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The obfuscation hypothesis re-examined : analyzing impression management in corporate narrative report documents

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**The obfuscation hypothesis re-examined:
Analyzing impression management in corporate narrative report
documents**

Doris Merkl-Davies

**A thesis submitted to the University of Wales in fulfilment of the
requirements for the degree of Doctor of Philosophy**

**Bangor Business School
University of Wales, Bangor
United Kingdom**

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No (wo)man is an island

(John Donne, Meditation XVII)

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Abstract

This thesis empirically investigates the use of impression management in the narrative sections of the annual reports of UK listed companies. Impression management is examined by testing the obfuscation hypothesis which claims that firms with poor performance have a tendency to obfuscate negative organisational outcomes. For this purpose, the thesis provides an assessment of the extent to which reading difficulty and self-presentational dissimulation are associated with the disclosure of favourable or unfavourable results ('good/bad news') in annual financial statements, conditional on a firm's size and sector of operations.

Impression management has previously been studied in the context of agency theory explanations of managerial and investor behaviour. This study contributes to the understanding of impression management in a corporate reporting context by first reviewing relevant theoretical work in behavioural finance, social psychology, and linguistics. Social psychology provides additional insights into the managerial motivation to engage in impression management, the circumstances fostering managerial impression management, and preferred managerial strategies. Behavioural finance offers insights into the effectiveness of impression management. Research in linguistics and social psychology provides the basis for developing new methodologies for measuring impression management in corporate narrative documents which overcome the validity problems inherent in conventional measures.

Three new methodologies are introduced. The first develops cohesion-based measures of reading difficulty that focus on grammatical devices within and between sentences, including the number and density of cohesive ties and the proportion of new and given information (*MMA2*). The second methodology provides multiple cohesion-based measures of readability, as applied in web-based readability scoring (*Coh-Matrix*). The third methodology measures impression management in the form of self-presentational dissimulation (i.e. portraying a public image of firm performance and prospects inconsistent with a managerial view of firm performance and prospects), using linguistic markers which include word count, self-reference, reference to others, the use of emotion words, and cognitive complexity.

The empirical analysis that is reported in this thesis is based on a sample that is balanced across industrial sectors and representative of the size distribution of firms. Results show firm size and not 'good/bad news' to be the determining factor in reading difficulty. Although the main effects model shows 'bad news' to be directly related to reading difficulty, this association is no longer significant when 'good/bad news' is interacted with firm size. Results suggest that large firms are more likely to produce corporate narrative documents which are less cohesive (and thus more difficult to read) than small firms. This is not interpreted as impression management, but as an indication that firms might tailor their corporate narrative documents to the reading strategies of their target readership groups. Thus, large firms seem to cater to the needs of high-knowledge readers (professional investors or readers largely familiar with the information content of the chairman's report), and small firms to the needs of low-knowledge readers (individual investors or readers largely unfamiliar with the information content of the chairman's report). Results regarding impression management in the form of self-presentational dissimulation suggest that the linguistic

markers are not indicative of impression management in the form of self-presentational dissimulation, but of other psychological issues.

Chapter 1: RESEARCH PROBLEMS AND DEFINITIONS

1.1 Introduction and background

In the light of recent corporate scandals, the issue of financial reporting quality has been in the forefront of both public and academic discussion. Previous research on aspects of financial reporting which inhibit financial reporting quality has focused largely on earnings management. However, firms may also use a much more subtle form of influencing outsiders' impressions of firm performance and prospects, namely by means of manipulating the presentation and content of narrative annual report sections - with the purpose of "*distort[ing] readers' perceptions of corporate achievements*" (Godfrey et al. 2003: 96).

In the accounting literature, this mechanism is referred to as impression management. While narrative sections of annual reports are primarily the focus of impression management research, other vehicles include press releases, managerial forecasts, websites and conference calls. Example 1 provides some illustrations of impression management from the annual report of Enron immediately prior to its collapse.

Example 1: Extracts from Enron's Letter to Shareholders, Annual Report 2000 (emphasis added)

"Enron's performance in 2000 was a **success by any measure**, as we continued to **outdistance the competition and solidify our leadership** in each of our major businesses. In our largest business, wholesale services, we experienced an **enormous increase** of 59 percent in physical energy deliveries. Our retail energy business achieved its **highest level ever** of total contract value. Our newest business, broadband services, **significantly accelerated** transaction activity, and our oldest business, the interstate pipelines, registered **increased earnings**. The company's net income reached a **record** \$1.3 billion in 2000." (p.4)

Key: Text in bold amounts to performance claims

The highlighted phrases indicate the positive bias introduced by Enron in order to manipulate readers' perceptions of corporate achievements. It is evident that impression management potentially constitutes an important factor in the impairment

of financial reporting quality. It is therefore an empirical question whether such behaviour is systematic across firms.

1.2 Motivations for studying impression management

Impression management can be regarded as an important part of social activity. Advertisers, religious and political leaders, and environmental and social pressure groups, devote time, energy, and resources to influencing people's perceptions of themselves, of their beliefs and ideas, or of their products (Leary and Kowalski 1990; Schlenker and Pontari 2000). Yet, we know comparatively little about impression management in a corporate reporting context.

Indeed, it is possible that impression management has been largely neglected by previous accounting research because accounting academics are more comfortable investigating financial statements than the accompanying textual material. However, since impression management, like earnings management, involves "*managers us[ing] judgment in financial reporting ... to alter financial reports to ... mislead some stakeholders about the underlying economic performance of the company*" (Healy and Wahlen 1999: 368), it has the same serious implications with regard to potentially adverse capital misallocations. Impression management thus constitutes an important area of accounting research, given the potential economic consequences.

According to the Arthur Andersen (2000: 7) survey of 100 listed UK companies, the narrative sections of corporate annual reports occupy 57 percent of the annual report in 2000, as compared with 45 percent in 1996. Narrative annual report sections provide "*almost twice the amount of quoted information as do the basic financial statements*" (Smith and Taffler 2000: 624). This growing importance of unregulated descriptive sections in corporate annual reports has resulted in an increased sophistication in the presentation and disclosure of information often aimed at portraying the company, its performance, and prospects in the best possible light.

The aim of this study is to contribute to the understanding of impression management in a corporate reporting context. Using insights from a variety of disciplines, including accounting, behavioural finance, social psychology, and linguistics, this study explores what constitutes impression management in a corporate reporting context, the reasons management engages in it, the circumstances fostering managerial impression management, preferred managerial impression management strategies, and the potential impact of impression management on users of corporate narrative documents.

1.3 Issues for research

The research design follows a two-part structure. The first part is concerned with the measurement of impression management in corporate narrative documents and the second part with the factors that may influence its use.

Impression management research usually makes the presumption that “*sections of the [annual] reports are allegedly managed so as to present management in as favourable light as possible*” (Stanton et al. 2004: 57). This is attributed to the information asymmetry between management and annual report users. Since managerial remuneration and tenure is linked to firm performance, management is expected not to be neutral in its presentation of corporate performance (Sydserff and Weetman 1999: 460). The resulting bias can lead to management attempting to draw attention away from failures (Adelberg 1979: 187).

This view, that managers of companies with poor performance use the corporate narrative report sections “*to create an impression at variance with an overall reading of the report*” (Stanton et al. 2004: 57), is reflected in what is termed ‘the obfuscation hypothesis’ by Curtis (1998) which claims that companies with ‘bad news’ obfuscate negative organisational outcomes in order to manipulate outsiders’ perceptions of firm performance and prospects.

For this reason the vast majority of impression management studies attempts to establish a relationship between impression management in narrative corporate report sections and firm performance reported in the financial accounts.

Smith and Taffler (1992b) find the narrative sections of companies with 'good news' easier to read than those with 'bad news'. In a subsequent study, Smith and Taffler (1995) show that the content of the chairman's report provides useful information for discriminating between failing and non-failing companies. Aerts (1994) also finds a significant association between impression management in the form of performance attributions and financial performance.

In contrast, Abrahamson and Amir (1996) find the information content of the narrative corporate report sections to be consistent with the information contained in the financial statements. This suggests that management does not use narrative corporate report sections "*to reduce the effect of bad news or to smooth the effect of good news*" (1159). What is more, Clatworthy and Jones (2003) find that companies with either 'good news' or with 'bad news' focus on the positive aspects of their performance. The results also show the performance attributions of companies with 'good news' and with 'bad news' not to differ significantly.

However, the use of impression management might be related to other organisational characteristics, such as firm size and the environment in which the firm operates. Previous studies find significant associations between impression management and firm size, but again the evidence is inconclusive. For instance, Jones (1988) and Baker and Kare (1992) find reading difficulty and firm size to be directly associated, whereas Short and Palmer (2003) find a significant inverse association between impression management in the form of performance comparisons and firm size.

The current study builds on this prior work by examining the association between impression management and financial performance by developing new approaches to measuring reading difficulty, by introducing a measure of impression management in the form of self-presentational dissimulation, and by redefining good and bad news, whilst also controlling for firm size and industry classification.

1.4 Research methodology

1.4.1 Population and sample

The population with which this study is concerned comprises all UK companies (UK domicile) listed on the London Stock Exchange.¹ The companies are grouped into sectors, based on the Dow Jones Market Sector classifications.

A sample was constructed to include firms of different sizes and from diverse industry groups. The three sectors with the highest number of companies, namely Industrial, Consumer Cyclical, and Technology, were chosen for analysis. 31 companies from each sector, i.e. 93 in total, were selected for the final sample.² For this purpose, the companies in each sector were ranked according to size (end of year market capitalization 2002 in £million) and systematic sampling was used in order to make the sample representative of the population.

1.4.2 Measuring impression management

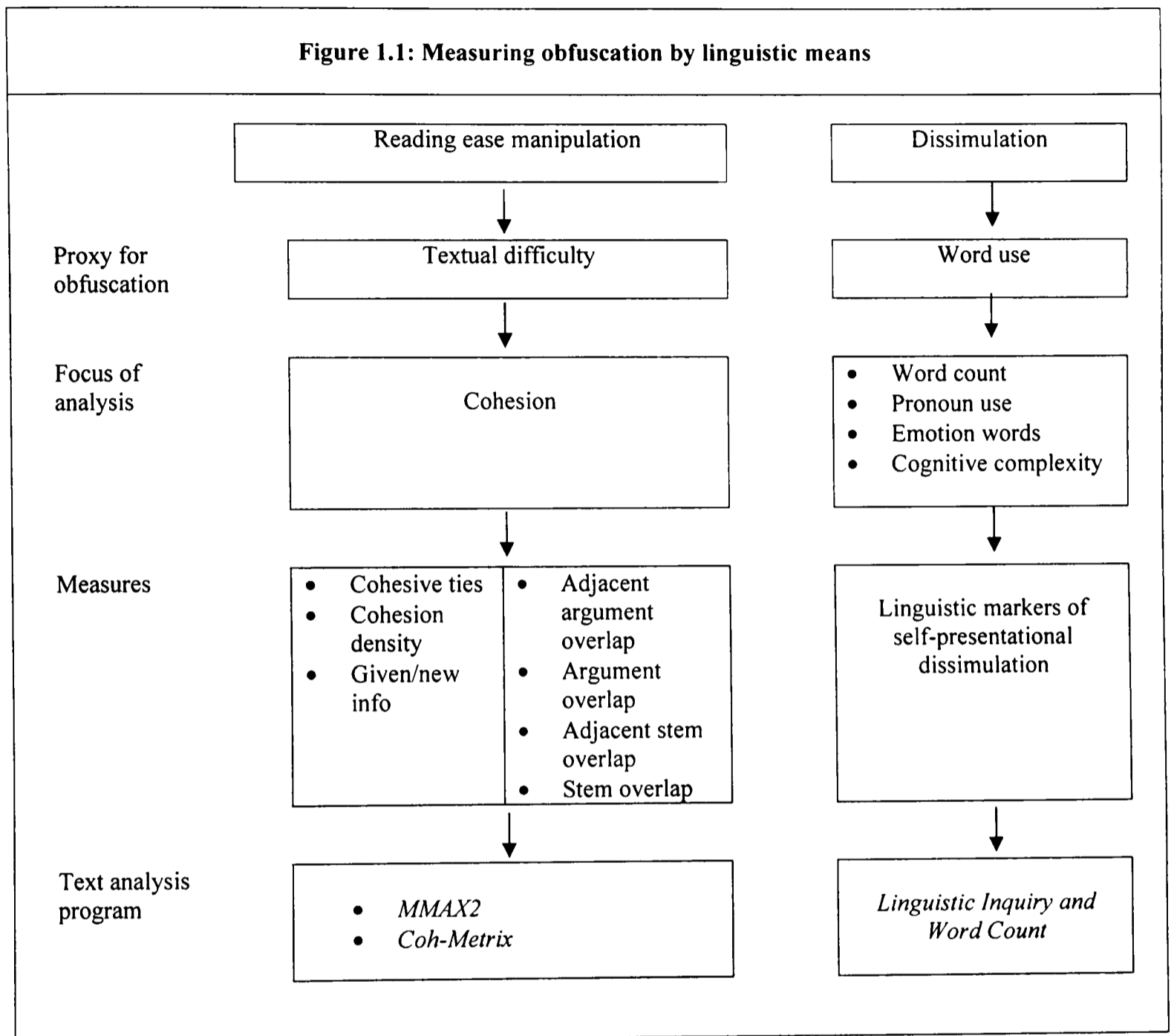
In written communication, the behaviour displayed by management engaging in impression management cannot be directly observed, but manifests itself verbally. This entails a linguistic analysis of texts. For this reason, linguistics provides the appropriate methodology for analyzing the verbal manifestations of impression management used in narrative annual report documents.

As noted, this study focuses on the analysis of impression management in the form of obfuscation of negative organizational outcomes. In this context, it investigates two types of obfuscation in narrative corporate report sections, namely (1) linguistic obfuscation by means of reading ease manipulation and (2) self-presentational dissimulation. Whereas reading ease manipulation is based on the way language is used to manipulate the impressions of external parties, self-presentational dissimulation focuses on the unconscious use of language during the process of presenting an image incongruent with one's self-image.

¹ 1,983 companies, as of 30 April 2004.

² Traditionally, statistical texts point to a minimum sample size of 30 random observations, which is based on simulation studies involving the Central Limit Theorem. Thus, from a statistics perspective, a sample size of 90 firms (3 for each industry sector) is deemed adequate.

Figure 1.1 illustrates the way obfuscation by linguistic means is measured and analyzed in this study:



Reading ease manipulation

Reading ease manipulation is concerned with the obfuscation of negative organisational outcomes by means of altering the reading difficulty, i.e. readability, of narrative annual report documents. It is presumed that management is able to influence the perceptions and decisions of narrative annual report readers by means of rendering the text more difficult to read. Thus, the prose itself functions as a proxy for

obfuscation. Consequently, the basic problem underlying the study of impression management in accounting narratives as manifest in reading ease manipulation is choosing a methodology which is able to accurately identify, analyze and measure readability.

Conventional methodologies tend to be problematic, since they have limited linguistic and psychological validity. This means that to date - with few exceptions - the analysis has been limited to the sentence level and has not taken the elements impacting on text comprehension into account.

This study proposes a new methodology based on discourse analysis. Discourse analysis is a linguistic sub-discipline which focuses on the interconnection within and between sentences. It thus allows the analysis of written texts to be extended “*beyond the sentence level and considers the communicative constraints of the context*” (Connor 1996: 11). It furthermore provides the “*descriptive apparatus for describing textual cohesion, structures of texts, theme dynamics, and metatextual features*” (Connor 1996: 11). This results in a concept of readability which is based on textual complexity which is better suited to the analysis of corporate narrative documents.

Self-presentational dissimulation

This second approach to measuring impression management in narrative corporate report documents is based on the assumption that impression management involves presenting an image of the firm and its performance to outsiders which is inconsistent with the way management may see these (Leary and Kowalski 1990).

The methodology adopted in this study for detecting impression management in the form of self-presentational dissimulation has been empirically validated by research carried out in psychology. It is based on Newman et al.'s (2003) research on psychological aspects of word use. Using *Linguistic Inquiry and Word Count*, a computerized textual analysis program, they examine the linguistic devices differentiating true and false stories, i.e. the linguistic indicators of dissimulation. These include word count, self-reference, reference to others, emotion words, and cognitive complexity which “*are the result of anxiety, negative emotional states, and*

cognitive demand' (Carlson et al. 2004: 7) occurring during self-presentational dissimulation.

Unlike the detection of obfuscation in the form of reading ease manipulation, this approach does not involve evidence based on the knowledge and recognition of specific impression management strategies (Johnson et al. 1993: 473), such as reading ease manipulation or thematic manipulation, but focuses instead on the process of perpetrating the dissimulation (Johnson et al. 1993: 474), i.e. verbal cues, such as decreased use of self-reference and increased use of negative emotion words.

1.4.3 Predicting impression management

Previous research has shown firm performance to be an important predictor of impression management with findings suggesting that impression management is directly related to negative organisational outcomes. In this study, positive and negative organisational outcomes are referred to as 'good/bad news'. In order to reflect different aspects of firm performance, the variable is measured in four different ways, namely (1) positive/negative earnings, (2) positive/negative earnings change, (3) sales increase/decrease relative to the sector, and (4) positive/negative long-term growth relative to the sector.

In addition, the study adopts a political cost hypothesis and argues that impression management in the form of reading ease manipulation and self-presentational dissimulation is inversely related to firm size, since large companies do not wish to draw attention to their profitability and hence will be more reluctant to obfuscate negative outcomes. The current study measures firm size as log of market capitalization at the financial year-end of 2002.

Finally, in order to introduce heterogeneity into the sample, it includes companies from three industrial sectors, based on the Dow Jones Market Sector classifications, namely Consumer Cyclical (CYC), Industrial (IDU), and Technical (TEC). Courtis (1995) finds no difference in the reading difficulty of chairman's reports between different sectors. We thus hypothesise that industry classification is not a factor in explaining differences in impression management behaviour.

1.4.4 Statistical analysis

First, the main effects of each measure of reading difficulty and each linguistic indicator of self-presentational dissimulation with respect to ‘good/bad news’ and firm size are investigated. The association between impression management (reading ease manipulation/self-presentational dissimulation) and firm size is estimated by means of regression analysis and any differences in impression management when the news is good or bad are estimated by means of one-way analysis of variance (ANOVA).

Subsequently, for each measure of reading difficulty and each linguistic indicator of self-presentational dissimulation the interactions between ‘good/bad news’ and firm size are estimated by extending the analysis of variance to a general linear model (GLM). The advantage of GLM is that it allows the detection of interaction effects between variables, and, therefore can be used to test more complex hypotheses

1.5 Contribution of this study

The contribution of this study is twofold, namely (1) theoretical, and (2) methodological. All prior research is based on agency theory explanations of impression management. Agency theory, as specified by neoclassical economics, is rooted in traditional finance assumptions concerning the rational economic behaviour of market participants. However, we propose a concept of impression management that draws on behavioural finance, in which impression management is regarded as the managerial attempt to influence investor perceptions and decisions by means of introducing both cognitive and affective bias into corporate narrative documents.

The focus of this study is on the analysis of impression management in UK chairman’s reports and the firm characteristics associated with it. It is based on the assumption that managers, on average, are able to choose which impression management strategies to employ. It is further assumed that managers are not susceptible to biases in the form of managerial optimism or hubris. However, the eventual effects of impression management on investor behaviour are not considered

empirically in the current study, whose main focus is on the contemporaneous association with financial results.

Prior studies classify impression management research into two areas, namely thematic studies and readability studies (Jones and Shoemaker 1994). By sub-dividing thematic studies into two different types and by including rhetorical manipulation, this thesis identifies four impression management strategies aimed at the obfuscation of negative organisational outcomes, namely (1) reading ease manipulation, (2) rhetorical manipulation, (3) thematic manipulation, and (4) narrative disclosure. In addition, three further impression management strategies are identified, namely (1) attribution of organisational outcomes, (2) performance comparisons, and (3) choice of earnings number presented in narrative corporate report sections.

The majority of prior studies on reading ease manipulation focuses on the textual aspects of reading difficulty and uses simplistic readability scores which are based on word and sentence length. This study introduces two new methodologies for measuring reading difficulty which focus on cohesion as a function of reading difficulty. They are not based on simple formulae, but incorporate insights from linguistics and psychology into the characteristics of reading difficulty based on textual complexity. This provides them with increased linguistic and psychological validity.

What is more, a new approach to detecting impression management in a corporate reporting context is introduced in the form of self-presentational dissimulation, which is based on linguistic markers. Using a methodology developed in social psychology, this approach focuses on verbal cues of dissimulation, including, amongst others, decreased use of self-reference and cognitive complexity.

And last, but not least, the study extends the measurement of positive/negative firm performance by means of using not one, as is common in previous research, but four measures of 'good/bad news'. The majority of previous studies focus on short-term, company specific measures, such as increasing/decreasing financial performance measured as positive/negative percentage change in earnings from one year to the next. However, for any company, 'good/bad news' is not confined to time-series

measures of financial performance, but also includes cross-sectional comparisons with industry competitors. For this reason, this study not only includes two traditional measures of ‘good/bad news’, namely positive/negative earnings and positive/negative earnings growth, but also two measures which are based on industry-comparisons, namely relative sales growth (relative sales increase/decrease compared to the industry) and positive/negative long-term firm growth (relative increase/decrease in assets and sales over a four-year period compared to the industry).

1.6 Organization of the dissertation

Chapter two provides an overview of research, giving insights into the use of impression management in narrative annual report documents. In order to provide a better understanding of the strategies, objectives, and consequences of impression management, it draws on studies from two academic disciplines, namely behavioural finance and social psychology, and three related areas of accounting research, namely impression management, earnings management, and fraud.

The first part of chapter two (sections 2.1 – 2.5) reports on conventional approaches to impression management, including theoretical foundations, manifestations of impression management in corporate narrative documents, factors impacting on the use of impression management (2.1 - 2.4), and investor reactions to impression management (2.5). The second part (sections 2.6 and 2.7) introduces theories from behavioural finance and social psychology. First, the concept of impression management in a traditional financial economics framework is compared with that in a behavioural finance framework. Then, theories from social psychology are introduced which provide insights into the motivation for engaging in impression management, the conditions fostering impression management, and impression management strategies. Subsequently, it is demonstrated how impression management in the form of self-presentational dissimulation can be applied to accounting research (2.8) and two methods of detecting impression management in corporate narrative

documents are discussed (2.9). Finally, the suitability of the chairman's report as an impression management vehicle is discussed (2.10).

Chapter three summarizes the conventional methodologies used for analyzing and measuring impression management in the form of reading ease manipulation and introduces the new methodologies developed in this study.

Chapter four sets out the research questions underlying this study, namely (1) whether there is any evidence of impression management in narrative corporate report sections and (2) whether impression management is associated with 'good/bad news', and (3) whether impression management is associated with other organizational characteristics, specifically firm size and industry classification.

Chapter five presents the sample and discusses the research methodology and the measurement of 'good/bad news', firm size, and industry classification. It also describes the statistical techniques used to examine the relationships between the variables.

Chapter six comprises a three-part analysis. First, the corporate narrative sections of the entire sample are investigated for evidence of impression management. Second, it is examined whether impression management varies in relation to (1) 'good/bad news' or (2) firm size. Then, the association between impression management and 'good/bad news' and firm size is investigated simultaneously. Finally, it is investigated whether results differ depending on industry classification.

Chapter seven provides a summary of findings, discusses their implications, and compares the findings with those of previous studies, and considers further research possibilities.

Chapter 2: IMPRESSION MANAGEMENT RESEARCH

This chapter discusses how impression management has been viewed and analysed in previous accounting research. It then provides insights from finance and social psychology and demonstrates how these insights jointly inform the research study described in this thesis.

We first discuss how the previous accounting literature views impression management (2.1) and also document the different types of impression management behaviour identified by previous research (2.2). We then discuss the association between impression management and various corporate characteristics (2.3 and 2.4) and the potential effects of impression management on users of corporate narrative reports (2.5). Having reviewed the state-of-the-art research in relevant areas, we then examine how insights from alternative finance theory (2.6) and social psychology research (2.7) might contribute to impression management research. We subsequently show how self-presentational dissimulation can be applied in accounting research (2.8), discuss strategies for its detection (2.9), and discuss the use of the chairman's report as an impression management vehicle (2.10).

2.1. Agency theory and impression management

Accounting research focusing on impression management in a corporate reporting context is based on defining impression management as “*the process by which people attempt to control the impressions others form of them*” (Leary and Kowalski 1990) which entails “*shap[ing] an audience's impression of a person (e.g., self, friends, enemies), object (e.g., a business organization, a gift, a consumer product), event (e.g., a transgression, a task performance), or idea (e.g., pro-life versus pro-choice policies, capitalism versus socialism)*” (Schlenker³). In the context of corporate reporting, impression management thus constitutes an activity aimed at influencing

³ <http://www.psych.ufl.edu/~schlenkr/imgrad.htm>

others' impressions of (i) persons such as managers, the CEO, and the chairman, (ii) the organization as a whole, (iii) outcomes such as financial performance, environmental performance, ethical performance, (iv) events such as privatization, demutualization, mergers or acquisitions, and (v) concepts, such as that of profit as the only legitimate measure of corporate success.

