0831	0.0152	0.1829
Fast	CAPITAL GOODS	0.0800	0.0157	0.1963
Fast	FINANCE	0.0783	0.0164	0.2095
Fast	TRANSPORTATION	0.1337	0.0281	0.2102
Fast	CONSUMER DURABLES	0.0830	0.0263	0.3169
Fast	CONSUMER NON-DURABLES	0.0614	0.0207	0.3371

The reported coefficients here are drawn from table 5.5, regression IV (one year ahead scaled earnings on scaled value shocks, controlling for time and country effects). The characterisations "Slow", "Average" and "Fast" are based on a cluster analysis of the ratio of positive on negative shocks coefficients.[62] Coefficients with a t-statistic less than 1.96 are set to zero.

[62] More specifically, cluster analysis defines groups by minimising the variability within the group and maximising the variability among groups.

Table 7.2

Descriptive statistics

Panel A: *EP*

	Mean	*Median*	*St.Dev.*	*Number of obs.*
Slow	0.0620	0.0530	0.0445	662
Average	0.0702	0.0604	0.0512	2548
Fast	0.0864	0.0771	0.0575	3861

Panel B: r_{peg}

	Mean	*Median*	*St.Dev.*
Slow	0.1211	0.1080	0.0618
Average	0.1403	0.1229	0.0741
Fast	0.1353	0.1209	0.0673

Panel C: r_{oj}

	Mean	*Median*	*St.Dev.*
Slow	0.1357	0.1207	0.0621
Average	0.1545	0.1366	0.0747
Fast	0.1458	0.1309	0.0681

Table 7.3 presents the *F*-statistics and the corresponding *p-values* from the Wald tests for country effects across the three clusters; similar to Chapter 6, the Wald tests are conducted on the 16 European countries and also on the sub-set of 11 Eurozone member states. As mentioned above, the examined period now covers the years 1998 to 2003. Consistent with the findings in Chapter 6, there is no evidence of country effects when the Eurozone is considered, when the dependent variable is either r_{peg} or r_{oj} (*p-values* : 0.70 and 0.29 respectively). Nevertheless, it now becomes clear that this result is driven by industries that are not characterised as "Slow" in their recognition of value shocks. Consistent with accounting diversity being an information barrier when it postpones the recognition of positive shocks, it can be see in Table 7.3 that country effects are persistently significant under any specification within the "Slow" industries cluster.

Such a finding could be of potential interest to standard setters who are involved in enabling accounting harmonisation. Indeed, recent developments within the context of the FASB–IASB common project, which put the emphasis on the principle of neutrality instead of conservatism, may manage to tackle this issue by reducing the length of the reversal of conservatism. Further discussion of the implications of the empirical evidence follow in the final section of this thesis.

Table 7.3
Country effects in earnings pricing according to recognition of positive shocks

Panel A. *EP*

	Europe		*Eurozone*		
	F-stat	*p-value*	*F-stat*	*p-value*	*R-square*
All	11.52	<0.01	12.11	<0.01	0.22
Slow	3.79	<0.01	3.95	<0.01	0.27
Average	5.40	<0.01	5.83	<0.01	0.27
Fast	7.16	<0.01	6.98	<0.01	0.17

Panel B r_{peg}

	Europe		*Eurozone*		
	F-stat	*p-value*	*F-stat*	*p-value*	*R-square*
All	2.70	<0.01	0.72	0.70	0.23
Slow	5.30	<0.01	7.57	<0.01	0.36
Average	2.14	0.01	0.87	0.56	0.28
Fast	2.14	0.01	1.21	0.28	0.20

Panel C r_{oj}

	Europe		*Eurozone*		
	F-stat	*p-value*	*F-stat*	*p-value*	*R-square*
All	2.53	<0.01	1.20	0.29	0.21
Slow	6.12	<0.01	8.70	<0.01	0.33
Average	1.94	0.02	0.88	0.55	0.25
Fast	2.14	0.01	1.73	0.07	0.18

The country effects here are estimated based on the regression (6.4) and the respective *F*-statistics are estimated taking into account the fact that observations within the same firm are not independent.

7.2 Summary, implications and conclusion

This thesis examines the implications of cross-country variation on the way market participants form their earnings expectations and price earnings based on a theoretical model that links earnings conservatism with expected earnings growth, as developed in Chapter 1. In contrast to the mainstream literature, which examines reported earnings in order to evaluate properties of accounting standards, as shown in Chapter 2, the approach in this thesis focuses on how market participants (*i.e.*, analysts) perceive accounting standards given that analysts restate reported earnings in order to extract what they consider as core earnings. Chapter 3 discusses why analysts' forecasts are here assumed to be a reasonable proxy for market participants' earnings expectations. The main property that is required here is their rationality and not their accuracy, as perfect foresight is not assumed.