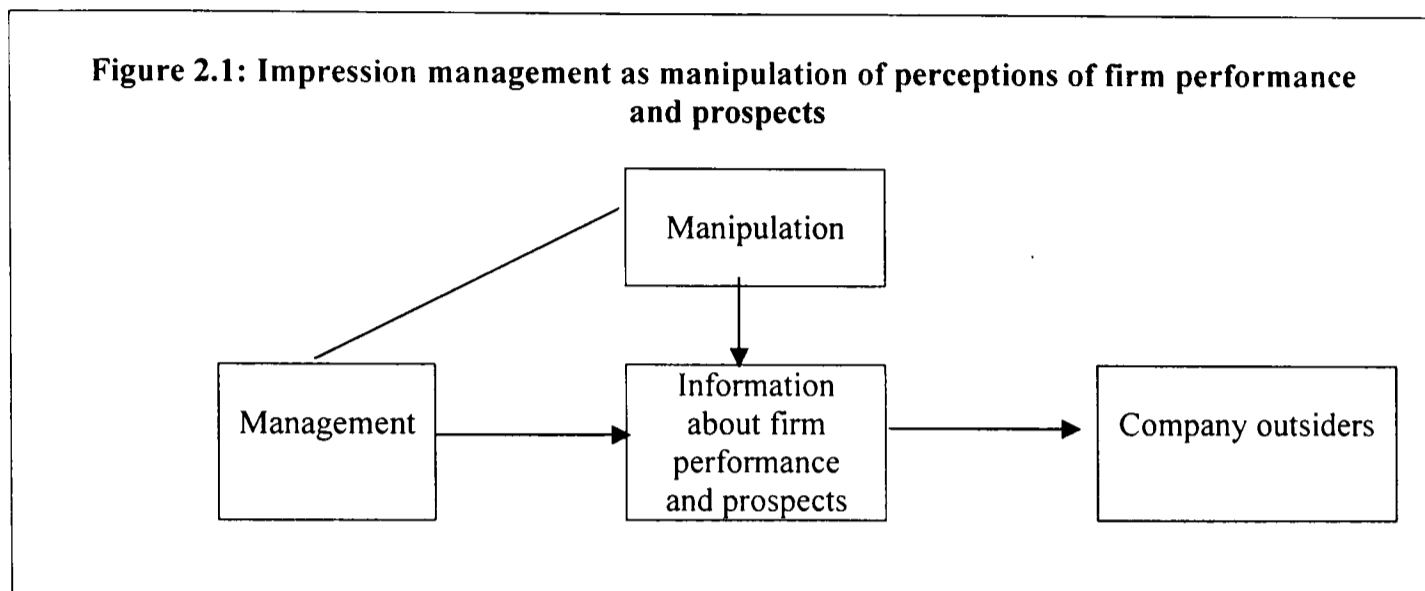
However, the majority of studies focus on one aspect of impression management, namely the manipulation of perceptions of firm performance. As will be demonstrated in section 2.6, this narrow focus can be attributed to agency theory assumptions underlying impression management research which explain managerial and investor behaviour strictly in terms of positivist arguments. Section 2.6 of the current study discusses impression management in the context of alternative finance theories. Section 2.7 offers insights from social psychology on impression management which provide a better understanding of impression management in a corporate reporting context.

2.1.1 Managerial impression management as opportunistic behaviour

Prior literature focusing on impression management in a corporate reporting context assumes that corporate narrative documents are biased. This is due to agency theory assumptions of managerial behaviour (Smith and Taffler 1992b, 2000; Abrahamson and Park 1994; Hooghiemstra 2000, 2001; Godfrey et al. 2003; Rutherford 2003; Courtis 1995, 2004a, b; Aerts 2005). Managers are assumed to opportunistically select a style of presentation and choice of content which provide a favourable impression of firm performance and prospects. Impression management is thus regarded as attempts by management *“to control and manipulate the impression conveyed to users of accounting information”* (Clatworthy and Jones 2001: 311). As a result, management is presumed to use corporate reports as impression management vehicles to *“strategically ... manipulate the perceptions and decisions of stakeholders”* (Yuthas et al. 2002: 142). Hooghiemstra (2000: 60) defines impression management as *“a field of study within social psychology studying how individuals present themselves to others to be perceived favourably by others”*.

Accounting research regards corporate reports as impression management vehicles which can be used to present a self-interested view of corporate performance

(Bettman and Weitz 1983: 166-167; Staw et al. 1983: 584; Abrahamson and Park 1994: 1302; Beattie and Jones 2000: 160; Clatworthy and Jones 2006; Mather et al. 2000: 68). Thus, the majority of impression management studies focus on the manipulation of outsiders' perceptions of firm performance and prospects. Figure 2.1 outlines this notion of impression management in the context of corporate reporting.⁴



2.1.2 Managerial motivation to engage in impression management

Since managers operate “*in an environment in which their remuneration and wealth is linked to the financial performance of the companies that employ them, [they] have powerful economic incentives*” to mask negative aspects of firm performance (Rutherford 2003: 189). In this respect, impression management can be regarded more explicitly as opportunistic managerial behaviour resulting from contractual agreements between principals and agents.

Impression management entails managers taking advantage of the information asymmetries between them and outsiders in order to maximise their own wealth as a function of share prices, salary, cash bonuses, and future job security. Any conflicts of interest are overcome by aligning the interests of management with those of shareholders with respect to these factors, i.e. in the form of shares and share options, compensation contracts, and tenure. Remuneration in the form of shares and share

⁴ Odgden and Clarke (2005) are an exception in that they examine impression management as the manipulation of outsiders' perceptions of organizational legitimacy. In the field of management impression management is studied as the manipulation of outsiders' perceptions of corporate self and corporate reputation (White and Hanson 2002).

options links share performance to capital gains. Remuneration in the form of compensation contracts links firm performance to cash bonuses. Tenure increases management's welfare by means of revising its future remuneration, depending on the perceived success or failure of the company they are managing.

It can thus be assumed that managers engage in impression management in order to (1) increase share prices, (2) optimise short-term-bonuses and (3) to extend tenure. For example, managerial impression management may be aimed at reducing the likelihood of takeover attempts, since a reduced risk of takeover improves managers' chances of keeping their jobs or at influencing attempts to change control of the firm, such as management buyouts and proxy contests. Managers involved in proxy contests may engage in impression management in order to persuade shareholders to hold on to their shares and keep faith in the current management. They may also engage in impression management in order to prevent non-routine executive changes, such as dismissals.⁵

Thus, management is presumed to engage in impression management for the same reasons as it engages in earnings management (by means of overstating earnings), namely (1) to improve market participants' perceptions of firm performance and consequently the value of the firm and (2) to increase management's compensation or job security.⁶

It is these arguments that motivate much of impression management research, i.e. establishing a link between managerial reward and firm performance, arguing that management has both strong economic incentives and the opportunity to engage in

⁵ More specifically, Abrahamson and Park (1994) explain managerial impression management as an attempt to protect their bonuses and reputations. In a broader context, see Healy et al. (1988) for the optimisation of short-term bonuses, DeAngelo (1986) and Perry and Williams (1994) for management buyouts, DeAngelo (1988) for proxy contests, and Murphy and Zimmerman (1993) and Pourciau (1993) for non-routine executive exchanges.

⁶ The vast majority of impression management studies focus on (1). One exception is Godfrey et al. (2003) who examine the use of impression management in the context of CEO changes. What sets their study apart is the investigation of impression management in conjunction with earnings management, finding some, albeit limited, evidence of the association between impression management by means of graphs and CEO changes.

impression management, due to the fact that management controls “*the accounting communication process which monitors their performance*” (Adelberg 1979: 187).

2.1.3 Earnings management and impression management

Some authors consider earnings management to be a subset of impression management. Clatworthy and Jones (2003: 173) state: “*In practice, impression management is demonstrated across a whole range of accounting research issues [including] earnings manipulation...*”. Davidson et al. (2004) posit that attempting to manage impressions may lead to excessive earnings management. Thus, impression management constitutes the foundation for earnings management, or, put differently, earnings management constitutes one manifestation of impression management. This means that the classic definition of earnings management by Healy and Wahlen (1999: 368) can also be applied to impression management, i.e. earnings management and impression management occur “*when managers use judgment in financial reporting ... to alter financial reports to ... mislead some stakeholders about the underlying economic performance of the company.*”

Godfrey et al. (2003: 96) regard impression management and earnings management both as selective and/or biased financial representation⁷ resulting in a misrepresentation or distortion of financial results. Whereas impression management entails selecting “*the information to display and presents that information in a manner that is intended to distort readers’ perceptions of corporate achievements*”, earnings management entails the use of the discretion afforded by the financial reporting process to manipulate accounting numbers by means of accounting policy choices and accruals.

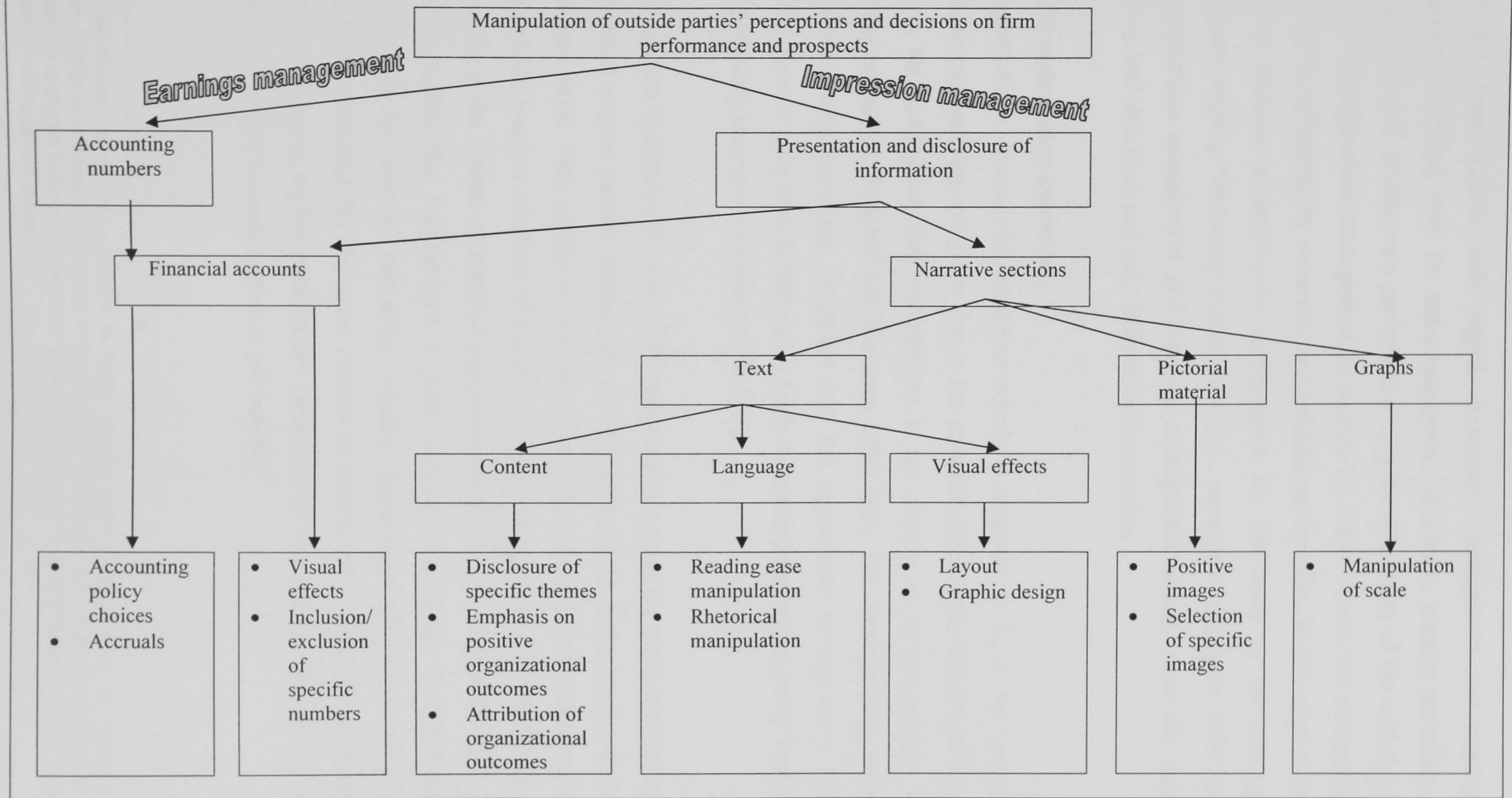
Figure 2.2 provides a comparison of the manipulation of outside parties’ perceptions of firm performance and prospects by means of (i) earnings management and (ii) impression management. Whereas earnings management is primarily concerned with the over- and understatement of various accounting line items and the effect on the net income reported in the accounts, impression management is likely to be more

⁷ See section 2.4.1 for a more comprehensive discussion on the use of selection and bias for impression management purposes.

extensive occurring both in the financial statements (the presentation of accounting numbers by means of repetition, hierarchy, highlighting, etc.) (see Guillamon-Saorin 2006) and in the narrative sections of the annual report where it involves the manipulation of the disclosure and presentation of information in the form of numbers (choice of specific accounting numbers reported in narrative annual report documents), text (its content, style, and visual effects), pictorial material, and graphs.⁸

⁸ See section 2.2 of the current study for a detailed of discussion of manifestations of impression management and impression management techniques identified by previous research.

Figure 2.2: Impression management and earnings management mechanisms



Beattie and Jones (2000: 160) regard impression management and earnings management as arising from the same managerial motivation, namely providing a self-interested view of corporate performance. As the discussion of the underlying motivation of impression management in section 2.1.2 has shown, the managerial self-interest is influenced by economic and reputational benefits. In this respect, the underlying motives of impression management are the same as for earnings management, namely “*obtaining private gain for... managers*” (Schipper 1989: 92). Thus, impression management and earnings management clearly share the same motivation and objectives and only differ in their execution.

2.1.4 The obfuscation hypothesis

This opportunistic managerial behaviour which is assumed to lie at the root of impression management has given rise to the so-called obfuscation hypothesis. It is based on the assumption that management is not neutral in its presentation of accounting narratives (Sydserff and Weetman 1999: 460). The resulting bias, which arises from strong economic incentives and the opportunity to provide a self-interested view of corporate performance, leads to management obfuscating failures and emphasising successes (Adelberg 1979: 187).

The obfuscation hypothesis (Courtis 1998) states that managers are particularly driven to manipulate outside parties’ perceptions of firm performance and prospects in the case of bad news. This results in reporting bias. This asymmetrical behaviour is understandable because conflicts of interest between management and shareholders mainly arise in the context of negative organizational outcomes (Aerts 2005: 497). It is for this reason that management is only motivated to engage in impression management in the case of ‘bad news’. Indeed, management obfuscates negative organizational outcomes for the same reasons as management overstates earnings, namely (1) to improve market participants’ perception of firm performance and (2) to increase management’s compensation or job security.⁹

⁹ Thus, impression management research is based on two implicit assumptions of managerial behaviour, namely (1) managers are rational economic beings whose aim is to maximize their personal wealth and (2) managers believe in market inefficiency. For a more detailed discussion on this issue, see section 2.6 of the current study.

The assumption that managers engage in impression management to obfuscate negative organizational outcomes has resulted in studies analyzing corporate narratives for evidence of this behaviour in various forms, namely (1) reading ease manipulation, (2) rhetorical manipulation, (3) thematic manipulation, and (4) narrative disclosure. These are discussed in the following section.

2.2 Impression management in corporate narrative documents

In accounting research, impression management constitutes a strand of the financial disclosure literature, where, as indicated above, it is regarded as a response to negative organizational outcomes. Since negative organizational outcomes lead to a conflict of interest between management and shareholders, management is driven to adopt one of the following four strategies identified in prior studies, namely (1) concealment¹⁰ (obfuscation), (2) a defensive framing tactic which shifts the blame for negative outcomes away from themselves (attribution)¹¹, (3) a choice of benchmarks which portrays firm performance in the best possible light (performance comparisons), or (4) a choice of earnings number disclosed in corporate narratives which portrays firm performance in the best possible light (choice of earnings number).¹² Each of these four strategies can result in a misrepresentation or distortion of firm performance and prospects.

Figure 2.3 illustrates the four strategies that management may adopt when engaging in impression management: (1) obfuscation, (2) attribution, (3) performance comparisons, and (4) choice of earnings number. Figure 2.3 also shows how the first of these, the obfuscation of negative organizational outcomes in narrative corporate report sections, can take the forms of reading ease manipulation, rhetorical manipulation, narrative disclosure, and thematic manipulation.¹³ Finally, Figure 2.3

¹⁰ One aim of the social psychology literature on impression management is to examine how people use and conceal information in order to advance their self-interests (Schlenker website).

¹¹ Aerts (2005: 497).

¹² Aerts (2005: 497) also mentions a timed strategy of bad news disclosure. However, this constitutes a disclosure rather than an impression management strategy.

¹³ Traditionally, impression management research is classified into thematic studies and readability studies (Jones and Shoemaker 1994). By sub-dividing thematic studies into three different areas and by

indicates the type of manipulation and obfuscation involved in the four strategies, the proxy for obfuscation (where applicable), and the focus of the analysis. The current study focuses on the obfuscation of negative organisational outcomes by means of reading ease manipulation. It also investigates self-presentational dissimulation, i.e. presenting an image of the firm and firm performance to outsiders which is inconsistent with the way management may see the firm and firm performance. This is an impression management strategy not previously examined in a corporate reporting context. See section 2.8 of the current study for a more detailed discussion of self-presentational dissimulation.

including rhetorical manipulation, we identify seven impression management strategies (see Figure 2.3).

Figure 2.3: Manifestations of impression management in corporate narrative documents

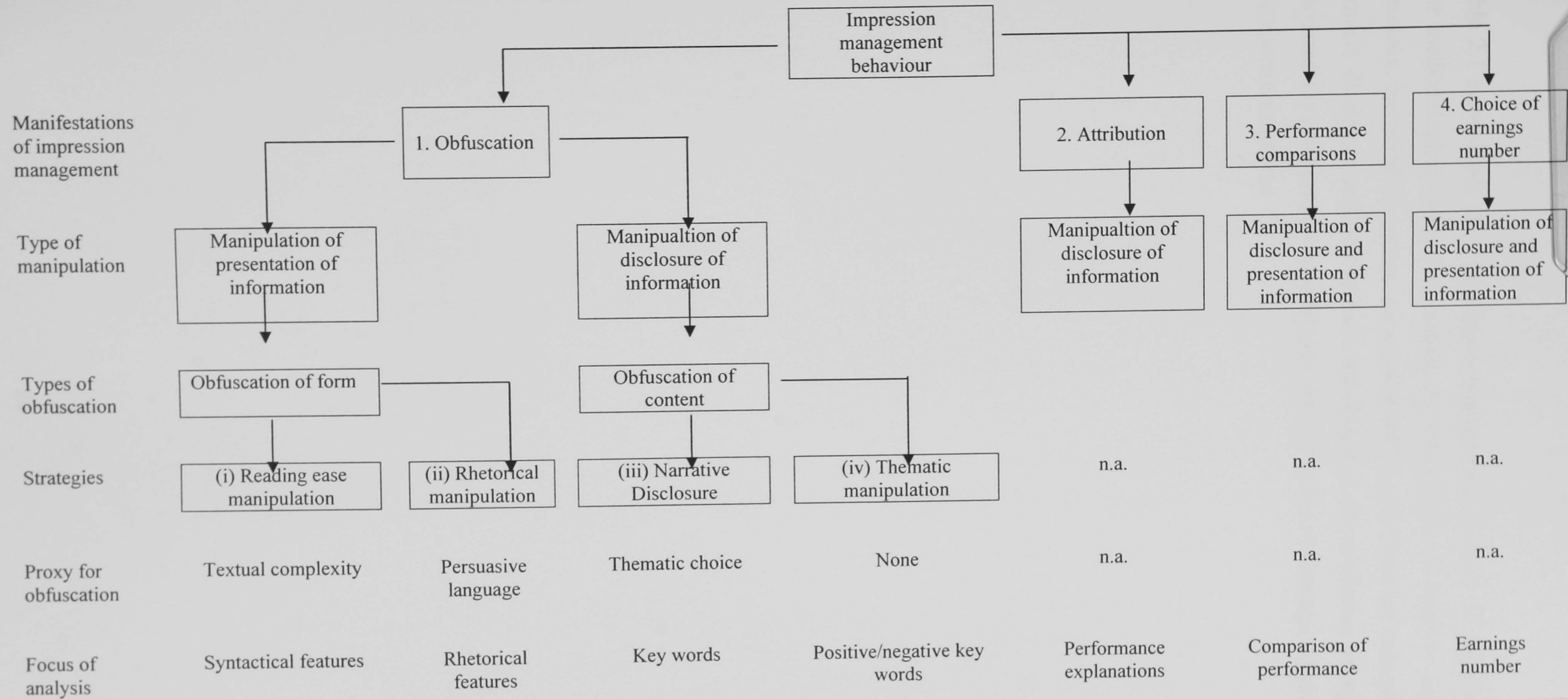


Table 2.1 summarises prior impression management research by classifying it into four methodological categories, namely (1) obfuscation of negative organisational outcomes, including (i) reading ease manipulation, (ii) rhetorical manipulation, (iii) narrative disclosure and (iv) thematic manipulation, (2) attribution of organisational outcomes, (3) performance comparisons, and (4) choice of earnings number disclosed in corporate narratives.

Table 2.1: Classification of impression management research

(1) Obfuscation of negative organizational outcomes			
(i) Reading ease manipulation	(ii) Rhetorical manipulation	(iii) Narrative disclosure	(iv) Thematic manipulation
Adelberg (1979)	Thomas (1997)	Ingram and Frazier (1980) ⁴	Abrahamson and Park (1994)
Parker (1982)	Jameson (2000)	Frazier et al. (1984)	Smith and Taffler (2000)
Lewis et al. (1986)	Sydserrff and Weetman (2002) ³	Tennyson et al. (1990)	Clatworthy and Jones (2003) ⁵
Courtis (1986)	Yuthas et al. (2002)	Smith and Taffler (1995)	Rutherford (2005)
Jones (1988)	Davis et al. (2005)	Clatworthy and Jones (2006)	Henry (2006)
Baker and Kare (1992)	Lang and Lundholm (2000)		
Stevens et al. (1992) ¹			
Smith and Taffler (1992a)	(2) Attribution of organisational outcomes	(3) Performance comparisons	(4) Choice of earnings number
Smith and Taffler (1992b)	Staw et al. (1983)	Cassar (1999)	Johnson and Schwartz (2005)
Subramanian et al. (1993)	Aerts (1994)	Short and Palmer (2003)	Bowen (2005)
Courtis (1995)	Baginski et al. (2000)	Schrand and Walther (2000)	Guillamon Saorin (2006)
Jones (1996) ²	Hooghiemstra (2001)		
Jones (1997) ¹	Aerts (2001)		
Courtis (1998)	Clatworthy and Jones (2003) ⁵		
Sydserrff and Weetman (1999)	Lee et al. (2004)		
Clatworthy and Jones (2001b)	Baginski et al. (2004)		
Sydserrff and Weetman (2002) ³	Aerts (2005)		
Rutherford (2003)	Ogden and Clarke (2005) ⁶		
Courtis (2004a)			

¹ Methodological discussion, therefore not included in Table 2.2 to follow.

² Jones (1996) is a comment on Courtis (1995), and is therefore not included in Table 2 to follow.

³ Sydserrff and Weetman (2002) is difficult to classify as it uses three methodologies: one reading ease manipulation and two rhetorical manipulation.

⁴ Ingram and Frazier (1980) is a corporate social reporting study.

⁵ Clatworthy and Jones (2003) test both for the association between positive/negative organizational outcomes and increasing/declining performance and the attribution of positive/negative organizational outcomes to internal/external factors and increasing/declining performance.

⁶ Odgen and Clarke (2005) examine impression management in the context of legitimacy. They use attribution of organisational outcomes in the form of entitlements and excuses as part of a whole array of impression management techniques aimed at gaining legitimacy.

2.2.1 Obfuscation of negative organizational outcomes

Current research opinion regards annual reporting “*as an exercise in obfuscation. Sections of the reports are allegedly managed so as to present management in as favourable light as possible*” (Stanton et al. 2004: 57). This means that management is not neutral in its presentation of accounting narratives (Sydserff and Weetman 1999: 460). The resulting bias leads to management obfuscating failures and underscoring successes (Adelberg 1979: 187).

However, Aerts (2005: 497) draws attention to the asymmetrical behaviour of management regarding positive/negative organizational outcomes. Conflict of interest between management and shareholders only arise when negative organizational outcomes occur. For this reason, management is only motivated to engage in impression management in the case of ‘bad news’.

This asymmetric behaviour of management regarding positive/negative organisational outcomes also fits with behavioural theory assumptions about different value functions for gains and losses. Whereas traditional finance models focus on utility which is usually defined only in terms of net wealth, prospect theory focuses on value which is defined in terms of gains and losses. What is more, prospect theory argues that the value function for losses is different than the value function for gains in that losses “loom larger” than gains. This means that a loss of £500 is felt more than a gain of £500. (Plous 1993: 95-96). In a behavioural finance context of rational managers and irrational investors this means that managers exploit this asymmetric value function of investors by concentrating their impression management efforts on negative organisational outcomes.

Reading ease manipulation

Impression management by means of reading ease manipulation involves the obfuscation of negative organizational outcomes by means of rendering corporate narrative documents difficult to read. Research focusing on reading ease manipulation regards syntactical complexity as a proxy for obfuscation. It is based on the assumption that management conceals negative organizational outcomes by means of complex prose.

Thus, impression management studies which focus on reading ease manipulation are based on the premise that management has the “*tendency to manipulate or arrange prose to ... mask ‘bad news’ (negative organizational outcomes) with more difficult writing*” (Courtis 1998: 461). They investigate whether management manipulates the perceptions of outside parties by rendering narrative corporate report sections difficult to read. Table 2.2 provides an overview of impression management studies focusing on reading ease manipulation. The reading difficulty measures used in previous studies are explained in detail in chapter 3, section 3.2.

Table 2.2: Summary of reading ease manipulation studies

Study	Country	Time scale	#	Narrative sections	Readability measure	Independent Variables	Statistics	Results
Adelberg (1979)	US	1974/75	16	Footnotes, Management review of operations, Auditors' reports	Cloze	Performance	Pearson Correlation	Standard footnotes and management's review of operations are difficult to read; Profitability is inversely related to the reading difficulty of non-standard footnotes and of auditor's reports.
Parker (1982)	Australia	1980	10	Chairman's/ directors' review of operations	Fog	None	---	Narratives were of low readability
Lewis et al. (1986)	Australia	1977-1980	9	Managing director's report, Operations review	Fog, Flesch, Kwolek, Dale-Chall, Lix, Fry	None	---	Narratives were of low readability
Courtis (1986)	Canada	1982-1983	142	Chairman's address, Financial statement footnotes	Fog, Flesch	Performance, Corporate risk	Mann-Whitney U test	Poor quality readability was not related to poor performance or high risk
Jones (1988)	UK	1952-1985	1	Chairman's report	Flesch	Performance, Time, Firm size, Listing status, Title of chairman's narrative, Chairman	Linear Regression, Multiple regression	Readability declined as turnover (proxy for firm size/corporate complexity) increased, over time and when the company became listed.
Baker and Kare (1992)	US	No info	44	President's letter	Flesch	Performance, Firm size, Firm survival	Correlation analysis	Presidents' letters of larger firms were more readable
Smith and Taffler (1992a)	UK	1978-1985	66	Chairman's report	Flesch, Lix, Cloze		Correlation analysis	There was no difference in readability between failed and non-failed companies

Table 2.2 (continued): Summary of reading ease manipulation studies

Study	Country	Time scale	#	Narrative sections	Readability measure	Independent Variables	Statistics	Results
Smith and Taffler (1992b)	UK	1978-1985	66	Chairman's report	Flesch, Lix, Cloze	Firm survival	---	Readability and understandability measure different concepts; Understandability is a function of the sophistication of the target audience
Subramanian et al. (1993)	US	1987, 1988	60	Letter to stockholders	Fog, Flesch	Performance	Pearson Correlation	Annual reports of good performers were more readable
Courtis (1995)	Hong Kong	1986, 1991	32	Chairman's report, Footnotes to the accounts	Fog, Flesch, Lix	Performance, Firm size, Industry	---	No significant difference was found between readability and independent variables
Courtis (1998)	Hong Kong	1994/95	120	Chairman's report	Flesch	Performance, Press coverage	---	Narratives of companies with high press coverage were significantly less readable
Sydserrff and Weetman (1999)	UK		10	Operating and financial review	Flesch, Texture index	None	---	Texture index captures factors not captured by readability formulas
Clatworthy and Jones (2001b)	UK	1995/96	120	Chairman's report	Flesch	Performance	ANOVA	Variability of readability is not explained by performance. Thematic structure is a key driver of variability of readability
Sydserrff and Weetman (2002)	UK	1999/2000	27	Chairman's report	Flesch, Transitivity index, Diction	Performance	---	Transitivity index and DICTON are useful alternatives to readability formulas

Table 2.2 (continued): Summary of reading ease manipulation studies

Study	Country	Time scale	#	Narrative sections	Readability measure	Independent Variables	Statistics	Results
Rutherford (2003)	UK	1998	64	Operating and financial review	Flesch	Performance, Firm size, Corporate risk, Organisational complexity, Statutory regulation	Multiple regression analysis	Poorly performing firms do not obfuscate using textual complexity. Readability was insignificant for all other variables
Courtis (2004a)	Hong Kong	1997	60	Annual reports, Interim reports, Prospectuses	Flesch	Performance, Corporate age, Corporate complexity		Low reading ease, and high readability variability is associated with 'bad news'

Although readability is only “*one of the many characteristics which management may manipulate*” (Jones 1996: 90), it represents a subtle way of obfuscating negative organizational outcomes. Curtis (2004a) argues that, because of its subtlety it may be more likely to succeed than other form of impression management. Reading ease manipulation thus constitutes a very powerful impression management mechanism.

Readability studies can be grouped into four categories: (1) investigations focusing on the reading difficulty of various narrative annual report documents in order to determine whether they are difficult to read (Lewis et al. 1986; Curtis 1986), (2) investigations of the variability of readability within a particular narrative annual report document in order to determine whether some sections are more difficult to read than others (Curtis 1998, Clatworthy and Jones 2001; Curtis 2004a), (3) studies investigating the association between the reading difficulty of narrative annual report documents and various company characteristics, most commonly firm performance (see section 2.3 and 2.4), and (4) studies focusing on methodological development (Curtis 1986; Smith and Taffler 1992a, Stevens et al. 1992, Jones 1997, Sydserrff and Weetman 1999, Syserff and Weetman 2002). The latter studies test various readability measures and compare results in order to determine which measure is the most suitable for examining the readability of accounting narratives.

Curtis (1986) finds the narrative annual report sections (chairman’s reports and footnotes) of 142 Canadian companies difficult to very difficult to read. Based on the fact that these levels correspond to the reading skills equivalent of a university education and the fact that 43.9 percent of Canadian shareholders have a university degree, he judges the reading difficulty to be adequate.

Using six readability measures, namely *Fog*, *Flesch*, *Kwolek*, *Dale-Chall*, *Lix*, and *Fry*,¹⁴ Lewis et al. (1986) find the narrative corporate report sections of Australian companies difficult to read.

¹⁴ These readability measures all regard reading difficulty as a function of word length and sentence length. See chapter 3, section 3.2.1 for a more detailed discussion of these measures

Courtis (2004a) uses both low readability and high variability of readability as a proxy for obfuscation. He finds an association between obfuscation and the location of the hardest to read passage in interim reports, but not annual reports, and prospectuses.

Smith and Taffler (1992a) compare the results of three readability measures, namely *Flesch*, *Lix* and *Cloze*. In order to rule out the effect of company characteristics on textual difficulty, they include both failed and non-failed companies which are matched by sector, turnover, and financial year-end. Based on all three measures, the chairman's reports of all companies are found to be difficult to read. Cloze scores indicate that "*even users of the greatest sophistication have difficulty in fully comprehending financial narratives*" (Smith and Taffler 1992a: 94).

Courtis (1995) uses the *Flesch*, *Fog*, and *Lix* scales to examine the readability of Hong Kong annual reports, which have been prepared in English, but whose target readership speaks English as a second language. His hypothesis is that annual reports of Hong Kong companies should be easier to read. This is based on the assumption that preparers would take the limited linguistic abilities of their target readership into consideration. However, his hypothesis is not borne out by the results of his analysis.

Previous research attributes reading difficulty to two factors, namely (1) managerial manipulation and (2) bad writing. Rutherford (2003: 189) and Courtis (2004: 292) regard reading difficulty as a consequence of deliberate managerial manipulation, whereas Courtis (1995: 4) leaves the issue "*whether writing which is difficult to read is executed deliberately to mask some unfavourable aspect of corporate behaviour, or is performed unwittingly out of ignorance*" open to discussion. Whereas the former represents a deliberate effort on the part of management to mislead readers about firm performance and prospects and thus constitutes impression management, the latter is due to lack of skill on part of the writer. In practise, however, it is impossible to differentiate between the two.

However, based on the importance of the annual report as a financial reporting and investor relations vehicle, one would expect that narrative corporate report sections of listed companies are written by skilled writers. Considering the adverse effect of a badly executed annual report in terms of money and reputation, it can be assumed that

companies spend both time and care ensuring that they communicate exactly what management wants them to communicate. Thus, they either employ professional outside agencies or employ suitably qualified inside staff to write narrative report sections which convey the right message.

In the context of this study reading ease manipulation is regarded as the deliberate manipulation of reading difficulty. This follows from the earlier definition of impression management as an intentional manipulation of perceptions of firm performance and prospects with the aim of misleading outside parties. In the case of reading ease manipulation this is achieved by means of manipulating the reading difficulty of annual report sections.

Another factor contributing to the reading difficulty of narrative corporate report sections are the genre characteristics of narrative corporate report sections. Research in linguistics and education explain the reading difficulty of narrative corporate report sections by means of their genre characteristics. They constitute expository texts, i.e. texts whose main purpose is explanation. Such texts are textually more complex than narrative texts (Graesser et al. 2003) and thus more difficult to process and read.

However, genre characteristics manifest themselves across the entire genre. This means that, e.g. all chairman's reports, regardless of company characteristics, such as size or firm performance, should be equally difficult/easy to read. Research findings indicate that this is not the case. For this reason, genre characteristics are not the decisive factor in the reading difficulty of narrative annual report documents.

However, since the concept of reading difficulty is borrowed from education research, economics-based theories of reading difficulty do not exist. As a result, prior literature fails to address whether the application of the linguistic techniques required to manipulate the reading difficulty of texts are executed consciously or unconsciously. It could thus be argued that reading ease manipulation may take place both on a conscious and on an unconscious level, depending on the level of awareness of these techniques on part of the writer. This view takes account of the fact that corporate communication professionals may use the linguistic techniques aimed at achieving reading ease manipulation more consciously than management and thus allows for the

use of impression management in the form of reading ease manipulation by both management and corporate communication professionals.

This situation can be compared to people going to job interviews. All candidates intentionally manipulate the perceptions (and thus, hopefully, the decisions) of the interview panel regarding their suitability for the job in question in order to make the best impression possible, but might have different degrees of awareness of the means they use to do so.

In interview situations some factors can be identified as being crucial for making a good impression, e.g. matching one's style of dress to the dress-code of the organization, making eye-contact with all the members of the interview panel, and asking questions about the organization they are applying to at the end of the interview. However, although candidates might all adopt these strategies, it does not mean that they all do so consciously with a view to making a good impression.

In the context of this study, impression management in the form of reading ease manipulation is defined as the intentional managerial manipulation of firm performance and prospects with the aim of misleading other parties by the conscious and unconscious application of linguistic techniques associated with reading difficulty.

Rhetorical manipulation

Research focusing on rhetorical manipulation regards persuasive language as a proxy for obfuscation. It is based on the assumption that management conceals negative organizational outcomes by means of rhetorical devices, such as passive voice. Table 2.3 provides a summary of impression management studies based on rhetorical manipulation methodologies.

Table 2.3: Summary of rhetorical manipulation studies

Study	Country	Time scale	Sample size	Narrative sections	Content analysis technique	Independent Variables	Statistics	Results
Thomas (1997)	US	1984-1988	1	Manager's message to stockholders	Passive constructions, Sentence openers, Relationship between first and last paragraph, Euphemisms	Performance	---	Negative news not attributable to individuals thought to be responsible
Jameson (2000)	US	1996/97	200	Entire annual report	Multiple voices, Embedded genres, Contrasting focal points	Performance	t-tests, chi-square tests	Uses complex linguistic analysis to show how mixed return compared with top return funds are explained
Lang and Lundholm (2000)	US	1992	41+ 41	Disclosure documents	Type of statements (performance, management spin, forward looking, other), Tone of disclosures (optimistic, pessimistic)	Equity offering / nonoffering firms	Logistic regression	Disclosure increases prior to equity offerings. Tone is predominantly optimistic
Sydserrff and Weetman (2002)	UK	1999/2000	27	Chairman's report	Transitivity index, DICTION	Performance	---	Transitivity index balances but does not supplant use of readability scores
Yuthas et al. (2002)	US	2001	14	President's letter and MD&A	Comprehensibility, Truth, Legitimacy, Sincerity, DICTION	Performance	---	Positive and negative performers are more communicative
Davis et al. (2005)	US	1998-2003	24,000	Press releases	Optimistic/Pessimistic language use, DICTION	Future performance, Size, Industry, Year	Regression	Positive (negative) association between positive (negative) language and future performance

Narrative disclosure

Research focusing on narrative disclosures regards the choice of themes as a proxy for obfuscation. Management conceals negative organizational outcomes by means of including specific themes and excluding others.

It is based on the assumption that the themes contained in the narrative sections of successful and unsuccessful companies vary. Studies focus on investigating the association between thematic content and firm performance, with the aim of using the content of narrative sections to predict the financial prospects of the firm (see section 2.3.3). Table 2.4 summarises this stream of research.

Table 2.4: Summary of narrative disclosure studies

Study	Country	Time scale	#	Narrative sections	Content analysis technique	Independent variables	Statistics	Results
Ingram and Frazier (1980)	US	1970-1974	40	Environmental disclosures	WORDS	Environmental performance	Multiple regression analysis	Weak association only between quantitative measures of disclosure content and environmental performance
Frazier et al. (1984)	US	1978	74	Management analyses of the results of operations	WORDS	Performance, Management/owner controlled	Regression analysis	More thematic similarities than differences were found between good/poor performers and management/owner controlled firms
Tennyson et al. (1990)	US	1978	46	Management discussion and analysis (MD&A), President's letter	WORDS	Firm survival	Logistic regression	Narrative disclosures were significant in explaining financial distress
Smith and Taffler (1995)	UK	1978-1985	66	Chairman's report	User perception	Firm survival	z-scores	Narratives are useful predictors of financial performance but are not as useful as quantitative information
Clatworthy and Jones (2006)	UK	1997	100	Chairman's report	Length of accounting narratives, Number passive sentences, Number key financial indicators, Number personal references, Number quantitative references, Number future references	Performance	Descriptive statistics	Profitability is directly related to the length of accounting narratives, to the number of key financial indicators, to the number of quantitative references and to the number of personal references used, and inversely related to the number of future references used. Both profitable and unprofitable companies emphasize good news.

Thematic manipulation

Studies dealing with thematic manipulation are based on the assumption that management conceals negative organizational outcomes by not reporting them or by not reporting them to the same extent as they report positive organizational outcomes.

Research in this area explores whether management shows preferences in the reporting of positive and negative organizational outcomes in the narrative sections, dependent on the financial performance of the firm. It focuses on investigating the association between the 'good/bad news' contained in the narrative statements in the form of positive/negative organizational outcomes and the 'good/bad news' contained in the financial accounts in the form of financial performance (see section 2.3.4). These studies are summarized in Table 2.5.

Table 2.5: Summary of thematic manipulation studies

Study	Country	Time scale	Sample size	Narrative sections	Content analysis technique	Independent variables	Statistics	Results
Abrahamson and Park (1994)	US	1989	1,118	President's letter to shareholders	Negative organizational outcomes	Performance, Various corporate governance variables ¹	Correlation analysis; Regression analysis	Outside directors, large institutional investors and accountants limit concealment of negative organisational outcomes
Smith and Taffler (2000)	UK	1978-1985	66	Chairman's report	Positive/negative keywords	Firm survival	Linear discriminant analysis	Firms' discretionary narrative disclosures are closely associated with financial performance
Clatworthy and Jones (2003)	UK	1997	100	Chairman's report	Performance attributions	Performance	Regression analysis	No systematic differences were found in readability between profitable and unprofitable companies.
Rutherford (2005)	UK	1998	44	Operating and financial review	Frequencies of 90 key words	Performance, Gearing	Mann-Whitney U test	Language is biased toward the positive.
Henry (2006)	US	1988-2002	1,366	Press releases	Tone (frequency positive/negative key words - DICTION), Length of press release, Textual complexity, Numerical intensity	Abnormal share price returns	Regression analysis	Tone of earnings press releases influence investors' reactions.

¹ Percentage of outsiders, Percentage of shares held by outsiders, Percentage of shares held by top officers, Percentage of shares held by institutional shareholders, Owner control, Institutional investor control, Percentage of shares held by nondominant institutional shareholders, Auditor's opinion, Number of officers selling shares, Value of shares sold by officers, Number of outside directors selling shares, Value of shares sold by outside directors.

2.2.2 Attribution of organisational outcomes

Accounting research has adopted attribution theory from social psychology (see section 2.7.5) to explain managerial impression management attempts in the case of positive and negative organisational outcomes. Research focusing on attribution in a financial reporting context examines impression management in the form of performance explanations. It claims that managers use narrative corporate report sections in a self-serving manner, and not to report performance objectively. Managers are assumed to attribute good performance (positive organizational outcomes) to internal factors and bad performance (negative organizational outcomes) to external circumstances. These studies are summarized in Table 2.6.

Staw et al. (1983), who analyze the President's Letter to Shareholders of 81 US companies, find that firms use self-serving attributions in their narrative sections. There is evidence of management taking credit for successes and attributing blame for failures to external causes.

Aerts (1994) finds that negative organizational outcomes are explained by means of technical accounting terms, whereas positive organizational outcomes are interpreted by means of cause and effect. In this context, accounting explanations are used to avoid explaining negative organisational outcomes.

Hooghiemstra (2001) investigates the CEO's letter to shareholders of 30 large American and Japanese companies in order to examine the differences in attributional behaviour. He hypothesizes that variations in attributions of positive and negative organisational outcomes will be a function of the cultural background of the two countries with American managers showing more self-serving bias than their Japanese counterparts. He also hypothesizes that Japanese managers will be more modest in attributing positive outcomes, which will also be attributed to external causes, and more self-deprecating with regard to negative outcomes, which will be also attributed to internal factors. The results support the hypotheses to a large extent.

He also investigates the use of language used to explain positive and negative organizational outcomes, hypothesizing that firms tend to explain negative outcomes in ambiguous accounting terminology and positive outcomes by means of clear causal

relationships. However, both positive and negative organizational outcomes are found to be explained in causal language, with Japanese managers using technical accounting language to a larger extent than their American counterparts.

Baginski, Hassell and Hillison (2000) examine causal attribution disclosures in relation to management forecasts. They find that causal attributions to external factors are more likely to accompany bad news forecasts, while good news forecasts are attributed to internal factors. This they describe as egotism-drive bias. Baginski, Hassell and Kimbrough (2004) argue that investors are more likely to demand explanations for unexpected bad news. Consistent with their expectations, they find that attributions are more likely with bad news forecasts.

Table 2.6: Summary of attribution of organisational outcomes studies

Study	Country	Time scale	Sample size	Narrative sections	Content analysis technique	Independent variables	Statistics	Results
Staw et. al. (1983)	US	1976-1977	81	Letter to shareholders	Performance explanations	Change in stock price, Institutional ownership, Age of CEO, Tenure of CEO, Salary of CEO	Correlation analysis	Impression management is effective in that self serving attributions were associated with improvements in stock price
Aerts (1994)	Belgium	1983	50	Directors' reports	Performance explanations	Short-term performance, Stability of performance, Firm size, Industry	Descriptive statistics, Binomial test, t-test, ANOVA	Accounting narratives are biased, with success being claimed but negative factors being blamed on external uncontrollable factors.
Baginski et al. (2000)	US	1982-1986	2,085	Management forecasts	Manual coding of internal / external causes	Forecast type, Analyst following, Forecast horizon, Disclosure package, Other announcements, Share prices	Bivariate correlation, Regression analysis	Attributions more likely with bad news forecasts. Attributions enhance precision or credibility of the forecasts.
Hooghiemstra (2001)	US, Japan	1999	60	CEO's letter to shareholders	Performance explanations, Technical language	Performance	Regression analysis	Both American and Japanese CEOs attribute positive outcomes to internal factors; Both American and Japanese CEOs explain positive and negative outcomes in causal language.

Table 2.6 (continued): Summary of attribution of organisational outcomes studies

Study	Country	Time scale	Sample size	Narrative sections	Content analysis technique	Independent variables	Statistics	Results
Aerts (2001)	Belgium	1983-1990	22	Directors' reports	Performance explanations	Short-term performance, Long-term performance, Listing status, Firm size	Correlation analysis, Regression analysis	Significant degree of consistency in accounting narratives over time was found. Consistently high level of positive attributions were unresponsive to performance change.
Lee et al. (2004)	US	1975-1995	294	Annual reports	Attributional statements	Stock prices	Correlation analysis Regression analysis	Companies that made self-disserving attributions (i.e., internal, controllable) for negative events had higher stock prices one year later.
Baginski et al. (2004)	US	1993-1996	951	Management forecasts	Manual coding of internal / external causes	Firm size, Earnings volatility, Good/bad news, Forecast type, Regulation, Industry, Other disclosures	Logistic regression	Attributions more likely for larger firms, bad news forecasts, maximum type forecasts; Less likely in regulated industries and in longer horizon forecasts. Associated with greater absolute and more negative price reactions to management forecasts.
Aerts (2005)	Belgium	1997	167	Directors' reports	Performance explanations			Self-serving tendencies in attributional behaviour depend on context, and the nature of the accounting effect explained

2.2.3 Performance comparisons

This stream of research is based on the assumption that firms manage impressions by means of choosing performance comparisons which enable them to portray their current performance in the best possible light. Impression management by means of performance comparisons has been studied in the context of (1) performance referents, (2) benchmark earnings number, and (3) benchmark comparisons in share performance graphs. These studies are summarized in Table 2.7.

The use of performance referents for organisational performance is based on the assumption that CEOs manage impressions by means of comparing performance indicators against reference points, namely either time-series (past performance) and cross-sectional (industry averages and competitors). The use of benchmark earnings numbers is based on the assumption that firms manage impressions by means of choosing the lowest prior period comparative benchmark earnings number in order to report the highest year-on-year increase in earnings. The use of benchmark comparisons in share performance graphs is based on the assumption that firms manage impressions by choosing the type of benchmark which provides the most favourable image of their share performance.

Short and Palmer (2003) investigate the way CEOs monitor and interpret organizational performance by means of comparisons of performance indicators against internal (such as past performance) and external (such as competitors and industry averages) reference points. They perform content analysis on President's Letters to Shareholders of 116 US companies. They find a strong preference for the use of internal referents (85.4%) as compared to external referents (14.6%) to assess performance. They find CEOs of large and highly performing companies use more external referents (comparisons with competitors and industry averages) in their performance explanations than those of small and poorly performing companies.

Schrand and Walther (2000) find that managers are more likely to select the lowest prior period comparative benchmark earnings number that enables them to report the highest year-on-year increase in earnings. As such, managers are managing the

perceptions of earnings rather than the earnings themselves – thus fitting our definition of impression management.

Cassar (1999) investigates use of benchmark comparisons in share performance graphs. He examines how Australian firms report their performance compared with US companies. Two possible benchmarks are observed: (1) an index comparing company performance against the overall market and (2) a peer index, to compare company performance to other companies in the same industry. Australian companies have discretion over which benchmark to include in their reports whereas US companies do not. Cassar's (1999) findings show that almost all Australian companies (87 percent) perform better than their benchmark, but that only 52 percent of the US companies perform better than their benchmark. This suggests that, when managers have discretion, they select the information presenting the best performance for the company.

Table 2.7: Summary of performance comparisons studies

Study	Country	Time scale	Sample size	Narrative sections	Content analysis technique	Independent variables	Statistics	Results
Schrand and Walther (2000)	US	1988-1994	130	Quarterly earnings announcements	Prior period earnings benchmarks	Share price reaction	Regression analysis	Managers select prior period benchmark that results in greatest increase in earnings. Investors use the benchmark to evaluate earnings.
Cassar (2001)	Australian	1996	484 /392 (1/5 years)	Annual reports	Disclosure of share performance graphs	Comparison share price performance, Firm size	Logistic regression	Better performing firms are more likely to disclose share performance graphs. This selectivity, together with choice of comparisons in graphs resulted in 87% of firms performing better than disclosed comparisons.
Short and Palmer (2003)	US	1996	119	President's letter	Performance referents	Firm size, Performance, Corporate age	MANOVA	CEOs of large, highly performing and young companies use more external performance referents than CEOs from small, poorly performing and established firms

2.2.4 Choice of earnings number in corporate narrative documents

Pro forma earnings are earnings numbers other than those calculated under generally accepted accounting principles (GAAP). Thus, pro forma earnings can be computed in many different ways. Pro forma earnings have been referred to as “*earnings excluding all the bad stuff*” (Fox 1998: 48). Two possible explanations for pro forma earnings have been put forward: (1) Management are motivated to provide investors with more accurate useful information or (2) Managers are making the firm look more profitable. If the latter motivation is the case, then use of pro forma earnings fits the definition of impression management.

There is widespread evidence that pro forma earnings are predominantly income increasing over their GAAP counterpart (Johnson and Schwartz 2005). Managers select for inclusion in press releases the metric that portrays the firm in the best light. This supports an impression management motivation for such reporting. Johnson and Schwartz (2005: 924) refer to using pro forma earnings for the purpose of “*managing readers’ perceptions of earnings*”. They find support for managerial self-serving behaviour in that pro forma earnings exclude more than non-recurring items. They also find that firms that report pro forma earnings have earnings that are no different in persistency compared with firms that report GAAP earnings. This, they say, contradicts the notion that firms use pro forma earnings to draw investors’ attention to less persistent, more transitory items in GAAP earnings. Studies focusing on the choice of earnings number in corporate narrative documents are summarised in Table 2.8.

Guillamon Saorin (2006) finds that companies disclose far more positive than negative information, both qualitative (keywords or statements) and quantitative (amounts in general, and the best profit number in particular), although the amount of negative quantitative information included in the press releases is greater than the amount of negative qualitative information. Around 30 percent of the profit figures included in UK and Spanish press releases were not reported in the profit and loss account. Further, she finds that the selection of profit figures from the profit and loss account for inclusion in the press release is different for Spanish and UK companies.

Bowen et al. (2005) examine pro forma earnings in press releases, in particular the emphasis placed on that number for firms that disclose both pro forma and GAAP earnings. Emphasis is measured in two ways: positioning of the disclosure item of interest (pro forma earnings; GAAP earnings) in the press release, and the relative positioning of pro forma compared with GAAP earnings. They find that managers emphasise the metric that portrays the firm in a better light.