Chapter 4 reviews recent developments in international accounting research and concludes that researchers have considered institutional factors as the main drivers of cross-country variation in accounting, thus ignoring the basic economics that shape not only accounting numbers but also their future expected values and their pricing. Hence, the models discussed in Chapter 1 have been revisited in order to accommodate cross-country effects whilst also taking into account economic determinants such as the operating circumstances of the firm, proxied here by industry effects, and the effects of capital market integration. This particular approach is supported by evidence from

international finance research concerning the prevalence of industry effects over country effects in pricing mechanisms within the integrating markets of the Eurozone.

Thus the approach to examining accounting diversity in this thesis goes beyond the mainstream trend of comparing countries in terms of the asymmetric recognition of positive and negative value current shocks in current earnings. Indeed, the evidence provided in Chapter 5 makes it clear that the recognition of negative shocks must be a limited source of cross-country variation as the respective conservatism reverses in the short term and thus is less likely to affect earnings pricing. On the other hand, the further tests reported in Chapter 5 indicate significant cross-country variation with respect to the recognition of positive value shocks in both current and one year ahead forecasted earnings. These findings show how an examination of conservatism within a multi-period framework enables the identification of the deferred recognition of good news as the main driver of accounting diversity.[63] Consistently, Chapter 6 shows that valuations based on one year ahead forecasted earnings in the form of the forward earnings multiple exhibit significant country effects, and do so in each sub-period examined. On the other hand, when evaluating country effects in pricing that takes into account at least two years ahead earnings growth, it is shown that, in the case of Eurozone member states after 2000, there is no evidence of significant country effects.

[63] Recent research has just started considering a multi-period approach to earnings conservatism motivated by the examination between the ex-ante and ex-post conservatism. This thesis does not consider ex-ante and ex-post conservatism and the book to market variable that nevertheless is widely used as a measure of conservatism. Roychowdury and Watts (2005) point out that considering earnings conservatism in a multi-period setting is a more informed approach than employing the book to market ratio. Nevertheless, further research could draw upon the forthcoming progress and develop the current theoretical framework.

This result is consistent with the degree of capital market integration in the single currency area at that particular time. Nevertheless, as the supplementary evidence in Chapter 7 shows, country effects may also be evident even within integrated markets when accounting rules are "Slow" to recognise positive shocks. Such findings suggest that, in order to enhance accounting comparability, accounting standard setters may consider focusing on the elimination of conservative practices that delay considerably the recognition of positive value shocks. In fact, the most recent developments on the standard setting front with respect to accounting harmonisation de-emphasise conservatism in favour of neutrality.[64] Interpreting this pronouncement within the context of the present thesis, if accounting becomes less conservative, then market participants would devote less effort to incorporating the reversal of conservatism into earnings expectations, and simple earnings pricing indicators such as the forward earnings multiple or the PEG ratio (or r_{peg}) would be more comparable across accounting systems.

Whereas the main aim of this thesis is to formulate a theoretical approach to accounting diversity based on how market participants perceive such cross-country variation, and to provide supporting empirical evidence, further research is now needed that builds upon this framework in order to assess the economic consequences arising from differences in the speed of the reversal of accounting conservatism.

[64] see the FASB pronouncement within the common IASB-FASB project on the determination of the conceptual framework, 27 July 2005, "Qualitative Characteristics of Accounting Information"

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Appendix
Institutional and legal variables in international accounting research

Variable and international accounting studies in which employed	Description	Data source or first usage
Debt-Asset Ratio (AH)	Median debt-asset ratio of a country less the median debt-asset ratio of the 100 U.S.samples matched on year, industry, and firm size.	Global Vantage
Domestic Firms-to-Population Ratio (AH)	The ratio of the number of publicly traded domestic firms in a given country to its population (in millions) in 1994.	La Porta, Lopez-De-Silanes, Shleifer and Vishny (1997)
Sources of GAAP (AH)	An indicator of 0 if national accounting standards are set by governmental bodies only; and 1 if private sector bodies are also involved.	Alford, Jones, Leftwich and Zmijewski (1993)
Sources of GAAP (PBC)	Defined by the parties involved in standard setting: Government only, Government and a private standard setting body, Government and a public standard setting body, and Government and a mixed standard setting body.	Peek, Buijink, Coppens (2004)
Accounting Cluster (AH)	An indicator of 0 if the country is classified as a Continental model country; and 1 if the country is classified as a British-American model country.	Mueller, Gernon and Meek (1994)
Financial-Tax Alignment (AH, PBC)	An indicator of 0 if the level of alignment of financial and tax	Alford, Jones, Leftwich and