Table 2.8: Summary of choice of earnings number studies

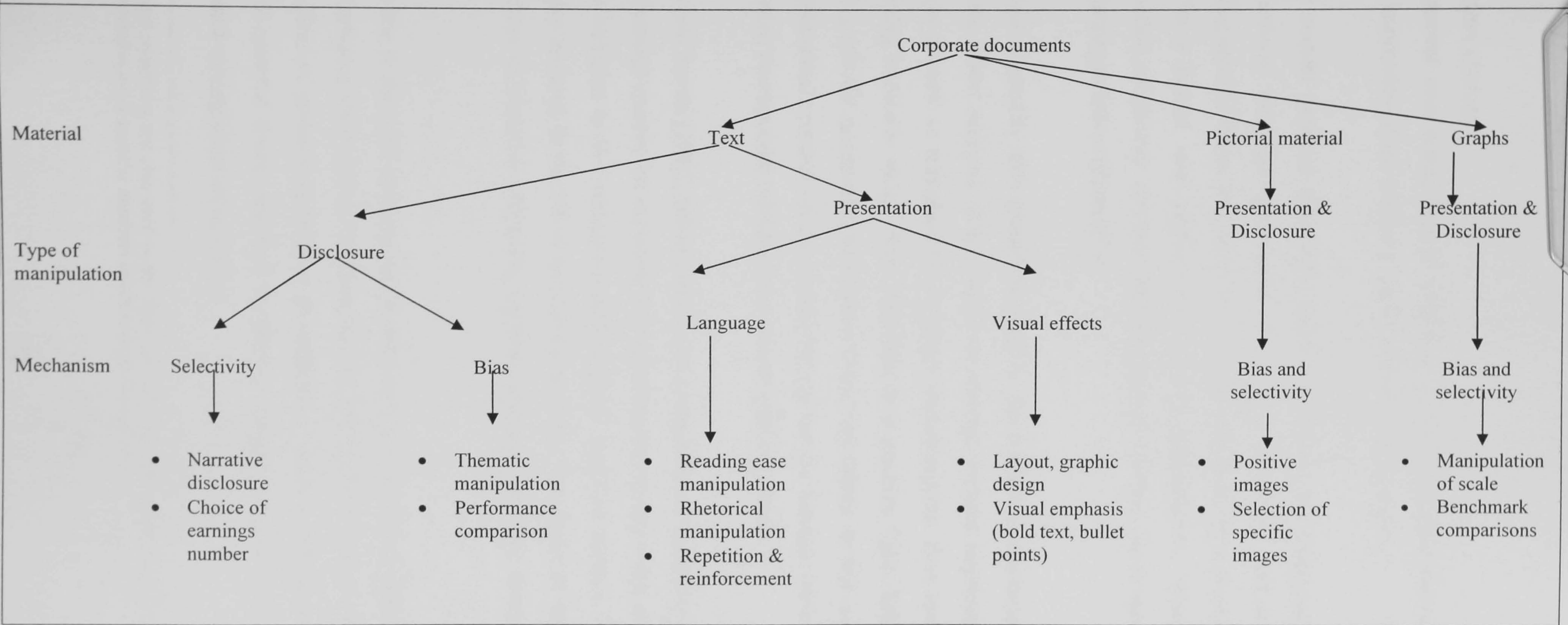
Study	Country	Time scale	Sample size	Narrative sections	Content analysis technique	Independent variables	Statistics	Results
Bowen et al. (2005)	US	2001-2002	206 firms, 1,188 firm quarters	Earnings press releases	Emphasis/positioning of pro forma earnings	Value relevance Performance Media coverage Level of scrutiny from regulator	Regression analysis	Firms emphasise metrics that are more value relevant and that portray more favourable firm performance.
Johnson and Schwartz (2005)	US	2000	433	Press release	Pro forma earnings disclosures	Profitability, Firm size, Market risk, Ownership, Growth expectation	Regression analysis	Income increasing pro forma adjustments to GAAP earnings dominate the sample. Some highly profitable firms make income decreasing pro forma adjustments.
Guillamon Saorin (2006)	UK and Spain	2000	172	Press release	Repetition, Reinforcement, Visual emphasis Selectivity	Firm size Performance Nationality Industry Investor relations department	Logistic regression	Reporting bias and the selection of information for disclosure is influenced by the performance of the company. Impression management practices differ by nationality

2.2.5 Impression management mechanisms

Another way of categorising impression management research is by type of mechanism used to manipulate the perceptions of users regarding firm performance and prospects, namely by means of (a) disclosure choices and (b) the way information is presented. This is achieved by means of two mechanisms, namely (1) bias and (2) selectivity. Bias entails conveying information as positively as possible and selectivity involves omitting or including certain items of information. Figure 2.4 illustrates the different ways impression management manifests itself in corporate documents by means of employing bias and selectivity to manipulate the disclosure and presentation of information.

Figure 2.4 shows that bias and selectivity in corporate documents manifest themselves specifically on (1) textual material, (2) numerical disclosures within the textual material, (3) pictorial material, and (4) graphs.

Figure 2.4: Manipulation of disclosure and presentation of information



Disclosure choices

Management uses either bias or selection in their disclosure choices to influence users' impression of the company's performance and prospects.

In the textual sections bias and selection result in the obfuscation of negative organisational outcomes by means of narrative disclosure and thematic choice. Selecting specific items for disclosure amounts to narrative disclosure and disclosing items in a biased way amounts to thematic manipulation. Whereas disclosing information selectively involves selecting specific themes, disclosure bias involves emphasising positive information.

Bias and selectivity also manifests itself in the numerical disclosures in narrative corporate report sections. It is possible to manage investor impressions using hard numbers as well as narratives in corporate annual reports. Bias involves choosing accounting numbers which show the firm in a positive light. Selection involves choosing specific accounting numbers and omitting others. In this context, there has been substantial research on pro forma earnings but the linkages between their use as impression management vehicles has not been explicitly made.¹⁵

Guillamon Saorin (2006) defines selectivity (a quantitative measure) as the selection of an earnings amount for inclusion in press releases from the whole range of earnings figures included in the underlying audited profit and loss account. There has been extensive research in the US on pro forma earnings. The choice of earnings numbers to disclose in narrative corporate reporting sections has been discussed in section 2.2.4.

Disclosure in the form of pictorial material is used to provide a visual representation of the company (See studies by (Graves et al., 1996); (Preston et al., 1996); (Douglass, 2000)). Bias of pictorial material is to emphasize positive images and selectivity of pictorial material draws attention to specific images. Curtis (2004b) has studied impression management using colour.

¹⁵ Bias and selectivity are also used in the financial accounts where they manifest themselves by the inclusion/exclusion of specific numbers (such as profit before tax).

Disclosure in the form of graphs displays financial information in visual form. Beattie and Jones (1992, 1994, 1997, 1999, 2000, 2002) have pioneered research on impression management using graphs in the UK (1992), in charity accounts (1994), in the US and UK (1997), in Australia (1999), and in different countries (2000). Curtis, (1997), Frownfelter-Lohrke and Fulkerson (2001), Mather et al. (2000), and Godfrey et al. (2003) have also studied graphical impression management. Bias in graphs is used to emphasize positive trends and conceal negative trends. For example, a carefully constructed graph can exaggerate an unspectacular rise in sales. Selectivity is used to include specific items of financial information and to exclude others.

In an experimental study, Beattie and Jones (2002) test the effect of distortion in graphs and find that users are misled by such distortions, especially unsophisticated users. In particular, they test the effect on user perceptions of the slope parameters in graphs. Frownfelter-Lohrke and Fulkerson (2001) examine distortion in graphs of US listed companies, while Curtis (1997) examines graphs from Hong Kong annual reports.

Cassar (1999) investigates the use of benchmark comparisons in share performance graphs. He examines how Australian firms report their performance compared with US companies. Two possible benchmarks are observed: (1) an index comparing company performance against the overall market and (2) a peer index, to compare company performance to other companies in the same industry. Australian companies have discretion over which benchmark to include in their reports whereas US companies do not. Cassar's findings show that almost all Australian companies (87 percent) perform better than their benchmark, but that only 52 percent of the US companies perform better than their benchmark. This suggests that, when managers have discretion, they select the information presenting the best performance for the company.

Presentation of information

Perceptions of firm performance and prospects can also be manipulated by the way information is presented in corporate documents. This also involves the use of bias

and selectivity in the textual material and the numerical disclosures included in the textual material.

In the textual sections the manipulation of language by means of bias and selectivity result in the obfuscation of negative organisational outcomes by means of reading ease manipulation and rhetorical manipulation. Reading ease manipulation uses textual difficulty and rhetorical manipulation uses rhetorical devices as a proxy for obfuscation. The objective of studies on obfuscation by linguistic means is to investigate whether the language used in narrative corporate report sections transparently communicates performance information or whether it is being used by management to strategically manipulate the perceptions and decisions of shareholders and stakeholders.

In the textual sections presentational bias also manifests itself by means of three different types of emphasis: (1) repetition, which occurs when an item is repeated more than once; (2) reinforcement, which occurs when a piece of information is emphasised by using a qualifier; and (3) visual emphasis, which occurs when companies use a number of methods to make a piece of information more obvious to readers (for example, bullet points, bold text, colour, etc.) (Guillamon Saorin, 2006; So and Smith, 2002; Courtis 2004b).

Guillamon Saorin (2006) examines the practices of repetition, reinforcement and emphasis in a study of UK and Spanish press releases. She finds the same information repeated several times in press releases. Moreover, most of the repetitions related to positive statements rather than negative statements. She also finds that reinforcement of positive rather than negative information was prevalent for both qualitative and quantitative information. Finally, companies positioned negative information in the least emphasised section of the press release, placing positive information more prominently than negative information.

Bowen et al. (2005) examine not merely the choice to report pro forma earnings in press releases but the emphasis placed on that number for firms that disclose both pro forma and GAAP earnings. They measure emphasis in two ways: positioning of the disclosure item of interest (pro forma earnings; GAAP earnings) in the press release,

and the relative positioning of pro forma compared with GAAP earnings. They find that managers emphasise the metric that portrays the firm in a better light.

2.3 Association between impression management and firm performance

This body of research attempts to establish a relationship between impression management in narrative corporate report sections and firm performance as reported in the financial accounts. It is based on the view that the management of companies with poor performance use the narrative annual report sections “*to present management in as favourable light as possible [thus] creat[ing] an impression at variance with an overall reading of the report*” (Stanton et al. 2004: 57).

Thus, the association between impression management and firm performance is based on the assumption of an information incongruity between the narrative corporate report sections and the financial accounts. If management has not engaged in impression management, the information provided by the financial accounts and the narrative statements on the firm’s performance and prospects are consistent (assuming no earnings management has taken place). If, however, the information of the financial accounts is not consistent with the information in the narrative statements, we can assume that management has used the narrative statements to manipulate the impressions and decisions of annual report users.

This gives rise to two possible scenarios in which impression management takes place, namely (1) the negative organizational outcomes reported in the financial statements are not reflected or are not strongly enough reflected in the narrative statements and (2) the positive organizational outcomes reported in the financial accounts are not reflected or are not strongly enough reflected in the narrative statements. The previous impression management literature solely focuses on the reflection of negative organizational outcomes in narrative annual report documents.

The scenario of positive organizational outcomes reported in the financial statements not being reflected, or not being strongly enough reflected, in the narrative statements can occur when a company appoints a new CEO. Research on earnings management suggests that incoming CEOs take a 'big bath', i.e. they engage in downwards earnings management in the year they take over the running of the company and in and upward management in the following year. This is part of a strategy of managing expectations and setting achievable performance goals (Pourciau 1993).

The majority of impression management studies examine the association between impression management and firm performance in order to discover whether there is a difference in the use of impression management between well-performing companies and badly-performing companies. Some studies use the dichotomy of bankruptcy/survival as a proxy for performance. In the remainder of the studies firm performance is either measured in absolute or in relative terms.

2.3.1 Reading ease manipulation

Studies in reading ease manipulation examine the association between reading difficulty and financial performance, the hypothesis being that companies with negative organisational outcomes tend to obfuscate more than companies with positive organisational outcomes which makes the narrative corporate report sections of firms with positive organisational outcomes easier to read than those with negative organisational outcomes.

Jones (1988) uses the *Flesch* readability score to investigate the readability of a company's chairman's reports over a thirty-year period. The relationship between readability and seven independent variables is examined by means of regression analysis, namely 1) time, 2) operating profit/sales, 3) return on capital employed, 4) turnover, 5) listing status, 6) change of title from directors' report to chairman's report, and 7) change of chairman. Readability is judged to be low, and a negative correlation between readability and both turnover and time is established. As turnover increases and time passes, readability declines. Readability is found to be directly correlated with listing status.

Baker and Kare (1992) conduct research into the readability of US annual reports. They examine the relationship between the readability of the President's Letter to Shareholders, measured by means of the *Flesch* readability score, and profitability and company size. Results indicate that the President's Letter to Shareholders is difficult to read, i.e. requiring a reading level equivalent to college education. They find an inverse relationship between size and readability, but the association between readability and profitability is inconclusive.

Smith and Taffler (1992b) test the usefulness of readability (*Flesch* and *Lix*) and understandability (*cloze*) measures for the prediction of bankruptcy. However, they find both readability and understandability scores to be unrelated to the profitability of the companies in question.

In an experimental setting using student subjects, Smith and Taffler (1992a) investigate the relationship of the readability (*Flesch* and *Lix*) and understandability (*cloze*) of the chairman's report and bankruptcy. They find readability to be a good predictor of bankruptcy, but understandability fails to successfully distinguish between failed and non-failed companies. This is attributed to the lack of accounting sophistication of the undergraduate accounting student test group.¹⁶

Subramanian et al. (1993) investigate the relationship between readability, measured by means of *Flesch* and *Fog*, and financial performance. For this purpose, they create a matched sample of under-performing and over-performing companies. They use a style analysis software program which complements the traditionally used readability measures with three additional components which capture style, namely a) strength, i.e. the strength of delivery of the document's message, which is based on simplicity and conciseness, b) description, i.e. the use of modifiers such as adjectives and adverbs, and c) jargon, i.e. the vocabulary only known by a group of people operating in a particular area of expertise. They find overall readability and strength to be

¹⁶ However, it could equally be due to the lack of validity of the *cloze* procedure, which entails respondents completing texts which have had random words deleted at regular intervals (see chapter 3, section 3.2 for a more detailed discussion), and is thus more likely to measure inference skills than comprehension.

directly associated with company performance. However, they discover no significant difference in description and jargon between the two groups of companies.

Courtis (1995) examines the association between the readability of Hong Kong annual reports (by means of *Flesch*, *Fog*, and *Lix*), and sector, size, and profitability, but none of the results are statistically significant. He also finds that readability has not improved significantly over time. In his critique of Courtis' (1995) article, Jones (1996) points out that this study provides evidence for the syntactical difficulty of Hong Kong annual reports rather than their understandability. He further draws attention to the difficulty of evaluating annual reports in a bilingual environment.

Courtis (1998) examines the variability of readability scores within the chairman's report of 120 companies listed on the Hong Kong stock exchange by means of using the *Flesch* score. He hypothesises that the variability of readability scores is a reflection of managers trying to hide poorly articulated bad news amongst clearly formulated good news. He finds that all companies display statistical variability. He further explores the relationship between the variability of readability and both profitability and frequency of press coverage. Frequency of press coverage is a proxy for public attention, the hypothesis being that companies with a high public exposure obfuscate negative organisational outcomes by means of reading ease manipulation in order to minimise interference from investors, government and regulatory agencies. Consequently, Courtis' (1998) hypotheses are that companies with negative organisational outcomes and companies which are often cited in the press are more likely to hide bad news in their annual reports. He finds a significant relationship between variability of readability scores and companies with negative organisational outcomes, but not with companies often cited in the press.

However, Clatworthy and Jones (2001), who replicate this study in the UK, fail to support Courtis' hypotheses. The fact that the first passage of the chairman's report is easier to read than the middle section and the end is attributed to thematic structure rather than obfuscation. In this respect, their study is unusual since it relates comprehension difficulty to thematic structure. However, the methodology, which leads to the discovery of a three-part structure with eleven main themes, is not made

explicit and no evidence is found for a relationship between thematic structure and company performance.

Sydserrff and Weetman (2002) analyze the chairman's report and manager's report of 26 small UK investment trusts with the aim of discovering whether the narrative sections of well-performing and badly performing trusts show any significant differences in (a) *Flesch* readability score, (b) transitivity index, or (c) *DICTION* scores. Whereas the result of their analysis is mixed, the overall conclusion is that both the transitivity index and the *DICTION* scores provide "*useful alternatives for the accounting researcher investigating impression management*" (Sydserrff and Weetman 2002: 539).

Rutherford (2003) examines whether companies use textual complexity to obfuscate poor performance. Using the text length and the *Flesch* reading ease index to measure obfuscation by means of reading ease manipulation, he finds no evidence for the obfuscation hypothesis.

Courtis (2004a) examines the association between readability and variability of readability and financial performance, corporate age, and corporate complexity. He finds a weak association between reading difficulty and negative organisational outcomes. His overall conclusion is that "*there is no systematic evidence to indicate that obfuscation is being used as a tool to deliberately deceive readers*" (Courtis 2004a: 308).

The discussion of studies focusing on the association between reading difficulty and firm performance has shown results to be mixed and inconclusive. This can be attributed to two factors, a) the questionable reliability and validity of readability measures and b) the company-specific measures used to capture financial performance. For further discussion of these points see chapter three, section 3.3 and chapter five, section 5.2.

2.3.2 Rhetorical manipulation

Thomas (1997) performs a rhetorical analysis of the manager's message to stockholders which tests the association between rhetorical structures and

profitability. Her conclusion is that the manager's message to stockholders differs between profitable and unprofitable years. She finds negative organisational outcomes associated with rhetorical devices attributing blame to circumstances outside of management's control. Her overall conclusion is that "*managers' letters suggest and imply, but they do not lie*" (63), i.e. it is possible to read between the lines.

Jameson (2000) also uses rhetorical analysis, in the context of US mutual funds explaining why returns are high in absolute and historical terms, but are low in relative terms by reference to benchmarks, market indices etc. Directness is one of three linguistic aspects he considers. Directness is where the main point is revealed at or towards the beginning of the business communication. He finds shareholder reports of mixed return mutual funds to be significantly less direct than those of top performing funds.

As mentioned earlier, Sydserff and Weetman (2002) split 26 investment trusts into good performers and poor performers based on net asset value total return. They use two rhetorical analysis methodologies (Transitivity Index and *DICTION*). Results from differentiation between good and poor performers are mixed. While finding some evidence of impression management, they conclude that management is even handed in presenting narrative information.

Yuthas et al. (2002) use *DICTION* to examine the association between the Habermasian principles of communicative action, consisting of comprehensibility, truth, legitimacy and sincerity, and earnings surprises. They analyze President's Letter to Shareholders and the Management and Discussion Analysis of seven firms with negative and seven firms with positive earnings surprises, matched in size. Their findings are that both companies with positive and negative earnings surprises exhibit a higher level of communicative action than companies without earnings surprises, randomly chosen from Fortune 500 companies. This seems to suggest that the management of companies with earnings surprises uses the narrative sections to emphasize its honesty and trustworthiness.

Davis et al. (2005) use textual analysis software (*DICTION*) to measure the level of optimistic and pessimistic language in earnings press releases, controlling for earnings surprises and other numerical disclosures. They test the relation between disclosures and future return on assets measured as the return in the four quarters after disclosure. They find a positive (negative) association between positive (negative) language and future performance. They conclude that managers use optimistic and pessimistic language in press releases to provide market participants with information about expected future financial performance.

Lang and Lundholm (2000) analyse disclosures before new equity public offerings into three broad categories of disclosure: performance-related disclosures, management spin, and forward looking items. Management spin is measured in two ways: (i) significant additional detail concerning performance, and (ii) management quotes expanding on performance results. In addition, they take 15 different types of statement, and classify these into optimistic, pessimistic, and neutral. They find that the absolute and relative frequency of optimistic disclosures increases dramatically before equity public offerings, while pessimistic disclosures decrease slightly. After the offering the mix of tones becomes more neutral.

2.3.3 Narrative disclosure

Ingram and Frazier (1980) examine the interrelationship between environmental performance and corporate disclosure by means of manual thematic content analysis. However, the results indicate only a weak association between quantitative measures of environmental disclosure content and environmental performance.

Frazier et al. (1984) examine the relationship between the content of the management discussion and analysis (MD&A),¹⁷ performance and management controlled/owner controlled firms. They develop a content score by means of using a computer-assisted content analysis system called WORDS. No significant correlation between narrative content and management/ownership control is found, but a positive relationship between content and future returns is established.

¹⁷ In fact, the predecessor of the MD&A, namely the Management Analysis of the Results of Operations.

Tennyson et al. (1990) use the same content analysis program for examining the usefulness of narrative disclosures for explaining bankruptcy. The president's letter to shareholders and the management discussion and analysis form the basis of the study. WORDS identifies five thematic constructs for each document and assigns scores to each company, quantifying the importance of each theme for each firm. Subsequently, three issues are examined, namely a) the association between narrative content and bankruptcy, b) the existence of systematic differences between the disclosures in the two documents, and c) the additional information content of narrative disclosures in predicting bankruptcy besides financial ratios. For this purpose, a second classificatory model is created using both narrative theme scores and accounting ratios. The two models are subsequently compared. They find that the disclosures contained in the MD&A and in the president's letter are useful for bankruptcy prediction and enhance models based solely on financial ratios.

Smith and Taffler's (1995) study is unique in that it compares the decision usefulness of accounting narratives compared to a) financial statements and b) both information sources presented together to annual report users, i.e. it *“uses decision-makers as judges to determine how effectively they can make the failed/non-failed decision when presented with data in each of the alternative formats”* (Smith and Taffler 1995: 1196). The result is that the information contained in narrative sections is a good predictor of corporate success or failure, but financial statements produce a better prediction rate. However, the two information sources often contain conflicting information, which they conclude is due to management manipulation.

Clatworthy and Jones (2006) examine the association between the content of the chairman's report and profitability. The aim of the study is to discover whether there is a systematic difference in reporting strategies between profitable and unprofitable companies as far as (1) length, (2) key financial indicators, (3) quantitative references, (4) personal references, (5) writing style, (6) future-orientation, and (7) focus on good news, is concerned. However, the rationale for selecting these particular seven factors and their connection with impression management is not explained. Their results show a significant correlation for five out of the seven factors. The two exceptions are writing style, measured in number of passive sentences, and use of key words. As far

as focus on good news is concerned, the findings show that both profitable and unprofitable companies focus on good news.

2.3.4 Thematic manipulation

Using key words denoting negative organisational outcomes, Abrahamson and Park (1994) find that the greater the decline in firm performance the greater the negativity of the Presidents Letters to Shareholders.

Smith and Taffler (2000) examine the association between narrative disclosures and bankruptcy. Their aim is to determine whether the narrative disclosures contained in the Chairman's Report have any decision-usefulness by means of examining both the key words and the themes "*that might together be systematically associated with subsequent firm failure or success*" (628). Both form-oriented and meaning oriented content analysis are used, the former based on word occurrences and the latter on thematic content. The results for the word based and the theme based analysis are both found to be highly associated with firm failure. The model proves to have the same degree of accuracy as financial ratio-based z-score models.

Clatworthy and Jones (2003) examine the chairmen's narratives in the top and bottom performing 50 listed UK companies. They find that both performing groups emphasize the positive, both groups like to take credit for good news, and blame bad news on others. Thus, managers in both groups behave in a self-serving way.

Rutherford (2005) examines the word frequencies of the Operating and Financial Reviews of 64 UK listed companies with the purpose of identifying genre rules. Regardless of financial performance, he finds that companies are biased towards positive terminology (what he calls the Pollyanna effect). He also finds that the Pollyanna effect is stronger in the case of poorly performing firms.

Clatworthy and Jones (2006), who examine the association between seven factors - one of which is focus on good news - and increasing/declining performance, find that both profitable and unprofitable companies focus on good news.

Henry (2006) examines whether investors are influenced by how press releases are written, rather than considering the relation between impression management and firm performance *per se*. Linguistic devices considered include tone (as measured by frequency of positive and negative key words), disclosure quantity (length of press release), numerical intensity (percentage of words versus numbers in press releases) and textual complexity (number of characters per word). She finds that tone is associated with a market reaction, with length of press release and numerical intensity also having an influence.

2.3.5 Attribution of organisational outcomes

Staw et al. (1983) find a significant association between performance explanations and ‘good/bad news’ in the form of percentage changes in stock price. Prior decreases in stock price are associated with defensive attributions, i.e. blaming negative organisational outcomes on external circumstances. What is more, both increases and decreases in prior stock price results in enhancement effects, which suggests that both positive and negative stock movements “*can be a source of insecurity or provide reason to engage in self-serving attributions*” (596).

Aerts (1994) examines the association between performance explanation and short-term profitability, stability of performance, size, and industry classification. He finds that companies are three times as likely to attribute success to company-internal than company-external factors. What is more, he finds that negative organizational outcomes are explained by means of accounting terminology, whereas positive organizational outcomes are explained by means of clear cause-effect statements.

Baginski et al. (2000) and Baginski et al. (2004) examine attributions in connection with managerial forecasts. They investigate whether investors find managerial attributions credible, a perspective which is discussed further in section 2.5. Both papers find attributions to be more likely with bad news forecasts. They also find external attributions tend to be associated with bad news forecasts and internal attributions with good news forecasts. Further, forecasts are more likely to be accompanied by both external and internal attributions, followed by external attributions only, with forecasts containing internal attributions on their own least likely. Baginski et al. (2004) consider a wider range of variables and find that

attributions are more likely for larger firms and bad news forecasts, and less likely for larger firms and longer horizon forecasts.

Aerts (2001) examines the association between performance explanations and financial performance over time. He investigates the performance explanations of 22 Belgium companies over an eight-year period. He finds that, irrespective of financial performance, firms tend to focus on positive performance attributions.

Hooghiemstra's (2001) analysis of performance explanations by US and Japanese managers shows no significant association between attributional behaviour and profitability. Managers of both profitable and unprofitable American firms attribute positive organizational outcomes to internal factors, i.e. attribute negative organisational outcomes to external factors. However, managers of profitable and unprofitable Japanese firms attribute negative organizational outcomes to external factors, but they do not show any self-enhancing tendencies, i.e. attribute positive organisational outcomes to internal factors.

Clatworthy and Jones (2003) examine the association between performance explanations and financial performance of the top and bottom performing 50 listed UK companies. They find that irrespective of financial performance, firms focus on positive organizational outcomes. What is more, both managers of companies with improving and declining performance attribute positive organizational outcomes to internal factors and negative organizational outcomes to external circumstances.

Lee et al. (2004) find that companies that made self-disserving attributions (i.e., internal, controllable) for negative events have higher stock prices one year later.

Baginski et al. (2004) find attributions to be more likely for larger firms, bad news forecasts, maximum type forecasts and less likely in regulated industries and in longer horizon forecasts. What is more, attributions are associated with greater absolute and more negative price reactions to management forecasts.

2.3.6 Performance comparisons

Schrand and Walther (2000) do not examine the use of performance comparisons by reference to firm financial performance/profitability. Instead they analyse the effect of such disclosures on share prices and they find that the likelihood of managers reminding investors of prior period nonrecurring events is stronger if so doing prevents showing a negative earnings surprise. This is discussed further in section 2.5 on whether impression management is credible.

Cassar (2001) finds that better performing Australian companies are more likely to voluntarily disclose share performance graphs in their annual reports. Performance is measured by share price and accumulated share investment – a different performance measure than in previous research. Companies are categorised as better or worse, by reference to a median measure for the sample for both one and five years. The relation between use of performance comparisons and financial performance is not tested in this paper.

Short and Palmer (2003) investigate the use of performance referents by CEOs by means of performing content analysis on President's Letters to Shareholders of 116 US companies. Their variables are firm size, firm age, and financial performance. They find CEOs of large and highly performing companies use more external referents (comparisons with competitors and industry averages) in their performance explanations than those of small and poorly performing companies.

2.3.7 Choice of earnings number disclosed in corporate narratives

Johnson and Schwartz (2005) find that firms that disclose pro forma earnings are less profitable than those that report GAAP earnings and that income increasing pro forma adjustments to GAAP earnings per share dominate the sample, although they find that some highly profitable firms make income decreasing pro forma adjustments.

Bowen et al. (2005) find that firms emphasise metrics that portray more favourable firm performance. Firms with a history of prior losses place less emphasis on GAAP earnings, with greater *relative* emphasis (difference in the placement of pro forma and GAAP earnings) on pro forma earnings.

Guillamon Saorin (2006) analyses the use of selectivity (of earnings numbers and of keywords and statements) and emphasis (repetition, reinforcement and visual emphasis) by reference to firm performance. Sample companies are categorised as good/bad news companies depending on whether earnings are higher/lower compared with the previous year. She finds that good and bad news firms disclose the same number of positive quantitative amounts in their press releases and that good news companies select for disclosure in press releases significantly more profit figures from the income statement.

2.4 Relationship between impression management and other firm characteristics

2.4.1 Firm size

The literature contains conflicting arguments regarding the association between impression management and firm size.

Short and Palmer (2003) find a significant negative relationship between impression management in the form of performance referents and size. The larger the company, the more the narrative sections refer to external performance referents.

Some studies argue that size is directly related to reading ease manipulation. Courtis (1998) views obfuscation by means of reading ease manipulation to be directly related to press coverage, which can be regarded as a proxy for size, by arguing that companies in the public eye aim “*to reduce the chances of interference from investors, government and regulatory agencies*” (462) by means of confusing their readership by obfuscating negative organisational outcomes.

What is more, Jones (1988) and Rutherford (2003) also regard impression management in the form of obfuscation and size to be directly related by arguing that larger firms have more complex operations which results in syntactically more complex narratives. This hypothesis is confirmed by Jones’s (1988) results. He finds impression management to be inversely related to size. However, this could be

attributed to the limited validity of the *Flesch* readability score, which is the proxy of impression management used in this study.¹⁸

2.4.2 Industry

Disclosure studies hypothesize that industry is an important factor in explaining the differences in disclosure levels. However, Courtis (1995) finds no difference in the reading difficulty of chairman's reports between different sectors.

2.4.3 Corporate governance factors

Abrahamson and Park (1994) investigate the relationship between impression management in the form of thematic manipulation and several corporate governance mechanisms, including board independence, shareholding by outside directors, shareholding by top management, ownership, and audit opinion. They find impression management to be inversely associated with board independence, the presence of large institutional investors, and qualified audit opinion.

2.4.4 Risk

Courtis (1986) examines the association between the reading difficulty (*Flesch* and *Fog*) of randomly selected 100-word passages from the chairman's reports and footnotes of 142 Canadian annual reports and risk and financial performance. He finds no evidence for the association between low reading difficulty and low returns or high risk.

Rutherford (2003) examines the relationship between impression management in the form of reading ease manipulation and risk. He hypothesises that due to increased scrutiny from debtholders, firms with higher risk (higher leverage) are more inclined

¹⁸ However, we expect the opposite to be the case. Large firms have more funds at their disposal to produce annual reports which are clearly written. They have in-house PR departments which produce the company's annual reports or employ outside agencies to do so (Baker and Kare 1992; Courtis 1995). For this reason, their narrative sections should contain less reading difficulty than those of small companies. In contrast to Courtis's argument (1998), the monitoring hypothesis states that increased monitoring by outside shareholders, governmental bodies, analysts, etc. decreases both the opportunity and the incentives for management to engage in impression management (Abrahamson and Park 1994). Since large firms are under more scrutiny from the public, the financial community, and from analysts, they have both less opportunity and incentives to engage in impression management. We thus expect reading ease manipulation to be inversely associated with size. See chapter 4, section 4.1.2 for a more detailed discussion of the direction of association between impression management and firm size.

to obfuscate negative organisational outcomes than firms with lower risk (lower leverage). The findings in the paper do not support this hypothesis.

Table 2.9 provides an overview of previous research focusing on the association between impression management and firm performance, categorised by the different types of manifestations of impression management. It lists the measurement of financial performance, the independent/control variables used, and results.

2.4.5 Other factors

Other factors examined by research are press coverage (Courtis 1998), organisational complexity (Rutherford (2003), corporate age (Short and Palmer 2003; Courtis 2004a) and listing status (Aerts 1994, 2001, 2005). Press coverage and organisational complexity are proxies for firm size.

Short and Palmer (2003) find use of external performance referents to be directly associated with young companies. However, Courtis (2004a) find no significant inverse association between corporate age and reading difficulty.

Aerts (1994) find listed companies to use more assertive performance attributions (i.e. attribute positive organisational outcomes to internal factors) than unlisted companies. However, Aerts (2005) finds no association between performance attributions and listing status.

Table 2.9: Association between impression management and firm performance (good and bad news)

Study	Measurement of financial performance/performance change	Control/Other variables	Results
Obfuscation of negative organisational outcomes			
<i>Reading ease manipulation</i>			
Adelberg (1979)	Absolute change in earnings per share	None	Poor readability was related to poor performance in the case of non-standard format footnotes and qualified auditors' reports
Courtis (1986)	Rate of return on total assets	Corporate risk	Poor readability was not related to poor performance
Jones (1988)	Turnover; Return on capital employed; Net profit ratio	Firm size	Readability was not directly correlated with firm performance
Baker and Kare (1992)	ROE; Net profit margin	Firm size	Poor readability is inversely related to firm size and to ROE
Smith and Taffler (1992a)	Two groups based on firm survival	None	There was no difference in readability between firms that did/did not survive
Smith and Taffler (1992b)	Two groups based on firm survival	None	
Subramanian et al. (1993)	Two groups: Performed better (generated net profit) /worse (generated net loss)	None	Narratives significantly less readable for poorly performing group
Courtis (1995)	Return on investment (net income/total assets)	Industry; Firm size	No relationship was found between annual report readability and profitability, industry, and firm size
Courtis (1998)	Top/bottom 30 firms based on percentage change in annual profitability (based on profit before tax)	Press coverage	No support for obfuscation hypothesis, as no significant difference in readability between top and bottom performers
Clatworthy and Jones (2001)	Top/bottom 30 firms based on percentage change in profit before taxation	None	No support for obfuscation hypothesis, as no significant difference in readability between top and bottom performers
Sydserrf and Weetman (2002)	Net asset value total return	None	Poor readability (Flesch & transitivity) is inversely related to performance. Results for DIRECTION mixed.
Rutherford (2003)	Return on capital employed; Return on equity; Profit margin; Total operating profit positive or negative; Profit for the year attributable to shareholders positive or negative; Total operating profit increased or decreased; Profit for the year attributable to shareholders increased or decreased; EPS increased or decreased	Risk; Organisational complexity; Statutory regulation	Poorly performing firms do not obfuscate by using textual complexity
Courtis (2004a)	Dummy variable - good news firm/bad news firm based on increase/decrease in rate of profitability	Corporate age; Corporate complexity	Only a weak association was found between reading difficulty and 'bad news'. No association between reading difficulty and corporate age and corporate complexity

Table 2.9 (continued): Relation between impression management and firm performance (good and bad news)

Study	Measurement of financial performance/performance change	Control/Other variables	Results
Obfuscation of negative organisational outcomes (continued)			
Smith et al. (2005)	Profit before tax/total assets	Performance, Size, Liquidity, Gearing, Board structure, PN4 status ¹ , Industry	No association is found between reading difficulty and financial performance. The readability of main board companies and PN4 designated companies (only second board) is higher than those of second board and non-PN4 designated companies.
<i>Rhetorical manipulation</i>			
Sydserff and Weetman (2002)	Dummy variable - good performer/poor performer, based on short-term and long-term measures of total return on net asset value	None	Significantly higher readability score for good performers on only the long-term measure of return on net asset value
Yuthas et al. (2002)	Dummy variable - Negative earnings surprise firms (at 20 percent less than analysts' forecasts) matched against positive (higher than expected) earnings surprise firms	None	Contrary to the obfuscation hypothesis, both groups of company exhibited high levels of communicative action in their narratives.
<i>Narrative disclosure</i>			
Frazier et al. (1984)	Dummy variable – lower growth firms/higher growth firms based on whether earnings (profit before extraordinary items) growth over previous year's growth was positive or negative	Management control/owner control	A thematic analysis of narratives did not reveal that lower growth bad news firms misrepresented their performance.
Tennyson et al. (1990)	Bankruptcy/survival	None	Thematic analysis reveals a relationship between narratives disclosures and financial distress.
Smith and Taffler (1995)	Bankruptcy/survival	None	Narrative disclosures provide a useful discriminator between failed and survival firms.
Clatworthy and Jones (2006)	Percentage change in profit before taxation	None	Profitability is directly related to the length of accounting narratives, to the number of key financial indicators, to the number of quantitative references, and to the number of personal references used, and inversely related to the number of future references used.

Table 2.9 (continued): Relation between impression management and firm performance (good and bad news)

Study	Measurement of financial performance/performance change	Control/Other variables	Results
Obfuscation of negative organisational outcomes (continued)			
<i>Thematic manipulation</i>			
Abrahamson and Park (1994)	Low performance measured by ROA; Decline in performance measured by change in ROA over previous year	Various corporate governance variables ²	The greater the decline in organisational performance, the greater the negativity in narrative disclosures.
Smith and Taffler (2000)	Bankruptcy/survival	None	Discretionary narrative disclosures (keywords and themes) are highly discriminant in classifying firms by financial performance measured by firm failure/survival.
Clatworthy and Jones (2006)	Percentage change in profit before taxation	None	Both profitable and unprofitable companies emphasize good news.
Clatworthy and Jones (2003)	Dummy variable – profitable firms/unprofitable firms based on highest/lowest rank by reference to percentage change in profit before taxation	None	Both profitable and unprofitable companies emphasize good news and attribute good news to internal and bad news to external factors.
Smith et al. (2005)	Profitability - Profit before tax/total assets	Liquidity; Gearing; Size; Main/Second Board; Regulatory status; Industry	No significant relationships between readability and profitability were found.
<i>Attribution of organisational performance</i>			
Staw et al. (1983)	Dummy variable – positive performers/negative performers based on EPS increase/decrease of >50%	Change in stock price; Stock price volatility; Institutional ownership; Age; Tenure of CEO; Salary of CEO	Differences in attribution of organisational performance not statistically significant between the two groups.

Table 2.9 (continued): Relation between impression management and firm performance (good and bad news)

Study	Measurement of financial performance/performance change	Control/Other variables	Results
<i>Attribution of organisational performance cont.</i>			
Aerts (1994)	Dummy variable – positive performance/negative performance based on change in performance from previous year calculated using Net sales margin; ROA; ROE	Firm size	Reasoning patterns in accounting narratives are biased. Company management claim successes, and blame poor performance on external factors.
Aerts (2001)	Dummy variable – positive performance/negative performance based on change in performance from previous year calculated using Net sales margin; ROA; ROE	Listing status; Firm size	Significant degree of consistency in accounting narratives over time was found. Consistently high levels of positive attributions were unresponsive to performance change.
Hooghiemstra (2001)	Positive/negative net income growth	None	Both American and Japanese CEOs attribute positive outcomes to internal factors; Both American and Japanese CEOs explain positive and negative outcomes in causal language.
Aerts (2005)	Dummy variable – positive performance / negative performance, based on change in ROE, change in ROA and change in net sales margin	Listing status; Firm size; Profitability; Financial performance; Stability; Leverage; Industry	No significant bias in attributional tendencies between positive performers and negative performers.
<i>Performance referents</i>			
Short and Palmer (2003)	ROA EPS	Firm size, Organisational age	CEOs of large, highly performing and young companies use more external performance referents than CEOs from small, poorly performing and established firms

¹The Kuala Lumpur Stock Exchange issued companies whose financial position was weak with Practice note No.4/2001 to increase their pace of financial restructuring.

² Percentage of outsiders, Percentage of shares held by outsiders, Percentage of shares held by officers, Percentage of shares held by institutional shareholders, Owner control, Institutional investor control, Institutional investor control, Percentage of shares held by nondominant institutional shareholders, Auditor's report, Number of offers selling shares, Value of shares sold by officers, Number of outside directors selling shares, Value of shares sold by outside directors.

2.5 Reactions to impression management

The literature points at the potentially harmful consequences of impression management in the form of “*misinterpretation and consequent belief revisions, and adverse investment allocations*” (Courtis 2004a: 293). This raises the question as to whether impression management is effective in changing the impressions of users of financial statements. Relatively few studies have examined the impact of impression management on investors’ decision making processes and on the perceptions of investors.

Impression management is constrained by the credibility issue. Thus, there is a limit to the extent to which managers can engage in impression management. If they go too far, the disclosures may lose credibility and be ineffective in managing impressions by altering investor perceptions. The question remains whether investors are misled by impression management. Two approaches are taken in prior research, namely (1) capital market research focusing on share price reactions to narrative disclosures and (2) behavioural research involving laboratory experiments, mainly involving postgraduate students as surrogates for corporate narrative report users.

2.5.1 Share price reactions to impression management

Management are sensitive to the credibility issue. Bowen et al. (2005) find that firms were less inclined to include pro forma earnings in press releases in 2002 post-Enron and post-SEC cautions concerning the use of pro forma earnings. Thus, managers respond to the possibility that investors would view the use of pro forma earnings as being opportunistic and lacking credibility.

Managers use language to provide information to the investors. The market responds to these disclosures suggesting they are perceived as being credible. The role language plays in the perceptions of users has also been studied.

Staw et al. (1983) is the first to study the effect of impression management on investors by means of examining the association between impression management and stock prices. In particular, they investigate the association between performance

attributions in president's letters to shareholders of 81 US companies, including both well-performing and badly-performing companies (measured in terms of decrease/increase of at least 50 percent in earnings per share, and share price changes). They find self-serving attributions (i.e. the attribution of positive organisational outcomes to internal factors) to be associated with subsequent improvements in share price, irrespective of the financial performance of the company. This is taken as evidence that "*self-serving attributions appear (...) to be convincing to the investing public*" (582). This suggests that impression management is effective.

Hoskin et al. (1986) study qualitative comments of company officers made in earnings announcement press releases. These qualitative comments are categorised as good news, bad news and neutral. They find that prospective officer comments have information content for investors in that they are significantly related to stock returns, suggesting they are credible and informative, even though not subject to audit.

Lang and Lundholm (2000) test whether increased disclosures prior to new equity public offerings are mere hyping of the stock or whether there is a positive price reaction to the additional disclosures. They find that firms with significantly increased disclosure suffer greater negative returns at the announcement of the new share offering, which suggests that the market views such increased disclosure as "hype".

Francis et al. (2002) explain increased share price reactions over time to earnings announcements as being due to the increased disclosures over time included in those announcements. They conclude that several types of concurrent disclosures contribute materially to investors' responses to earnings announcement press releases, including disclosure of officers' comments. Hutton et al. (2003) examine "soft talk" supplementary disclosures and verifiable forward-looking statements and they find that verifiable forward-looking statements add credibility to management forecasts.

Baginski et al. (2000) question whether investors view management attributions accompanying management forecasts as credible. They find that investors react to these disclosures as being credible, and that attributions enhance the stock market reaction to earnings surprises. The price reaction undermines the notion that the

attributions purely reflect management bias and are therefore not credible. Baginski et al. (2004) conduct a similar study, but control for factors other than the attributions that might affect the share price reaction. They find that attributions are credible to the market, in that they are associated with higher absolute share price reactions, more negative share price reactions (controlling for forecast news) and greater share price reactions per dollar of unexpected earnings. However, they find that the informativeness of attributions is limited to external more verifiable attributions.

Johnson and Schwartz (2005) observe that managers must believe that use of pro forma earnings will succeed in changing investor perceptions and that managers will suffer no penalty for engaging in such impression management. They use a more direct test of market reactions, based on a sample of firms that did/did not disclose a pro forma earnings number. While they find that pro forma earnings firms are priced higher, this higher pricing is not related to the pro forma earnings *per se* suggesting that investors are not misled by pro forma earnings.

The market reacts not only to narrative disclosures, but also to the presentational techniques adopted, such as emphasis by use of a benchmark or by the prominence of the positioning of the disclosure. Schrand and Walther (2000) find that investors are influenced by managers' strategic use of prior period benchmarks to report favourable increases in earnings. They conclude that managers must assume that investors are irrational in that they do not use publicly available information and are taken in by the use of the carefully chosen benchmark. Bowen et al. (2005) find that the stock market response to pro forma earnings is greater with higher levels of emphasis. The incremental information content of pro forma earnings increases as the relative emphasis on the pro forma number increases.

2.5.2 Behavioural research and impression management

Using an experiment, Beattie and Jones (2002) examine the effects of distortions in graphs on decision-making. They find that perceptions of financial statement users (represented by 52 second year business students) are, as a rule of thumb, affected by distortions in graphs of more than 10 percent. Users with lower levels of financial knowledge are more likely to be misled by distortions in graphs. Students with higher

levels of declared financial understanding are associated with greater accuracy in interpreting differences in corporate performance portrayed graphically.

Stanton et al. (2004) investigate investor behaviour by means of an experimental study. They examine whether the impression of performance varies according to (1) access to information (narrative sections as opposed to full annual report) and (2) financial expertise of respondents (marketing students as opposed to accounting students). No significant differences are found. Their results suggest that management is not successful in manipulating the perceptions of annual report users through narrative sections. However, since they do not use real investors in their experimental study, their results have only limited significance. There is evidence from other disciplines (notably marketing and politics) that impression management is effective, i.e., that intended audiences alter their decisions as a response to impression management. Huang (2003: 25) cites empirical marketing evidence and consumer behavioural studies of companies manipulating consumer perceptions of risk.

In experimental studies using MBA students Elliott (2006) and Fredrickson and Miller (2004) find that unsophisticated investors (MBA students) assign too high a share price to pro forma earnings numbers in press releases, whereas the judgements of sophisticated investors (financial analysts) were unaffected. The unsophisticated investors perceived the earnings announcement to be more favourable which Fredrickson and Miller (2004) describe as being due to unintentional cognitive effects.

In an experimental setting, Krische (2005) confirms Schrand and Walther's (2000) conclusions. She finds that investors adjust for prior-period events when clear quantitative descriptions are present, but not when descriptions are absent, even though investors have previously been made aware of the information. The disclosure concerning prior period events influences their judgment of current period performance.

Barton and Mercer (2005) question whether managerial self-serving disclosures are credible and enhance capital market participants' perceptions of management ability and firm prospects. In an experimental setting, they test analysts' reactions to

plausible and to implausible explanations/attributions of poor performance. They find that plausible explanations of poor performance are associated with higher analysts' forecasts of earnings. However, more plausible disclosures are not sufficient to improve the reputations of managers of poorly performing firms with the analysts. Mercer (2005) finds that managerial forthcomingness (accuracy, completeness and timeliness of disclosure) has a positive effect on management credibility but this cognitive reaction by investors is only a short term effect.

2.6 Corporate finance and impression management

Section 2.1 of the current study has indicated that the majority of impression management studies are either explicitly or implicitly based on agency theory assumptions of managerial and investor behaviour (Smith and Taffler 1992b, 2000; Abrahamson and Park 1994; Curtis 2004b; Curtis 1995; Hooghiemstra 2000, 2001; Godfrey et al. 2003; Rutherford 2003; Curtis 2004a, b; Aerts 2005).

Abrahamson and Park (1994) explicitly base their research on agency theory, arguing that in a public company context, conflicts of interest specifically arise when managers have to explain negative organisational outcomes to shareholders. The manipulation of reading ease is highlighted by Curtis (1996) as a potentially interesting way of testing agency and signalling theories. According to Curtis (2004a), the tendency to obfuscate is dampened by the potential for such obfuscation to adversely affect agency costs such as cost of capital and management reputation. In his study of impression management using colour, and whether colour is used to highlight good news and mask bad news, Curtis (2004b) indicates that the question is prompted by agency theory which argues that management seeks to act in its own self interests. In introducing their hypotheses, Smith and Taffler (2000) refer to agency and signalling theories. Within an agency theory setting, Hoogiemiestra (2001) predicts the use of impression management in the context of self serving behaviour. Rutherford (2003) states that the obfuscation hypothesis is derived from agency and signalling theory, whereby managers have economic incentives to convey messages about good performance more clearly than bad performance. Godfrey et al.

(2003) use agency theory as the theoretical foundation of their research. in relation to the opportunistic self-interested incentives for CEOs to manage accounting information. In the context of fines on investment banks for impression management in client reports, Davidson et al. (2004) link agency theory and impression management by arguing that impression management may constitute an agency cost. if it is detrimental to shareholders. They suggest that impression management results from agency problems in the sense that managers do not operate the company in the shareholders' best interests. Aerts (2005) also refers to agency theory as appropriate to his study, pointing to the context-specific importance of information in a financial reporting downturn.

2.6.1 Impression management and traditional finance theory

Agency theory, which is rooted in traditional finance theory, is based on the assumption of principals and agents as rational participants. This means that investors can take for granted that managers act in their self-interest, rationally responding to incentives shaped by compensation contracts, the market for corporate control, and other corporate governance mechanisms. Also, managers can take for granted that capital markets are efficient, with prices reflecting public information about fundamental values. In such a scenario, there is no room for impression management in the way it has been conceptualised by the previous literature. In an efficient capital market setting with share prices reflecting all publicly available information¹⁹, rational managers would not engage in impression management in the first place, since they would recognise the futility of manipulating rational investors' perceptions of firm performance.

What is more, in traditional finance theory market prices are assumed to be set by professional investors. Due to their experience, professional investors are assumed to be less susceptible to managerial impression management attempts than individual investors. This means that any inefficiencies created by small, inexperienced investors whose perceptions and decisions regarding firm performance and prospects are being influenced by managerial impression management, are priced away. Thus, under

¹⁹ Based on the assumption of semi-strong market efficiency which underlies the majority of capital markets research in accounting.

traditional finance theory assumptions impression management does not have an impact on market prices and is therefore not effective.

The only function of impression management under traditional finance theory assumptions would be that of a corporate reporting ritual akin to the English greeting *How are you?* which does not necessitate a comprehensive response. In this case, management does not believe that their portrayal of organizational outcomes has any effect on investor behaviour, but they nevertheless introduce reporting bias into their account of organizational activities and outcomes as a way of putting ‘gloss’ on financial information. Observers of corporate activities, who subscribe to this view of managerial behaviour and belief systems, regard reporting bias as ‘executive hyperbole’ which constitutes “*an irritating inefficiency in the financial system, which professional investors long ago learned how to tune out*” (Guardian, 17 April 2004: 27). Thus, under traditional finance theory assumptions, evidence of impression management has to be interpreted as mere corporate reporting ritual without any consequences for either party.²⁰

For researchers operating under a traditional finance model with assumptions of rational managers and rational investors, impression management is not an issue, since any reporting bias in publicly issued statements constitutes part of the corporate reporting ritual. It is mere executive hyperbole with no capital market consequences.

However, despite incorporating impression management in a traditional finance framework, previous accounting research nevertheless does not subscribe to the view of impression management as a mere public relations exercise. In fact, the potentially harmful consequences of impression management in the form of “*misinterpretation and consequent belief revisions, and adverse investment allocations*” (Courtis 2004a: 293) are explicitly identified. These views obviously conflict with assumptions of market efficiency inherent in a traditional finance framework of which agency theory is part.

²⁰ Mullainathan and Shleifer (2005: 5) put forward a similar argument when discussing persuasion in finance. They state that “*in the traditional theory ... consumers do not take the information they receive at ‘face-value’*”.

Research from behavioural finance suggests that impression management can have real economic consequences in the form of capital misallocations, since (1) less experienced investors are able to influence market prices (Shleifer 2000) (2) investors are not a fixed group (Huang 2004), and (3) even experienced professional investors are susceptible to systematic biases in their cognitive processing of information resulting from specific presentation formats (Mullainathan and Shleifer 2005). Further, research from ‘moody investing’ (Huang 2004) suggests that investors are susceptible to affective biases which play a substantial role in managerial impression management attempts.

2.6.2 Impression management and behavioural finance theory

Traditional finance theories, such as the efficient markets hypothesis, have been questioned because of price behaviour anomalies inconsistent with these theories (see Daniel et al., 1998; Lee 2001; and Shiller 2003; for a discussion of these anomalies). These anomalies, and share price behaviours identified in the 1970s and 1980s, suggest that the assumptions of the efficient markets hypothesis are not reflected in practice in share price behaviour.

Prospect theory, which was developed by Kahneman and Tversky (1979), is central to behavioural finance. It seeks to explain how individuals make decisions when faced with uncertainty.²¹ It focuses on a number of violations of classical rationality uncovered in empirical work. In numerous experiments they prove that the day-to-day reality of decision makers varies from the assumptions held by economists.

Whereas traditional economic theory argues that individuals are highly rational utility maximisers who compute the likely effect of any action on their total wealth and choose accordingly, prospect theory is based on the assumption that people have cognitive capacity limitations and so must simplify some of the complex problems they confront. Thus, unlike expected utility theory, which is concerned with how decisions under uncertainty should be made, prospect theory focuses on how decisions are actually made.

²¹ Prospect theory claims that individuals define outcomes in terms of gains and losses, with the losses having a more important impact on their welfare than gains.