	accounting is high; and 1 if the level of alignment of financial and tax accounting is low.	Zmijewski (1993)
Legal origin (BP)	Indicator variable equal to one if the country has a civil law tradition (*i.e.*, French, German or Scandinavian legal tradition),zero otherwise.	LaPorta, Lopez-de-Silanes,Shleifer and Vishny 1997
Impartiality of Judicial System (BP)	Impartial courts: Does a trusted legal framework exist forprivate businesses to challenge the legality of government actions or regulation? Based on survey responses.	Economic Freedom of the World:2002 Annual Report and 2003dataset
Enforcement of securities laws (BP)	Index of enforcement of securities laws. Measured as the sum of the index of public enforcement of securities laws and the index of private enforcement of securities laws.	LaPorta, Lopez-de-Silanes,Shleifer and Vishny (2003)
Public enforcement of securities laws (BP)	Index of public enforcement of securities laws, measured as the arithmetic mean of four underlying indices: Supervisor Characteristics index, Investigative Powers index, Orders index and Criminal index. The variable is ranked between 0 (weak public enforcement to 1 (strong public enforcement).	LaPorta, Lopez-de-Silanes,Shleifer and Vishny (2003)
Private enforcement of securities laws (BP)	Index of private enforcement of securities laws, measured as the arithmetic mean of two underlying indices: Disclosure index and Burden of Proof Index. The variable is ranked between 0 (weak private enforcement) to 1 (strong private enforcement).	LaPorta, Lopez-de-Silanes,Shleifer and Vishny (2003)

Risk of expropriation by the State (BP)	ICR's assessment of the risk of "outright confiscation" or "forced nationalization" by the state.	LaPorta, Lopez-de-Silanes,Shleifer and Vishny (1999)
State-operated Enterprises (BP)	Government enterprises and investment as a percentage of GDP.	Economic Freedom of the World: 2002 Annual Report and 2003dataset
Tax burden (BP)	Data on the top marginal tax rate and the income thresholds at which they take effect used to construct rating of taxation.	Economic Freedom of the World: 2002 Annual Report and 2003dataset
Bank versus market economy (BP)	Ratio of the country's deposit money bank assets to the country's market capitalization of equity securities.	Financial Structure and Economic Development database (World Bank)
Debt importance (BRS)	Ratio of the sum of bank debt of the private sector and outstanding non financial bonds to GNP in 1994 or last available.	La Porta, Lopez-De-Silanes, Shleifer and Vishny (1997)
Role of private long term debt financing in the economy (BP, LNW)	Ratio of the country's private bond market capitalization to the country's market capitalization of equity securities.	Financial Structure and Economic Development database (World Bank)
Concentration of ownership (BP)	The average percentage of common shares owned by the three largest shareholders in the 10 largest non-financial, privately owned domestic firms in a given country.	La Porta, Lopez-De-Silanes, Shleifer and Vishny [1998].
Enforcement of insider trading laws (LNW)	An indicator variable equal to one if the country enforced its	Bhattacharya and Daouk

	first insider trading case prior or during year t, zero otherwise.	(2002)
Outside Investor Rights (LNW, PBC)	Aggregate measure of minority shareholder rights: one share-one vote, proxy by mail allowed, shares not blocked before meeting, cumulative voting or proportional representation, oppressed minorities mehanism, preemtive rights, percentage of capital to call an extraordinary meeting.	La Porta, Lopez-De-Silanes, Shleifer and Vishny (1998)
Legal Enforcement (RMA, BRS, LNW)	Mean score across three legal variables:(1) the efficiency of the judicial system, (2) an assessment of rule of law and (3) the corruption index.	La Porta, Lopez-De-Silanes, Shleifer and Vishny (1998)
Importance of Equity Market (RMA, BPS, LNW)	Mean score across three legal variables:(1) the ratio of the aggregate stock market capitalization held by minorities to gross national product, (2) the number of listed domestic firms relative to the population, and (3) the number of IPOs relative to the population.	La Porta, Lopez-De-Silanes, Shleifer and Vishny (1997)
Disclosure Index (RMA, LNW)	Inclusion or omission of 90 items in the 1990 annual reports.	La Porta, Lopez-De-Silanes, Shleifer and Vishny (1998)
Private Control Benefits (LNW)	Transfers of controlling blocks of shares.	Dyck and Zingales (2002)
Accrual Rules (LNW, PBC)	The extent to which accrual rules accelerate the recognition of economic transactions.	Hung (2001)
Capital Markets Regulation (PBC)	Indicator variable that equals: 1 if public firms and private firms in A country follow a different	Peek, Buijink, Coppens (2004)

	set of accounting rules and 0 if public firms and private firms in a country follow the same set of accounting rules.	
Enforcement (PBC)	Indicator variable that equals: 1 if a proactive and/or private body enforces (publicly listed) firms' compliance with accounting regulation in country and 0 if a reactive public body enforces (publicly listed) firms' compliance with accounting regulation in country.	Peek, Buijink, Coppens (2004)
Creditor rights (BRS)	An index aggregating creditor rights: mandatory dividend, restrictions for going into reorganisation, no automatic stay in secured assets, secured creditors first, management does not stay.	La Porta, Lopez-De-Silanes, Shleifer and Vishny (1998)

AH Ali and Hwang (2000); PBC Peek, Buijink and Coppens (2004); BKR Ball, Kothari and Robin (2000); LNW Leuz, Nanda and Wysocki (2003); BP Bushman and Piotroski (2005); BRS Ball, Robin and Sadka (2005); RMA Raonic, McLeay and Asimakopoulos (2004).