Prospect theory suggests that the way information is presented (i.e. information format) affects the way investors process the information (Tversky and Kahneman 1986). Since managerial impression management involves manipulating the presentation of information by means of introducing bias and selectivity (see section 2.2.5), investors are unable to “*process the messages they receive following Bayesian logic*” (Mullainathan and Shleifer 2005: 6) and thus may be susceptible to impression management. Daniel et al. (2004) discuss investor credulity resulting from a combination of limited cognitive ability and overconfidence.

2.6.3 Impression management and ‘moody investing’

Social psychology and economics have put forward several theoretical approaches incorporating emotion into decision-making under risk or uncertainty. Huang’s (2004) theory of ‘moody investing’ focuses on the emotional component of investor behaviour and thus introduces an extra dimension into finance theory.²² Huang (2003) argues that investor behaviour cannot be fully explained by means of either traditional or behavioural finance since both focus on the cognitive aspects of investor behaviour. Nofsinger (2005: 144) argues that the economy has to be regarded as a complex system of human interactions which is driven not only by what economic participants think, but also by what they feel. Mercer (2005) draws on an affect-based model of financial decision-making to demonstrate that in the long-term, investor decisions are driven by emotional, rather than cognitive reactions to news disclosure.

While traditional finance theory postulates that investors unemotionally maximise expected utility functions (expected utility theory), behavioural finance “*only considers emotions to explain why some investors utilize cognitive biases and heuristics*” (Huang 2003: 4). However, since impression management in the context of corporate reporting entails “*an organization or its representatives act[ing] as gatekeepers of information and, in doing so, affect[ing] an audience’s attitudes, opinions and, ultimately, behaviour*” (Fisk and Grove 1996: 7), it involves both cognitive and affective components (Gardner and Martinko 1988: 322) by means of eliciting both a cognitive and an emotional response.

²² He cites the *dot.com* stock bubble as an example of ‘moody investing’.

Mullainathan and Shleifer (2005: 6) argue that persuasive messages elicit both cognitive and emotional responses, resulting in “*people often ignor[ing] relevant data and ... not process[ing] the messages they receive following Bayesian logic*”. They state that effective persuasion either involves conveying “*incomplete and even misleading information*” or “*irrelevant information that arouses an emotionally favourable response*” (6).

Pixley (2002) argues that emotion is routinely and rationally employed in financial decision-making. McGregor et al. (2000, 2002) and Dreman (2004) show that the investor decision-making process is not only driven by the quality of securities’ underlying technical fundamentals, but also by affective evaluation. McGregor et al. (2000, 2002) find that affective evaluation is based on the image associated with a particular company. In particular, McGregor et al. (2002) find image evaluations to be correlated with financial judgments. Firms can exploit this association to their advantage by means of impression management. It involves pro-actively manipulating their image and thus the perceptions of firm performance and prospects.

The fact that the message is conveyed by means of language makes narrative corporate report sections an ideal medium for conveying emotion and thus of influence. McGregor (2002: 20) points out that “*language is an extremely good carrier of emotion. This may be one of the areas where people are perhaps least aware of the extent to which they are influenced by the linguistic imagery that pervades their information environment.*”

Impression management in a corporate reporting context thus needs to be explained by a framework which takes account of both cognitive and emotional components in the communication between management and company outsiders. Huang’s (2004) theory of ‘moody investing’ incorporates emotional components into the financial reporting process by assuming that investment decisions are partly driven by emotions. He argues that statements issued by companies do not only carry a cognitive, but also an affective component. This means that these statements have an impact on investor moods and thus lead to ‘moody investing’ by some investors, i.e. “[*they*] influence the decisions by some investors” (35). Impression management can

thus be regarded as introducing both cognitive and affective bias into statements issued by companies whose aim is to influence investor perceptions and decisions.

Huang (2004) refers to this affective component aimed at influencing investor behaviour as ‘puffery’. ‘Puffery’ refers to statements issued by companies which are “*vague, promotional, or hyperbolic*” (17). He distinguishes between puffery which entails vague statements, such as “*we are bullish on this company’s future prospects*” (19), and puffery which induces “*false implied meanings that are thus deceptive, misleading, and can be disproved*” (19).²³

The existence of both types of ‘puffery’ in narrative corporate report sections has been confirmed both by accounting research and by anecdotal evidence in the context of impression management. The first type entails managerial attempts to ‘gild the lily’ (Guardian, April 17, 2004, p. 27) or to ‘enhance the story’²⁴ (Courtis 2004a: 293) when reporting on financial performance. The second type involves the misrepresentation of firm performance and prospects (Godfrey et al. 2003).²⁵ Huang (2004: 19) argues that puffery - and thus impression management - can have serious implications in the form of capital misallocations, due to its ability to “*engender or generate implied meanings, not only cognitively, but also emotionally*”.

However, it has been argued that investors see through promotional or hyperbolic statements issued by companies:

Professional investors long ago learned how to tune out executive hyperbole and root around in the small print of financial statements to dig out the issues that are really keeping chief executives awake at night. While companies and investors know how the system works and

²³ Huang (2004: 19) argues that only the second type of puffery should be legally actionable, since the first type “*is unlikely to induce any false implied meanings that directly affect investors’ beliefs concerning that company’s securities.*”

²⁴ In this context it is interesting to note that in their interpretation of corporate reporting by means of structural poetics Crowther et al. (2005: 25) also use the analogy of corporate reporting as story-telling. Management are the ‘authors’ of narrative corporate report sections which represent ‘the script of corporate reporting’. In their framework impression management thus constitutes the attempt on the part of the authors of the script of corporate reporting “*to control the way in which the corporate story is interpreted*”.

²⁵ Courtis (2004a: 306) differentiates between ‘harmless’ or ‘non-malicious’ and ‘harmful’ or ‘malicious’ impression management. Whereas “*a non-malicious approach seeks to put the best rhetorical polish or ‘spin’ on the story-telling, (malicious impression management) ... seeks to deceive by misrepresenting the true state of affairs and this can lead to unwarranted belief revisions and adverse allocation decisions.*”

the standard ways of bending it to their respective ends, the language of communication does constitute an irritating inefficiency in the financial system. (Guardian, 17 April 2004: 27)

Conversely, Huang (2004: 19) states that “*such a response ignores the fact that investors are not a fixed group, but instead consist of an ever-changing pool of investors, who as they become older and wiser are replaced by a new cohort still wet behind the ears and ready to be misled emotionally*”. What is more, Pixley (2002: 45) claims that the distinction made by Shiller (2005) between rational systematic traders and investors acting on ‘irrational’ emotional exuberance or panic cannot be made, but that emotions play some part in fostering the ‘rational’ decision-making process of all investors.

Nofsinger (2005: 145) claims that communication in financial markets involves not only conveying information, but also emotion and mood. Thus, “*the cues we obtain from others influence our own opinions.*” We therefore argue that impression management in a corporate reporting context involves taking advantage of the emotional component of communication and using it to influence investor decisions. Impression management in a corporate reporting context entails rational managers introducing both cognitive and emotional bias into the information about firm performance and prospects in order to manipulate the decisions of irrational investors.

2.6.4 Analysis of impression management under different finance theories

Impression management research thus only becomes an issue for researchers subscribing to the behavioural finance model or to any of the theories underlying ‘moody investing’. Behavioural finance assumes that either investor or managerial behaviour, or both, is less than fully rational.

Managerial behaviour

Research on managerial behaviour raises two questions, depending on the assumptions of managerial rationality/irrationality. If managers are assumed to be rational, the investigation focuses merely on the issue of whether managers attempt to manipulate investor perceptions of firm performance and prospects. It entails investigating the presence/absence of impression management by means of analysing

public information issued by management, such as press releases, prospectuses, and annual reports.

The majority of previous studies fall into this category, despite subscribing to agency theory assumptions of managerial and investor behaviour. Various narrative corporate report sections, including the chairman's report (Jones 1988; Smith and Taffler 1992a, 1992b, 1995, 2000; Clatworthy and Jones 2006, 2001b; Sydserff and Weetman 2002; Courtis 1986, 1998), the Operating and Financial Review (Sydserff and Weetman 1999; Rutherford 2003), the President's Letter to Shareholders (Tennyson et al. 1990; Subramanian et al. 1993; Abrahamson and Park 1994; Abrahamson and Amir 1996; Thomas 1997; Yuthas 2002; Short and Palmer 2003); the Management Discussion and Analysis (Frazier et al. 1984; Tennyson et al. 1990; Yuthas et al. 2002) are analysed for evidence of impression management.

However, impression management can also occur in the context of irrational managerial behaviour. This entails behaviour that departs from rational expectations and expected managerial utility maximisation. If managers are irrational, they may display behavioural biases, such as optimism and overconfidence. This assumption of managerial optimism is widespread in research in explaining the motives for mergers (hubris), but has not been adopted in explaining the reporting bias inherent in narrative annual report documents.

If managers are regarded as irrational participants in the financial reporting process, then their tendency towards reporting bias could be the result of management not only deceiving others about firm performance and prospects, but also themselves. In this case, management is biased towards its own performance. This is referred to as ego-centric bias or self-deception (Barrick and Mount 1996) in the social psychology literature which differentiates clearly between self-deception and impression management. Whereas the former is "*a dispositional tendency to think of oneself in a favourable light*", the latter constitutes "*a deliberate attempt to distort one's responses in order to create a favourable impression with others*" (Barrick and Mount 1996: 262). Thus, in a setting of irrational managers, evidence of impression

management can be interpreted as managerial self-deception due to optimism and overconfidence.²⁶

If managers are assumed to be irrational, the investigation focuses on the issue whether the reporting bias in publicly issued statements constitutes impression management or managerial optimism and overconfidence resulting in ego-centric bias/self-deception. Three studies (Staw et al. 1983; Abrahamson and Park 1994; Fiol 1995) focus on this issue, employing two different research strategies. Staw et al. (1983) and Abrahamson and Park (1994) find impression management in narrative corporate report sections to be related to subsequent selling of stock by corporate officers. This indicates that impression management does not constitute a genuine expression of corporate optimism, but a deliberate intent on the part of management to deceive investors. Fiol (1995) compares company executives' private and public statements. They are shown to differ as far as their positive and negative attributions for events are concerned. The preparation of external documents, such as the president's letter to shareholders involves the addition or deletion of evaluative statements "*as part of a strategy of impression management for external constituencies*" (534) which results in the attribution of positive outcomes to internal factors and of negative outcomes to external factors.

However, previous research (Fiol 1995; Staw et al. 1983; Abrahamson and Park 1994) does not support the explanation of impression management as a result of irrational management behaviour. Evidence in the form of subsequent selling of stock by management (Staw et al. 1983; Abrahamson and Park 1994) and differences in management's private and public statements regarding positive and negative attributions for events (Fiol 1995) suggests that the upbeat message inherent in narrative corporate report sections is not due to genuine optimism, but to a desire to manipulate investor perceptions of firm performance and prospects. This provides

²⁶ Depending on the assumptions of investor rationality/irrationality, ego-centric bias or self-deception can have different consequences. If investors are assumed to be irrational, their reaction to self-deception is exactly the same as to impression management, i.e. their perceptions of firm performance and prospects are manipulated, resulting in adverse selection and capital misallocation. However, if investors are assumed to be rational, they are not influenced by the reporting bias resulting from either impression management or ego-centric bias/self-deception.

evidence for the assumption of impression management as a result of rational managerial behaviour aimed at misleading investors.

Investor behaviour

If investors behave irrationally, then security prices can be either too high or too low. DeLong et al. (1990) refer to unwarranted investor expectations of assets returns as 'investor sentiment'. Shiller (2003) refers to certain impression management techniques as capable of generating a feedback effect. Feedback effects arise when some investors experience success with a stock, which attracts further investors. This effect can result in a speculative bubble. Impression management, he suggests, can lead to such speculative share price bubbles. In an unusual paper, Skoubic and McGoun (2002) tie together the notions of individual behaviour, images and investments. They conclude that although investors may be rational, quasi-rational, boundedly rational or irrational, they are not logical (for example, their decision processes cannot be modelled by computers). Alan Greenspan, the former chairman of the US Federal Reserve Board, coined the term 'irrational exuberance' to describe the irrational investor behaviour leading to the overvalued stock market in 1996. The phrase has even become the title of a *New York Times* bestselling book (Shiller 2005).

Impression management is not an issue under the assumption of investor rationality, since rational investors are not swayed by managerial attempts to influence their perceptions of firm performance or prospects. However, under the assumption of investor irrationality, research focuses on investor reaction to managerial attempts at impression management. Thus, research focuses the question whether the manipulation of perceptions results in "*misinterpretation and consequent belief revisions, and adverse investment allocations*" (Courtis 2004a: 293). This entails testing the effect of impression management on investors by means of experimental studies involving various investor groups, such as institutional investors, or studying stock price reactions to impression management. See section 2.5 for a discussion of research dealing with investor reactions to impression management.

In a scenario of irrational investors, rational managers make decisions that may encourage the mispricing of securities. Rational managers aim to maximise the current share price of the firm's securities. Impression management, i.e. manipulating

the perceptions of firm performance and prospects, represents one way of achieving this goal. Thus, in a setting of rational managers and irrational investors, evidence of impression management can be interpreted as managerial manipulation of investors' perceptions of firm performance and prospects in order to influence investment decisions.²⁷

²⁷ Traditionally investors have been viewed as a homogenous group. It is not necessary to assume that all investors are irrational. More recently finance theories distinguish between rational investors (more likely to be institutional investors) and irrational noise traders (more likely to be individual investors), and recognise differences of opinion and heterogeneity amongst investors.

Table 2.10: Finance theories and impression management

Theory	Traditional finance	Behavioural finance		'Moody investing'
	<ul style="list-style-type: none"> Expected utility theory Agency theory 	<ul style="list-style-type: none"> Prospect theory 		<ul style="list-style-type: none"> Psychological expected utility theory
Assumptions of human behaviour	Cognitive	Cognitive		Emotional
Focus	CAPM	Explanation of observed 'anomalies' in asset pricing by means of cognitive limitations		Explanation of observed 'anomalies' in asset pricing by means of emotional limitations
Managers	Assumed to be rational	a) Assumed to be rational	b) Assumed to be irrational	Assumed to be rational
Investors	Assumed to be rational	a) Assumed to be irrational	b) Assumed to be rational	Assumed to be emotional
Implications for impression management	a) Impression management does not exist b) Impression management as corporate ritual	Impression management as manipulation of investor perceptions of firm performance and prospects		Managers manipulate outsiders' perceptions of firm performance and prospects by means of emotive form and content
Interpretation of reporting bias	'Executive hyperbole'	Impression management	Ego-centric bias/self-deception	Impression management
Investor response to impression management	Rational response – no reaction to biased info	Irrational response – biased info is acted upon		Emotional response – biased info is acted upon
Interpretation of investor reaction	No response	'Irrational exuberance' or 'investor sentiment'		'Moody investing'
Capital market implications	Efficient - Impression management has no impact on asset pricing	Inefficient - Impression management can lead to mispricing of assets		Inefficient - Impression management can lead to mispricing of assets

The previous discussion has shown that impression management as described in the previous literature, namely as the manipulation of outsiders' perceptions of firm performance and prospects, only makes sense in a behavioural finance/ 'moody investing' framework under the assumptions of managerial rationality and investor irrationality (see Table 2.10). Although it is impossible to attribute the misrepresentation of financial information in narrative corporate report sections of individual companies to impression management or self-deception, previous research findings suggest that the resulting reporting bias is a consequence of deliberate investor manipulation by rational managers.

We thus argue that impression management entails a scenario of rational managers exploiting irrational investor behaviour by means of introducing not only cognitive, but also affective bias to the form and content of information provided. We can thus extend the impression management model introduced in Figure 2.1 (section 2.1) by adding both cognitive and emotional components to the communication process involved in corporate reporting.

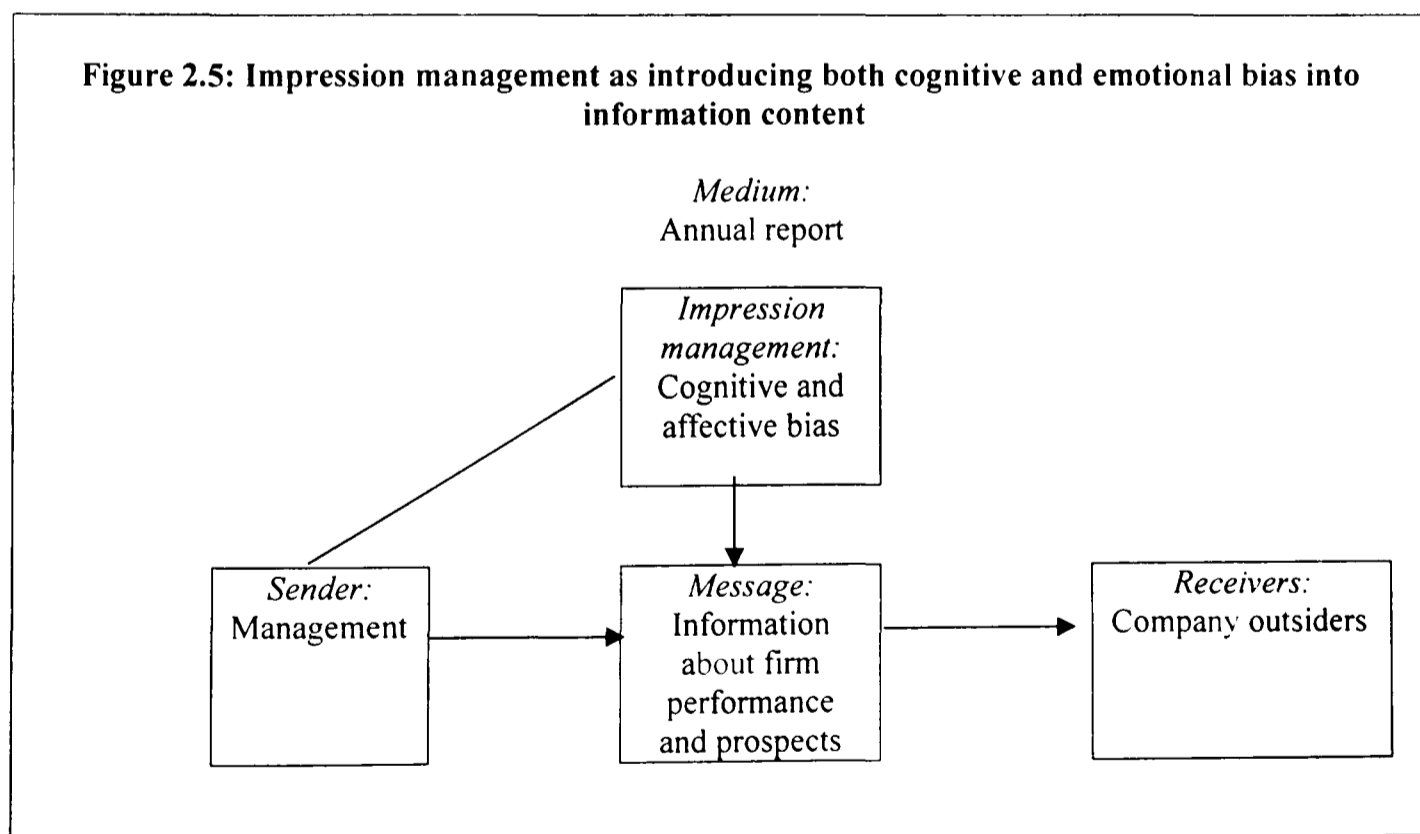


Figure 2.5 illustrates communication in a corporate reporting context. It involves the exchange of information between management (sender) and outside parties (receivers), including shareholders and stakeholders, such as customers, employees.

and the government. Information about the company's performance and prospects (message) is conveyed to company outsiders via various media, such as press releases, shareholder meetings, and the annual report. The channels involved are print (for written documents), airwaves (for spoken communication) and light waves (for images). Impression management involves exploiting the emotional components of communication by means of introducing not only cognitive, but also affective bias into the message conveyed by corporate communication documents.

This study proposes a behavioural finance/'moody investing' model of impression management, in which impression management is conceptualised as the managerial attempt to influence investor perceptions and decisions by means of introducing both cognitive and affective bias into corporate narrative documents.

However, the focus of this study is solely on finding evidence of impression management in corporate narrative documents and in determining which particular circumstances give rise to this phenomenon. It is based on the assumption that rational managers attempt to exploit irrational investor behaviour by means of introducing cognitive and emotional bias into publicly issued statements. We thus do not assume that managers act irrationally in the sense that they engage in self-deception in the form of managerial optimism or hubris. It is further assumed that managers, on average, know which impression management strategies and techniques are effective. Finally, the effectiveness of impression management is not considered empirically since it is difficult to differentiate the effect of impression management from 'the noise' of new information entering the marketplace. This is especially the case for impression management in annual reports, which form the basis of investigation in this study, since the majority of information contained in them is in the marketplace long before the annual report is released to the public.

2.7 Social psychology and impression management

This section discusses psychology theories explaining the impression management behaviour of managers. In particular, we focus on psychology theories providing

insights into what constitutes impression management, which circumstances prompt impression management, which impression management tactics are used, and how impression management manifests itself.

2.7.1 Social psychology concept of impression management

As discussed in section 2.1, based on Schlenker's definition (website), impression management in the context of corporate reporting constitutes an activity aimed at influencing others' impressions of persons, such as managers, the CEO, and the chairman, an object, i.e. the organization as a whole, an event, such as firm performance (financial performance, environmental performance, ethical performance, etc.), privatization, demutualization, merger or acquisition, and an idea, such as profit as the only legitimate measure of corporate success.

However, previous studies have almost exclusively focused on one aspect of impression management, namely the manipulation of perceptions of firm performance. These have been discussed in sections 2.2 and 2.3.

There are no studies focusing on impression management as influencing others' impressions of individuals responsible for running an organization and as influencing others' impressions of an idea. White and Hanson (2002) analyze impression management as the manipulation of outsiders' perceptions of the entire organization by means of studying the annual reports of Amcor, an Australian-based multinational forestry and manufacturing company, over a thirty year period. Ogden and Clarke (2005) analyze impression management as the manipulation of outsiders' perceptions of an event, namely the privatization of UK water companies and their subsequent legitimization attempts.

2.7.2 Impression motivation and construction

Leary and Kowalski (1990) argue that impression management consists of two different processes, namely impression motivation and impression construction. Impression motivation is concerned with the circumstances which motivate individuals to engage in impression management. Impression construction entails "*choosing the kind of impression to create*" and "*deciding how [to] go about doing so*" (Leary and Kowalski 1990: 35-36).

The primary objective of individuals to engage in impression management is to maximize expected rewards and to minimize expected punishments. Leary and Kowalski (1990) list three reasons individuals are driven to manage others' impressions, namely (1) in order to maximize social and material outcomes, (2) to maintain and enhance their self-esteem, and (3) to create identity. The maximization of social outcomes involves gaining others' approval or obtaining power over others. The maximization of material outcomes entails rises in salary, bonuses, better working conditions, and promotion. Maintenance and enhancement of self-esteem is directed at eliciting self-esteem enhancing reactions, such as praise and compliments, particularly in situations entailing feedback on performance or behaviour. Impression management for identity-creation purposes involves individuals "*indicat[ing] the possession of identity-relevant characteristics*" (38), such as behaving in a way perceived to be fitting with one's particular social role.

All three motivations are potentially relevant in a corporate reporting context. The maximization of social and material outcomes provides psychological validity to agency theory explanations of managerial motivation to engage in impression management, i.e. in order to maximize benefits both in terms of compensation and reputation. To date there is no research on the role of self-esteem maintenance and identity creation regarding the impression management behaviour of managers in a corporate reporting context.

Leary and Kowalski (1990) note that the strength of people's motivation to engage in impression management is dependent on three factors, namely (1) the goal-relevance of the impressions, (2) the value of the desired outcomes, and (3) the discrepancy between one's desired and current social image.

Individuals are motivated to engage in impression management, if it is relevant to achieving one or several of the three goals previously discussed (i.e. the maximisation of social and material outcomes, the maintenance and enhancement of self-esteem, and identity creation). The relevance of these goals is dependent on the publicity of the individual's behaviour and on the individual's dependency on others for valued outcomes. Publicity is "*a function of both the probability that one's behaviour will be*

observed by others and the number of others who might see or learn about it” (38). If an individual is dependent on others for valued outcomes, the individual’s impressions on those people become more important and thus the individual’s motivation to engage in impression management becomes stronger. Leary and Kowalski (1990: 38) note that “*as a result, people are more likely to ingratiate themselves with their bosses and teachers than with their friends.*”

Since the corporate reporting process is characterised by publicity, we can assume that managerial motivation to engage in impression management in corporate narrative reports in order to obtain the various material and social benefits (and possibly to enhance self-esteem and create desired identity) is strong. What is more, since managers’ social and material benefits are dependent on both internal and external parties’ approval, they are likely to engage in impression management (see section 2.7.3 for a discussion of managerial impression management in an internal and external accountability process).

The value of the desired outcomes is also a factor in impression management. The higher the value attached to a particular outcome, the stronger the motivation to engage in impression management. The value of desired outcomes is also a function of scarce resources which means that impression management motivation is higher under such circumstances. This means that impression management in corporate narratives should be stronger during economic downturns when firms are in stronger competition for funds.

The third factor impacting on impression management motivation is the discrepancy between desired and current image. Individuals are motivated to engage in impression management if they think that others have an image of them which is not consistent of the image they want others to have (usually a less positive image than desired). This is especially the case as a result of public failures or embarrassing incidents. Leary and Kowalski (1990: 39) note that “*both failure and embarrassment increase impression motivation*” which leads to attempts at repairing the damage by means of stressing one’s positive attributes and making self-serving attributions for one’s failure, i.e. attributing negative outcomes to external factors in the form of excuses (see section 2.7.5 for a more detailed discussion).

In a corporate reporting context, incidents involving company failure or embarrassment, such as negative environmental impacts or customer service problems, lead to a discrepancy between desired and current image and should thus give rise to increased impression management behaviour. Several studies apply legitimacy theory as an explanatory framework to analyze the reactions of firms facing legitimacy threats. Hooghiemstra (2000) uses an impression management approach to investigate Shell's handling of public controversy when it announced its plans to sink the Brent Spar in the Atlantic. Bansal and Clelland (2004) apply legitimacy theory in relation to disclosure of environmental liabilities and in relation to expressions of commitment to the environment. Ogden and Clarke (2005) apply legitimacy theory to the corporate communications practices of recently privatized water companies, focusing on customers, rather than investors, as the users of annual reports.

According to Leary and Kowalski (1990), impression construction is dependent on five factors, namely (1) self-concept, (2) desired and undesired identity images, (3) role constraints, (4) target values, and (5) current and potential social image. Impression construction either involves constructing public images that are a reflection of one's self-image (albeit putting the best part of oneself into public view) or images which are inconsistent with one's self-concept. Self-presentational dissimulation, i.e. pretence, is most likely to occur for individuals employed in highly visible occupations, such as teachers, politicians, clergy, and salespeople.

In a corporate reporting context impression construction involving both accurate and inaccurate self-concepts occur. The first type entails managing "*sections of the reports ... so as to present management in as favourable light as possible*" (Stanton et al. 2004: 57) and the second entails inducing "*false implied meanings that are thus deceptive, misleading, and can be disproved*" (Huang 2005: 115).

In so far as high-ranking company officers, such as CEOs, of large companies, well-known companies, such as firms producing or selling consumer goods (e.g. Tesco, Marks and Spencer), or companies in the public spotlight due to scandals, legal proceedings, record profits or losses, etc., occupy highly visible occupations, they

might thus be more likely to engage in self-presentational dissimulation than high-ranking officers of small, less-known, and less visible companies. However, both the monitoring hypothesis and the political cost hypothesis suggest that this might not be the case. The monitoring hypothesis claims that organisations with a high public profile are less likely to engage in impression management since they are subject to increased monitoring by institutional shareholders, the press, the government, and other parties. The political cost hypothesis suggests that highly visible companies are less likely to engage impression management, since this potentially increases their political cost.

Leary and Kowalki (1990) further state that individuals tend to portray images of themselves which are biased in the direction of their desired self-image. What is more, individuals also tend to portray images of themselves which are not consistent with their undesired self-image. What is more, individuals also strive to ensure that their public image is consistent with their social role. In particular, individuals aim to match their social images to prototypical characteristics of the role they are playing.

In a corporate reporting context this suggests that firms should portray themselves and their performance in the best possible light. This phenomenon has been examined in the context of the Pollyanna effect which states that companies present themselves in the best possible light by means of predominantly using positive words in their corporate narrative documents, regardless of their financial performance (Hildebrandt and Snyder 1981). Clatworthy and Jones (2003), who examine the association between performance explanations and financial performance find evidence of this behaviour. They find that firms focus on positive organizational outcomes, irrespective of financial performance. What is more, both managers of companies with improving and declining performance attribute positive organizational outcomes to internal factors and negative organizational outcomes to external circumstances. i.e. they make self-serving attributions.

Leary and Kowalski (1990) further state that individuals also portray an image of themselves which matches the values and preferences of significant others. In a corporate reporting context this tendency can be applied to investigate whether firms engage in impression management by means of emulating the target values of

important stakeholder groups or interest groups in society regarding issues such as environmentalism, gender and racial equality, or ethical concerns, such as fair trade issues. In this context, adopting a stakeholder theory perspective which focuses on mimetic isomorphism (see DiMaggio and Powell 1983), i.e. impression management entailing the copying of the behaviour or reporting strategies of other companies, such as industry leaders, could be fruitful.

Finally, Leary and Kowalski (1990) state that impression management construction is also dependent on individual's current and potential image in the future, which might be the result of future revelations about the individual. This potential image, based on information others are likely to receive in the future, constrains impression management strategies, either by restraining certain impression management strategies or by requiring certain strategies. Public failures or embarrassments compel individuals to engage in impression management strategies aimed at countering or repairing one's damaged image by means of excuses, apologies, and self-serving attributions.

In a corporate reporting context it would be interesting to investigate this type of impression management behaviour by means of analysing the corporate narrative documents of firms just before a scandal becomes public knowledge. The majority of studies of impression management in the context of corporate scandals have a reactive rather than pro-active focus, i.e. they focus on strategies aimed at repairing the damage caused by scandals, such as Hooghiemstra's (2000) analysis of Shell's impression management attempts regarding the handling of public controversy surrounding its plans to sink the Brent Spar in the Atlantic. By contrast, Craig and Armenic's (2004) analysis of Enron's 2000 letter to shareholders, i.e. just before the scandal erupted, adopts a pro-active focus. Their investigation of the use of hyperbole leads them to conclude that the letter to shareholders "*has ... serious implications regarding the authors' truth-telling (and) their grasp of even a rough socially-constructed reality*".

2.7.3 Accountability theory

Accountability is a key concept of social psychology. It refers to "*the condition of being answerable to audiences for performing up to certain standards, thereby*

fulfilling responsibilities, duties, expectations, and other charges” (Schlenker website)²⁸. On the one hand, accountability entails the obligation of one party to provide explanations and justifications for its conduct to another party. On the other hand, it involves the first party’s behaviour being subject to the scrutiny, judgment and sanctioning of the second party. Thus, accountability can be analyzed from an internal and an external perspective. Internally, accountability results in the assessment of and response to external conditions to obtain both intrinsic (e.g. feelings of well-being and self-worth) and extrinsic rewards (increase in status, promotion, bonuses). Externally, accountability involves a control system with rewards and sanctions.

According to Schlenker (website)²⁹, accountability involves three components, namely (1) the inquiry component, (2) the accounting component, and (3) the verdict component. The inquiry component entails anticipating or submitting to an inquiry by an audience who evaluates one’s actions and decisions in relation to specific prescriptions. The accounting component involves presenting one’s version of events. This gives the individual the opportunity to describe, document, interpret, and explain relevant information with the purpose of constructing a personal account of events and providing reasons for their occurrence. The verdict component entails the audience delivering a verdict. This comprises both a judgment of the individual and the application of rewards or sanctions. Thus, the experience or anticipation of an evaluative appraisal is crucial to the concept of accountability.

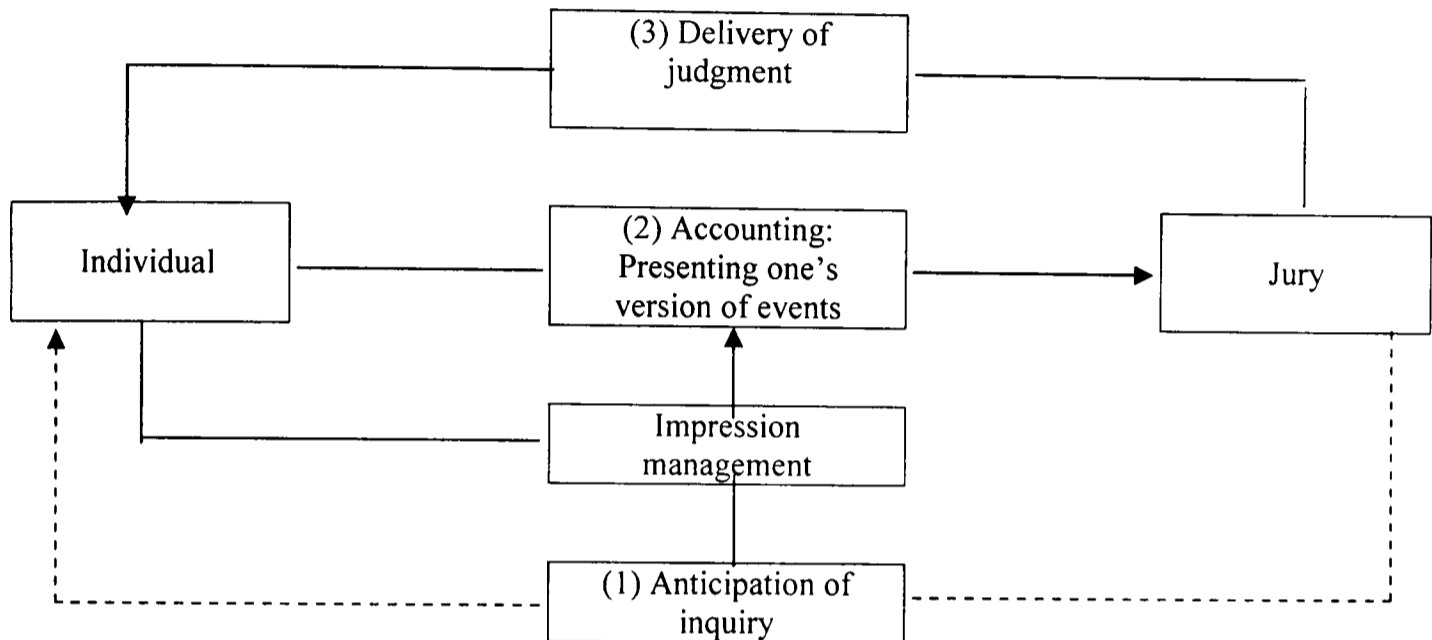
Frink and Ferris (1998), who apply the concept of accountability in organizational research, establish the link between accountability and impression management. They argue that in an accountability context individuals engage in impression management in anticipation of an evaluation of their conduct. Impression management thus serves as a way of influencing the impressions and decisions of relevant parties in order to win rewards and avoid sanctions. Thus, conditions of accountability foster impression management.

²⁸ <http://schlenker.socialpsychology.org/>.

²⁹ <http://schlenker.socialpsychology.org/>.

Figure 2.6 illustrates the role of impression management in the accountability process. It shows that impression management occurs in the accounting component of Schlenker's framework, which involves presenting one's version of events.

Figure 2.6: The role of impression management in the accountability process

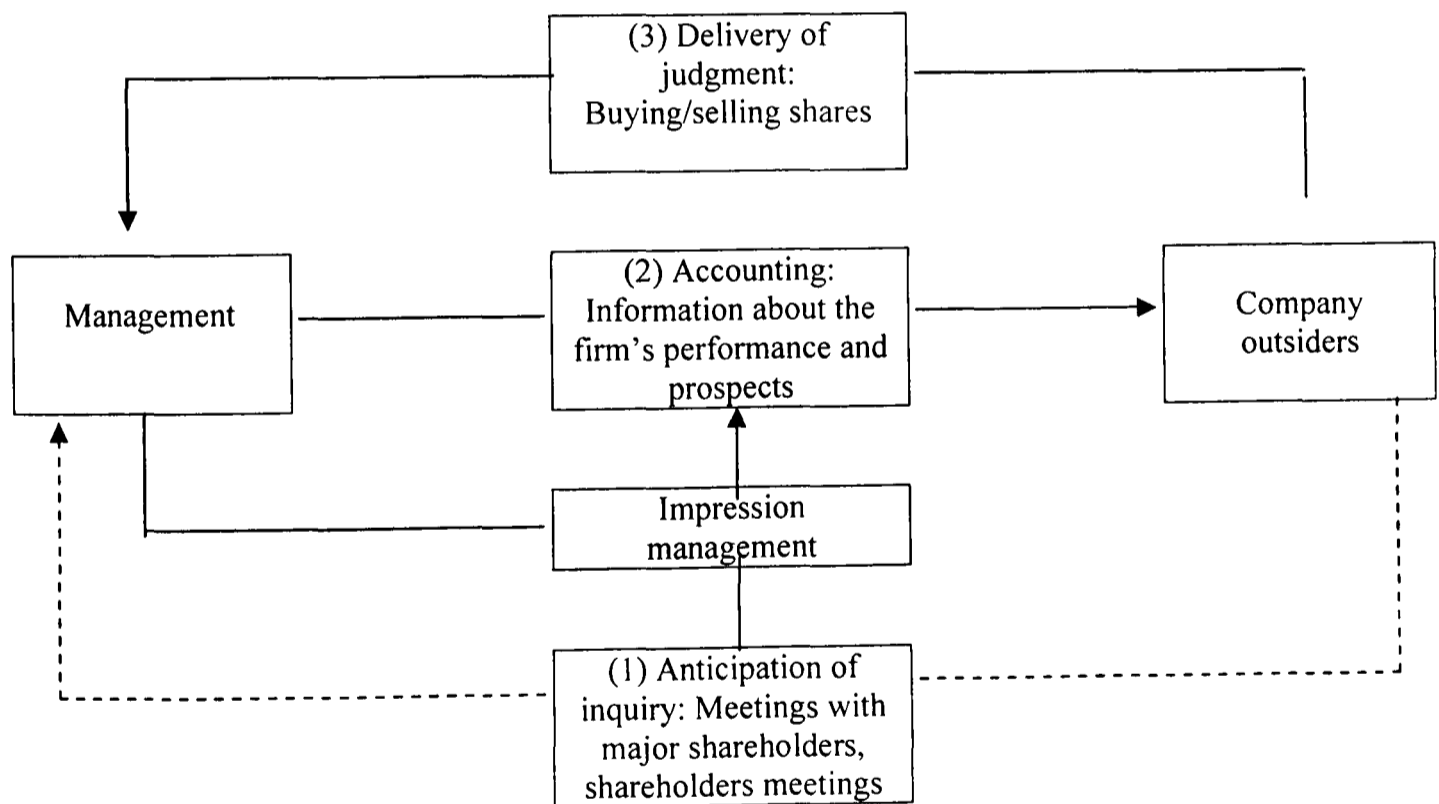


Accountability for performance is a fundamental principle of organization. It has been studied in the context of employee behaviour during the performance evaluation process (Frink and Ferris 1998). They investigate whether goal-setting, which involves employees setting goals for their own future performance, varies under conditions of high and low accountability. Results suggest that individuals approach goals differently according to accountability conditions. In conditions of low accountability, employees use goals for performance-directed purposes, whereas in conditions of high accountability employees use goals for impression management purposes.

Managerial behaviour in the corporate reporting process can also be analyzed in the context of an accountability framework. Managers are accountable to outside parties, including both shareholders and stakeholders, for their decisions and actions by means of the corporate reporting process. As Stanton and Stanton (2002: 492) note,

management uses the annual report as an accountability mechanism to react to the concerns of external parties. Impression management occurs in the accounting stage of the accountability process which involves providing information about the firm's performance and prospects by various means, including press releases, shareholder meetings, and the corporate reports. Management thus uses corporate reports to engage in impression management in anticipation of an evaluation of their actions and decisions by means of meetings with major shareholders and shareholder meetings. Impression management thus introduces bias into the corporate reporting process in order to influence the perceptions and decisions of outside parties of firm performance and prospects, with the goal of ensuring economic (stocks and stock options) benefits for managers.

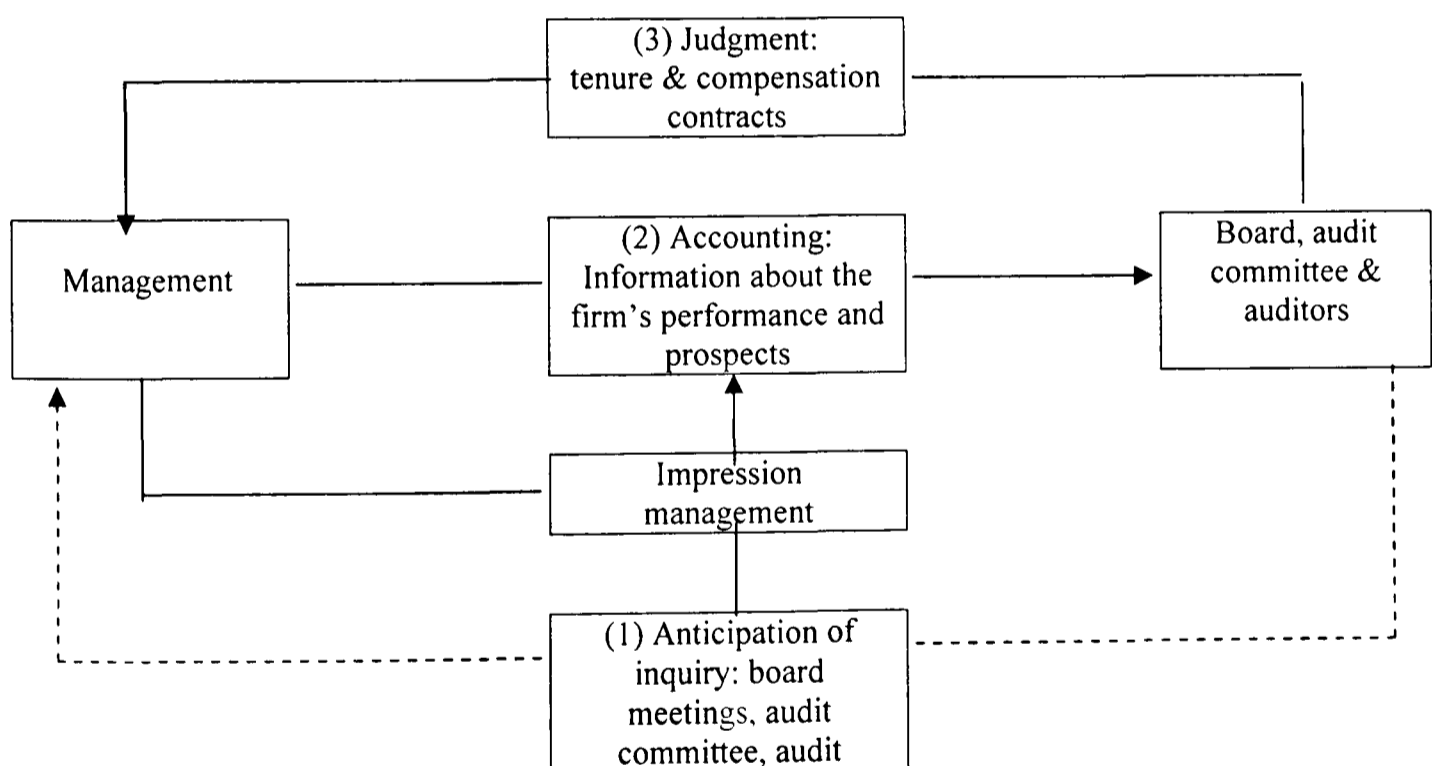
Figure 2.7: The role of impression management and accountability in the corporate reporting process



However, since shareholders delegate the monitoring of managerial decisions and actions to an internal corporate governance system, management is also accountable to internal parties, including the board, its audit committee, (and independent

auditors).³⁰ The board of directors represents shareholders' interests and scrutinizes managerial performance. Its inquiry mechanisms include regular board meetings, and meetings of sub-committees of the board such as the audit committee. The board's rewards and sanctions of management, especially of the CEO, comprise tenure decisions and compensation contracts. What is more, public limited companies in most jurisdictions are required by law to have an external audit of the financial accounts by qualified auditors. Managers engage in impression management as a result of their anticipation of an evaluation of their actions and decisions by means of board meetings (and the audit of the financial accounts). Management thus also engages in impression management in order to influence the perceptions and decisions of inside parties, with the goal of ensuring economic (tenure, compensation contracts, stocks and stock options) and psychological (reputation) benefits for managers.

Figure 2.8: The role of impression management in the internal accountability process



Thus, it can be argued that managerial impression management in a corporate reporting context can be attributed to conditions of high accountability. Impression management is directed at both external and internal parties. It introduces bias into the corporate reporting process in order to influence the perceptions and decisions of both outside and inside parties, with the goal of ensuring economic (tenure, compensation

³⁰ However, the previous literature does not differentiate between impression management directed at inside and outside parties.

contracts, stocks and stock options) and psychological (reputation) benefits for managers.

Schaffer's (2002) analysis of the differences in evaluation of managerial performance by inside and outside directors provides some insights into managerial impression management directed at company insiders.³¹ He argues that inside and outside directors face different cognitive and social constraints which inhibit their ability to effectively evaluate managerial performance during times of negative organisational outcomes. For inside directors these constraints consist of (a) loyalty to the CEO and members of top management and (b) fear of retaliation. Outside directors face (a) informational constraints, (b) time constraints, and have (c) lower levels of commitment to the company. These constraints "*may cause board members to use either incomplete or distorted information to make assessments*" (Schaffer 2002: 98). Thus it can be argued that, due to these different constraints, inside directors are more likely to be in cahoots with management, whereas outside directors are more likely to be influenced by impression management.

The previous impression management literature in accounting does not differentiate between impression management directed at inside and outside parties. However, as the discussion of accountability for managerial performance has shown, it is necessary to discuss impression management in a corporate context as directed both at internal and external parties, in order to explain the managerial motivation to engage in impression management.

What is more, the previous impression management literature also fails to differentiate between managerial performance and firm performance. Whereas the motivation to engage in impression management is explained by means of using agency theory explanations of managerial behaviour, impression management as manifest in corporate narrative reports is regarded as a manipulation of firm performance and prospects. Whereas impression management directed at internal parties entails managers manipulating insiders' (i.e. board members) perceptions of

³¹ In the context of managerial impression management directed at company insiders, both inside (managers involved in the everyday running of the firm) and outside (board members not involved in

managerial performance, impression management directed at external parties entails the firm (i.e. managers and board members) manipulating outsiders' perceptions of firm performance and prospects.³²

2.7.4 Impression management orientation

Social psychology has developed a number of different theoretical impression management frameworks (Jones and Pitman 1982; Rosenfeld et al. 1995; Bozeman and Kacmar 1997; Tedeschi and Norman 1985, Tetlock and Manstead 1985, Wolfe et al. 1986), all of which conceptualize impression management in the form of positive and negative strategies or tactics.

However, the framework developed by Tedeschi and Norman (1985), Tetlock and Manstead (1985), and Wolfe et al. (1986) is particularly useful for analyzing impression management in the context of the corporate reporting process since it conceptualises the impression management tactics of an individual as a response to the anticipated reaction of another party. This results in two impression management orientations, namely a defensive (protective) and an acquisitive (assertive) orientation.

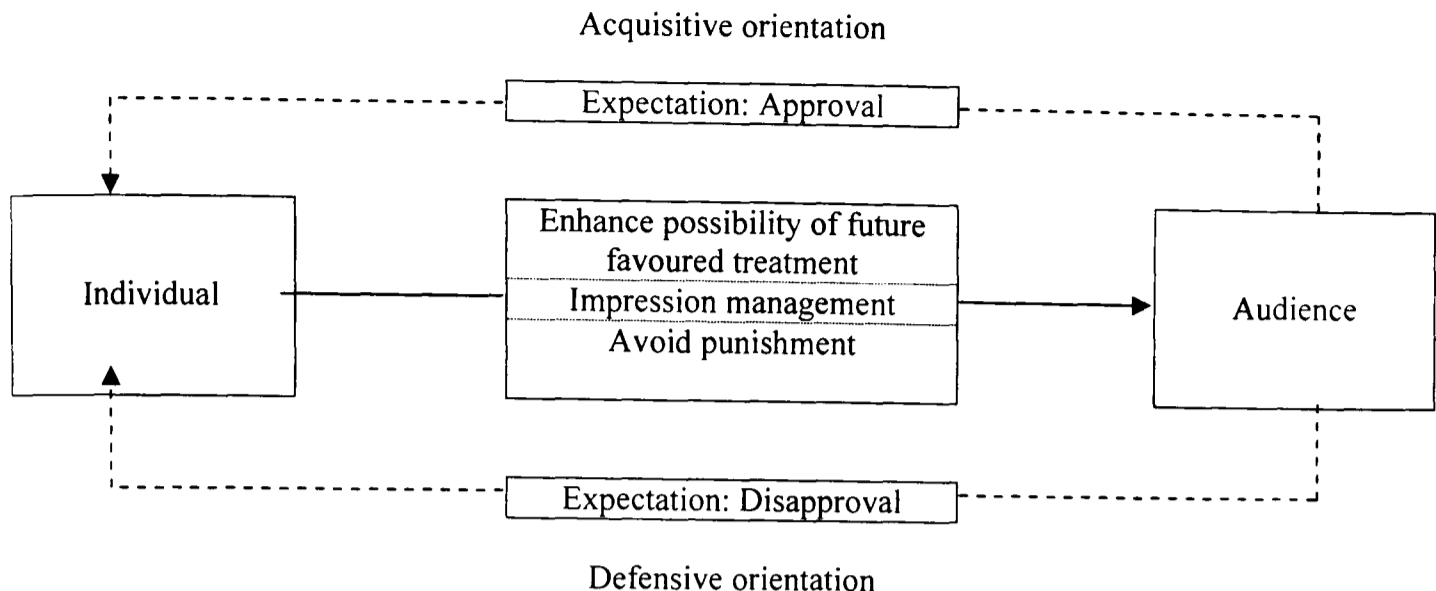
The orientation is dependent on the expected reaction of the relevant other party concerned. If the individual expects to be met by disapproval, a defensive orientation is adopted, which manifests itself in justifications and excuses and is aimed at avoiding punishment or repercussions. If the individual expects to be met by approval, an acquisitive orientation is adopted, which manifests itself in self-promotion, exemplification, ingratiation, enhancements and entitlements and is aimed at enhancing the possibility of favoured treatment in the future.³³ Figure 2.9 contrasts these two diametrically opposed impression motivation orientations.

the everyday running of the firm) directors are regarded as firm insiders, since it is the responsibility of the board to approve the financial accounts and thus the accompanying narrative documents.

³² This issue is complicated further by the issue of the various identities which emerge in corporate narratives. As a result, chairman's reports do not only contain references to actions undertaken by the chairman (*I, me, mine, myself*), but also references to actions undertaken by management and the board (*we, us, ours, ourselves*), and references to actions undertaken by the firm and matters relating to the firm (*the Group*). Thus, in corporate narratives various interrelated and overlapping 'selves' are brought to bear, including what White and Hanson (2002) refer to as 'the embodied self' of managers, board members and the chairman and 'the corporate self' of the firm. See section 4.2 for a more detailed discussion of the use of pronouns and their referents in chairman's reports.

³³ Ingratiation involves individuals seeking to be viewed as likable by flattering others or by doing favours for them. Self-promotion entails individuals aiming to be perceived as competent by flaunting

Figure 2.9: Impression management orientation of managers in a corporate reporting context



Application of the impression management orientation in a corporate reporting context implies that management uses the corporate reporting process to engage in impression management as a response to the anticipated reaction of shareholders and stakeholders regarding its performance.

Palmer et al. (2001) apply this social psychology research on impression management orientations in a corporate context by surveying 95 international middle- and upper level managers in the US in the context of performance evaluations. They attempt to determine whether management is motivated by a defensive or an acquisitive orientation in trying to manipulate the perceptions and decisions of others. They find that managers predominantly exhibit an acquisitive orientation aimed at enhancing the possibility of future benefits.

These findings provide psychological validity to agency theory explanations of managerial behaviour which regards impression management as arising from the desire to maximise future benefits in the form of economic (tenure, compensation contracts, stocks and stock options) benefits.

their abilities and accomplishments. Exemplification involves individuals aiming to be viewed as dedicated by going above and beyond the call of duty. Enhancements and entitlements are so-called acclaiming tactics which are used in the case of positive events. The choice of tactic is dependent on (a) the ambiguity of the responsibility for the outcome and (b) the desirability of the outcome. Entitlements are attempts to maximize responsibility for positive events. They are especially likely to occur when responsibility for the positive outcome is either ambiguous or unclear. Enhancements try to maximize the desirability of a positive occurrence.

However, Ogden and Clarke (2005), who investigate acquisitive (assertive) and defensive (protective) impression management strategies in the narrative corporate report sections of ten privatised regional UK water companies, find that management uses both acquisitive and defensive impression management tactics. Their objective is to establish whether firms use impression management to gain and maintain legitimacy as customer-focused companies. They find that companies use assertive impression management techniques to build legitimacy and defensive tactics to address short-falls in their performance.

What is more, research carried out on performance attributions in narrative corporate report sections shows that managers adopt both an acquisitive/assertive and a defensive/protective orientation in a financial reporting context (see sections 2.2.2 and 2.3.5). They engage in so-called self-serving attributions which attribute positive organisational outcomes to themselves (in the form of entitlements) and negative organisational outcomes to external circumstances (in the form of excuses).

2.7.5 Impression management strategies

Research in social psychology suggests that the impression management tactics which individuals choose are dependent on the perceived outcome of an event: *Acclaiming* tactics are used in the case of a positive outcome of events and *accounting* tactics in the case of a negative outcome (Schlenker 1980).

Acclaiming tactics are designed to explain an event in a way that maximizes the desirable implications for the individual. Accounting tactics are used to explain inappropriate behaviour and to bridge the gap between actions and expectation. Acclaiming and accounting use two tactics each, namely entitlements and enhancements in the case of acclaiming and justifications and excuses in the case of accounting.

The choice of tactic is dependent on (a) the ambiguity of the responsibility for the outcome and (b) the desirability of the outcome. Entitlements are attempts to maximize responsibility for positive events. They are especially likely to occur when responsibility for the positive outcome is either ambiguous or unclear. Enhancements try to maximize the desirability of a positive occurrence. Excuses are attempts to assign responsibility for negative outcomes to external circumstances. Justifications try to minimize the undesirability of the outcome.

In the case of positive outcomes, individuals will choose the tactic of entitlements which allows them to assign responsibility for the event to themselves, if the responsibility for the outcome is ambiguous. However, if the responsibility for the positive outcome is beyond doubt, individuals will use the tactic of enhancements which allows them to maximize the desirability of the event itself. Table 2.11 contrasts acclaiming and accounting tactics:

Table 2.11: Acclaiming vs. accounting tactics		
	<i>Positive outcome:</i> <i>Acclaiming</i>	<i>Negative outcome: Accounting</i>
<i>Attribution of desirability of outcome</i>	Enhancements (maximise desirability of event)	Justifications (minimise undesirability of event)
<i>Attribution of responsibility</i>	Entitlements (internal factors)	Excuses (external circumstances)

In the case of negative outcomes, individuals will choose the tactic of excuses which allows them to assign responsibility for the event to external circumstances, if the responsibility for the outcome is ambiguous. However, if the responsibility for the negative event is beyond doubt, then individuals will use the tactic of justifications which allows them to minimize the undesirability of the event itself.

Schlenker (1980) differentiates the accounting tactics of excuses and justifications by noting that whereas excuses refer to either unforeseen consequences or extenuating circumstances, justifications draw on relevant social comparisons or higher order goals. Tedeschi and Riess (1981) argue that excuses point to a lack of intention.

planning, capacity, or will, and justifications appeal to a higher authority, ideology, norms, or loyalties.

The tactics of entitlements and excuses which are concerned with the allocation of responsibility to internal and external factors are also studied in the context of attribution theory. It claims that individuals attribute positive outcomes to themselves and negative outcomes to external circumstances.

Additionally, when individuals offer explanations of events, they can make either (1) an external attribution or (2) an internal attribution. An external attribution assigns causality to an outside agent or force thus claiming that some force outside of the individual's control motivated the event. By contrast, an internal attribution assigns causality to factors within the individual and thus attributes responsibility for the event to the individual.

Thus, attribution theory focuses solely on the acclaiming and accounting tactics associated with the attribution of responsibility for a particular event, namely entitlements in the case of positive events and excuses in the case of negative events. Attribution theory was developed over time from the theories of social psychologists including Heider (1958), Jones and Davis (1965), and Kelley (1967) and is concerned with the study of a person's perceptions of events and deals with how individuals explain events.

Accounting research has adopted attribution theory to explain managerial impression management attempts in the case of positive and negative organisational outcomes. Research focusing on attribution in a financial reporting context examines impression management in the form of performance explanations. It claims that managers use narrative corporate report sections in a self-serving manner, and not to report performance objectively. Managers are assumed to attribute good performance (positive organizational outcomes) to internal factors and bad performance (negative organizational outcomes) to external circumstances. This means that their behaviour is characterised by a combination of self-enhancement (entitlements) and self-protection (excuses) tactics (see Table 2.12).

Table 2.12: Attribution of responsibility in financial reporting

<i>Self-serving behaviour</i>	<i>Positive organisational outcomes:</i> Self-enhancement: Entitlements (attribute responsibility to internal organizational factors)	<i>Negative organisational outcomes:</i> Self-protection: Excuses (attribute responsibility to external circumstances)
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The application of attribution theory in an accounting context has been discussed in section 2.2.2.

2.8 Impression management as self-presentational dissimulation

Since impression management in a corporate reporting context entails the attempt to present “*information in a manner that is intended to distort readers’ perceptions of corporate achievements*” (Godfrey et al. 2003: 96), it constitutes dissimulation, i.e. constructing a public image of firm performance and prospects which is inconsistent with the way management may see firm performance and prospects. The social psychology literature discusses this phenomenon under the term ‘self-presentational dissimulation’ (Leary and Kowalski 1990: 40) and regards it as part of impression management construction (see section 2.7.2).

Although self-presentational dissimulation has been recognized as one aspect of impression management (Curtis 2004a: 292; Huang 2004: 19), the impression management literature does not provide any insights on the conditions fostering self-presentational dissimulation and the strategies adopted for creating impressions that are not accurate. However, we can borrow insights on the strategies adopted for dissimulation in a financial reporting context from the fraud literature (section 2.8.1). What is more, social psychology research offers insights on the conditions fostering dissimulation and provides a methodology based on the psychological aspects of word use during dissimulation (2.8.2).

2.8.1 Dissimulation in accounting research

Research on fraud can provide valuable insights into the strategies adopted during dissimulation, since impression management (and earnings management) and fraud only differ in their underlying motivation (e.g. embezzlement as opposed to managerial gain from bonuses, stock options, and reputation), methods (infringement of accounting regulations versus use of judgment in financial reporting), and legal implications, but are carried out for the same purpose, namely to mislead other parties. Dissimulation in a corporate reporting context thus involves the process of “*one agent [management] ... intentionally manipulate[ing] the attributes in an environment so as to create a misleading representation in the mind of a second agent [investors]*” (Johnson et al. 1993: 485).

Johnson et al.’s (1993) taxonomy of tactics used by management can also be applied in an impression management context. They distinguish between (1) dissimulation and (2) simulation. Dissimulation entails ‘hiding the real’ and simulation involves ‘showing the false’. In the sense that the obfuscation of negative organisational outcomes involves concealing the true facts of company performance it constitutes dissimulation. Johnson et al. (1993) identify three tactics involved in dissimulation, namely (1) deleting attributes of the environment, (2) modifying them, and (3) adding attributes to it. The three tactics can be divided into seven sub-tactics, namely (1) masking, (2) double play, (3) mimicking, (4) dazzling, (5) inventing, (6) repackaging, and (7) decoying.

Table 2.13 lists the tactics and sub-tactics of dissimulative dissimulation, their definition, their application in narrative corporate report sections, and the corresponding impression management strategies. The definitions of the sub-tactics are based on Johnson et al. (1993: 471-472).

It illustrates the way impression management uses one of these tactics, namely the modification of environmental attributes by means of mimicking, dazzling, and repackaging in the context of narrative corporate report sections. In the textual part of narrative corporate report sections the attributes of the environment are (1) the content, (2) the language, and (3) the visual effects (see Figure 2.2). Impression

management thus involves the modification of content (by means of selectivity and bias), language (by means of altering reading difficulty and using rhetorical devices), and visual effects (by means of altering layout and graphic design).

Due to the nature of the tactics used, impression management can potentially have serious consequences in the form of capital misallocations resulting from the creation of false impressions of company performance and prospects.

Table 2.13: Dissimulation tactics involved in impression management in narrative corporate report sections

Tactics	Sub-tactics	Definition	Application in narrative corporate report sections	Impression management strategy
Deleting	Masking	Deleting from the environment attributes that suggest the correct representation.		
Modifying	Mimicking	Modifying attributes in the environment in a way so as to suggest the incorrect representation. The attributes copy as faithfully as possible another environment.	Selectivity is used to select specific themes and numbers	Narrative disclosure
	Dazzling	Modifying attributes in the environment in such a way as to obscure or blur these attributes whose interpretation suggests the correct representation, and to emphasize these attributes whose interpretation suggests the incorrect one.	Texts are rendered difficult to read in order to obscure meaning. Language is modified by means of rhetoric in order to obscure meaning	Reading ease manipulation Rhetorical manipulation
	Repackaging	Modifying attributes in the environment in order to hinder the generation of the correct representation. Repackaging is weaker than mimicking because it is based on justification and distortion rather than replication of attributes.	Disclosure bias is used in order to emphasise positive organisational outcomes	Thematic manipulation
Adding	Double play	Manipulating attributes in the environment in a way so as to weakly suggest the correct representation. The purpose of a Double-Play tactic is to reinforce the incorrect representation by weakly suggesting the correct one.		
	Inventing	Adding new attributes to the environment in order to suggest the incorrect representation.		
	Decoying	Adds new attributes to the environment in order to hinder the generation of the correct representation. Decoying is weaker than inventing since the decoys are not directly suggestive of the incorrect representation. They simply direct attention away from the correct one.		

Based on Johnson et al. (1993)

After establishing a link between dissimulation and impression management in the form of tactics, we can turn to social psychology research for insights on the factors and conditions fostering dissimulation and on strategies for uncovering dissimulation. This helps us establish whether the conditions in which management operates and corporate reports as a medium of communication are conducive to dissimulation and thus impression management. What is more, it provides us with alternative strategies of uncovering impression management in narrative corporate report sections.

2.8.2 A social psychology perspective of dissimulation

Newman et al. (2003: 666) point to a growing body of psychology research which suggests that “*we can learn a great deal about people’s underlying thoughts, emotions, and motives by counting and categorizing the words they use to communicate.*” Psychology research focusing on word use is based on the assumption that the way people express themselves “*conveys psychological information*” (Pennebaker et al. 2003: 550). This means that words are an indicator of “*people’s underlying thoughts, emotions, and motives*” (Newman et al. 2003: 666).

This section draws on research on word use associated with honesty/dishonesty which is based on the assumption that “*the words people choose when talking or writing may betray their thoughts and feelings*” (Pennebaker et al. 2003: 572). Based on the concept of impression management as presenting “*information in a manner that is intended to distort readers’ perceptions of corporate achievements*” (Godfrey et al. 2003: 96), it fits into this stream of psychology research which is concerned with “*messages and information knowingly transmitted to create a false impression or conclusion. There are many ways to deceive, such as lies, fabrications, concealments, misdirection, bluffs, fakery, mimicry, tall tales, white lies, deflections, evasions, equivocation, exaggerations, camouflage and strategic ambiguity*” (Burgoon and Nunamaker 2004b: 1).

Thus, this stream of research encompasses the whole spectrum of managerial impression management behaviour, described in the literature as ‘executive hyperbole’ (Guardian, 17 April 2004: 27), ‘gilding the lily’ (Guardian, April 17, 2004, p. 27), ‘enhancing the story’ (Courtis 2004a: 293), ‘putting “*the best rhetorical polish*

or ‘*spin*’ on the story-telling” (Courtis 2004a: 306), ‘representing information in the best possible light’ (Beattie and Jones 1997: 35), and ‘puffery’ (Huang 2005).

The social psychology literature discusses this phenomenon under the term ‘self-presentational dissimulation’ (Leary and Kowalski 1990: 40) and regards it as part of impression management construction. It entails constructing a public image which is inconsistent with the individual’s self-concept. However, the social psychology literature does not provide any insights on which conditions foster this type of impression management behaviour and on people’s preferred strategies for creating impressions that are not accurate (Leary and Kowalski 1990).

In the wake of 9/11, there is a growing body of research in the US on dissimulation in the context of the psychological aspects of word use which aims to establish techniques for uncovering dissimulation in both oral and written communication.³⁴ However, this type of research does not focus on the dissimulation tactics discussed in section 2.8.1, but on the physical and verbal by-products of dissimulation, such as stuttering, lip-biting, and increased/decreased use of specific word categories during oral and written communication. The intention behind these studies is to construct ‘polygraph tests’ based on specific verbal and/or non-verbal characteristics.

Three types of studies on dissimulation in psychology research on word use provide insights into self-presentational dissimulation in the context of corporate reporting, namely research (a) on the moderators of dissimulation, (b) on the factors fostering successful dissimulation, and (c) on the linguistic characteristics differentiating true and false stories (i.e. the linguistic characteristics associated with dissimulation). The linguistic characteristics associated with dissimulation are discussed in chapter three (section 3.4.1) since they form the basis of measuring self-presentational dissimulation by means of linguistic markers.

Moderators of dissimulation

Two moderators of dissimulation have been identified in the literature, namely (1) dissimulation regarding transgressions and (2) strength of motivation to engage in dissimulation (DePaulo et al. 2003).

Dissimulation regarding transgressions

Cues to dissimulation are stronger if dissimulation is about transgressions (DePaulo 2003). Dissimulation as a result of transgressions “*range from misdeeds such as cheating on tests to deep betrayals of intimacy and trust, such as affairs ... These lies, especially if discovered, can have serious implications for the individuals engaged in impression management’ identities and reputations*” (DePaulo 2003: 76-77). Managerial failure to perform can also be regarded as a form of transgression which has serious economic and reputational implications, if discovered. We can assume that managerial communication involving self-presentational dissimulation, such as the obfuscation of negative organisational outcomes in narrative corporate report sections, is characterised by strong cues to dissimulation.

Motivation to engage in dissimulation

Cues to dissimulation are stronger when told under conditions of high motivation to succeed (DePaulo 2003). The motivation to lie can be either identity-relevant or instrumental. Identity-relevant motivation involves the protection of one’s status and reputation and instrumental motivation is linked to rewards in the form of pay and promotion. Since management has strong economic and reputational incentives to engage in impression management, its motivations to engage in self-presentational dissimulation can be said to be both identity-relevant and instrumental. For this reason narrative corporate report sections should contain strong cues to self-presentational dissimulation, if impression management has occurred.

Since managerial self-presentational dissimulation is concerned with hiding transgressions and is driven by a strong motivation on the part of management, narrative corporate report sections containing impression management should contain strong cues of self-presentational dissimulation.

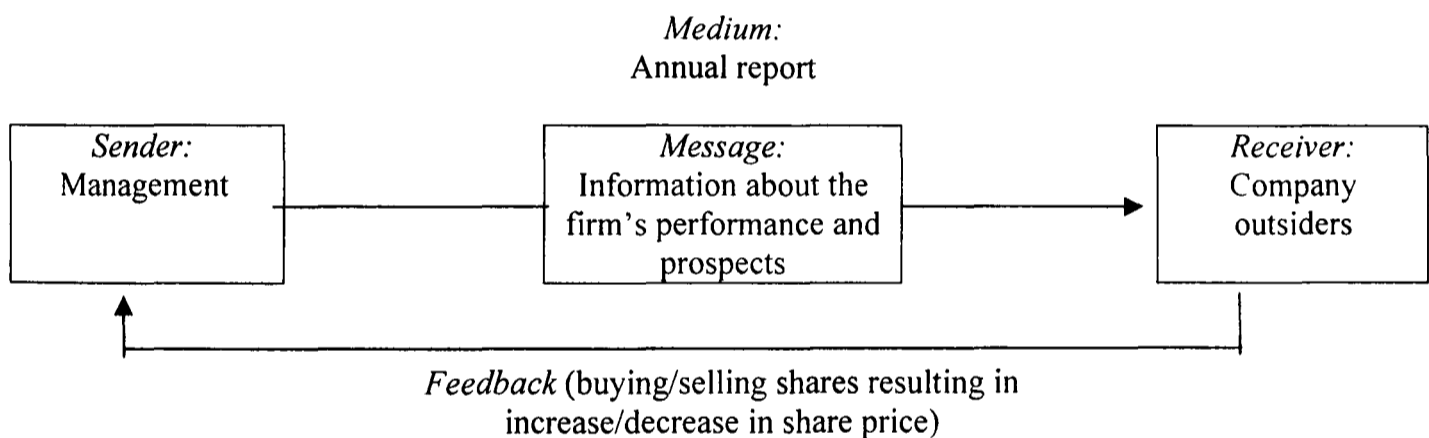
³⁴ The purpose of this research is to uncover potential terrorist activities by means of analysing e-mail

Factors fostering successful dissimulation

Research in social psychology confirms that dissimulation occurs across different media (Hancock et al. 2004). This includes corporate communication and specifically corporate reports.

From a communication perspective, communication between two parties involves a sender, a receiver, a message, a medium, and a channel. Since impression management in narrative annual report documents, such as the chairman's report, is a process of manipulating not only the perceptions, but also the decisions, of relevant parties communication between company insiders and other parties has to be regarded as a two-way communication process, with feedback as an essential element.

Figure 2.10: Features of the communication process in corporate reporting



As shown in Figure 2.10, communication in a corporate context involves the exchange of information between management (sender) and company outsiders (receivers), including shareholders and stakeholders, such as customers, employees, and the government. Information about the company's performance and prospects (message) is conveyed to company outsiders via various media, such as press releases, shareholder meetings, and the annual report. The channels involved are print (for written documents), airwaves (for spoken communication) and light waves (for images).

and text messages via mobile phones.

Research has established that certain characteristics of each component of the communicative process foster successful dissimulation.

Sender-receiver characteristics

Marett and George (2004) provide a perspective on dissimulation in a group setting involving one sender and multiple receivers. Although their study takes into consideration factors such as diverse knowledge base amongst receivers, and experience with communication medium on likelihood of detection of dissimulation, all the scenarios are conceptualised in a group setting where receivers interact with one another.

However, communication via annual reports involves a group of senders (management) and multiple receivers (shareholders, stakeholders, etc.) who do not engage in any face-to-face interaction with each other.³⁵ For this reason, the application of a methodology based on the self-presentational dissimulation tactics of individuals, such as linguistic markers of self-presentational dissimulation, which is introduced in chapter three, section 2.4.1, in a group-setting is potentially problematic.

However, the chairman's report constitutes a special case of communication since it purports to be written by an individual (the chairman of the company), but as a matter of fact reflects both the actions and opinions of a unified group of people (management). This group cohesion also manifests itself linguistically by the frequent use of the first person plural (*we, us, our, ours, ourselves*) which gives the impression of a group thinking and acting as one (see section 2.10.2 on a more detailed discussion of the linguistic characteristics of chairman's reports). For this reason, we feel that it is appropriate to apply a methodology based on the dissimulation of individuals into a setting involving a unified group of people.

Medium characteristics

Carlson et al. (2004) identify six characteristics of media and their association with dissimulation. Table 2.14 summarises these six characteristics and indicates those applicable to corporate reports.

³⁵ They only interact with each other in the sense that they follow stock price movements.

Media with low levels of synchronicity, cue multiplicity, and reprocessability and high levels of symbol variety, tailorability, and rehearsability aid self-presentational dissimulation. Corporate reports are written media available in both print and *Pdf* format consisting of text and visual material which are prepared in advance and can be repeatedly accessed by interested parties. Thus, corporate reports have three features which aid self-presentational dissimulation, namely a-synchronicity, symbol variety, and rehearsability. This renders corporate reports a likely medium for communication involving self-presentational dissimulation.

Table 2.14: Medium characteristics of corporate reports

Medium characteristics	Explanation	Annual report characteristic	Association with dissimulation	Dissimulation in corporate reports
Synchronicity	Instantaneous dialogue between participants	No	Negative	Yes
Symbol variety	Visual display of text by means of colour, font, highlighting	Yes	Positive	Yes
Cue multiplicity	Simultaneous use of several channels, e.g. text, images audio	Yes	Negative	No
Tailorability	Customisation of message depending on receiver	No	Positive	No
Reprocessability	Repeated accessibility of message	Yes	Negative	No
Rehearsability	Time to plan information and presentation of message	Yes	Positive	Yes

Key: Areas shaded in grey indicate the medium characteristics of annual reports fostering dissimulation.

2.9 Detecting impression management

Johnson et al. (1993: 473-475) list two strategies for detecting dissimulation, namely (1) strategies based on finding evidence suggestive of the process of perpetrating the dissimulation, i.e. the process through which the deceiver transforms the initial environment into a deceptive one, and (2) strategies based on processing information contained in the manipulated environment. Type (1) strategies include motivation-based strategies, such as managerial gain by means of rises in share price, and

process-based strategies, such as red flag strategies. Type (2) strategies include recognition-based, conservative-based, and intentionality-based strategies.

2.9.1 Detecting impression management in previous research

Previous impression management research has focused exclusively on the recognition-based strategy for detecting dissimulation, which constitutes a Type (2) strategy. It involves basing the detection of impression management on the knowledge of common manipulations, i.e. manifestations of impression management (see section 2.2), and their recognition when they appear (Johnson et al. 1993: 474). Impression management studies typically analyse specific narrative corporate report sections for evidence of a particular impression management strategy, such as reading ease manipulation or the use of performance attributions.

The weakness of this strategy is that it is a very time-consuming process to examine narrative corporate report sections for evidence of all possible manifestations of impression management. What is more, since impression management entails the use of subtle psychological strategies aimed at manipulating perceptions, there might be numerous ways management engages in impression management which have not yet been identified by the literature.

2.9.2 Alternative strategy for detecting impression management

Research in linguistics on the linguistic cues of dissimulation provides impression management research with an alternative strategy for detecting dissimulation which is a process-based Type (1) strategy, i.e. a red flag strategy. This means that it does not involve looking for evidence of the manipulation activity itself, but of the signs of the manipulation activity (Johnson et al. 1993: 473).

The advantage of Type (1) strategies for detecting dissimulation is that “*symptoms of the Deceiver’s manipulation activities may be easier to detect than the manipulation itself*” (Johnson et al. 1993: 474). Another advantage is that Type (1) strategies are less time-consuming to detect, since they bypass the process of analysing narrative corporate report sections for evidence of all possible manifestations of impression management.

Social psychology focuses on the verbal manifestations of dissimulation, such as increased/decreased use of specific word categories (see chapter 3, section 3.4.1). The intention behind these studies is to construct a ‘polygraph test’ based on particular verbal characteristics. It specifically builds on studies focusing on the linguistic characteristics differentiating true and false stories.

Whereas accounting research focuses on the conscious use of impression management strategies and dissimulation tactics, social psychology provides insights on the unconscious processes involved during dissimulation.

Figure 2.11 shows that impression management has a conscious and an unconscious dimension which occur simultaneously.³⁶ Conscious impression management strategies, such as reading ease manipulation and rhetorical manipulation constitute Type (2) strategies, i.e. they focus on analysing information contained in the manipulated environment (see section 2.9.1). In contrast, the unconscious processes, such as use of self-reference and use of emotion words, constitute Type (2) strategies, i.e. they focus on the process of transforming the environment into a deceptive one (see section 2.9.1).

Figure 2.11: Execution of impression management						
Conscious strategies	Obfuscation of negative organizational outcomes				Attribution of performance	Use of performance referents
	Reading ease manipulation	Rhetorical manipulation	Thematic manipulation	Narrative disclosure		
Unconscious processes	Verbal and non-verbal indicators of dissimulation					

Regardless of the conscious strategy adopted for the manipulation of perceptions and decisions, the unconscious processes involved are always the same. The adoption of a

³⁶ The difference between the two can be likened to measuring the use of impression management during a job interview. The conscious strategies employed include self-promotion (performance claims) and exemplification (going beyond the call of duty, appearing busy). The unconscious

methodology based on the analysis of the unconscious aspect of dissimulation thus provides an advantage over conventional methodologies in that it covers the use of impression management in general, including all previously identified conscious strategies of impression management, and possible other ways of manipulating the impressions of shareholders and stakeholders.

2.10 The chairman's report as an impression management vehicle

Previous impression management research has used a variety of corporate narrative sections as their medium of analysis, namely (1) the chairman's report (Jones 1988, Smith and Taffler 1992a, 1992b, 1995, 2000; Curtis 1986, 1998; Clatworthy and Jones 2001a, 2006), (2) the Operating and Financial Review (Sydserff and Weetman 1999; Rutherford 2003), (3) the Management and Discussion Analysis (Frazier et al. 1984; Tennyson et al. 1990; Collins et al. 1993; Bryan 1997; Clarkson et al. 1999; Yuthas et al. 2002), and (4) the President's Letter to Shareholders (Tennyson et al. 1990; Baker and Kare 1992; Subramanian et al. 1993; Abrahamson and Amir 1996; Yuthas et al. 2002). The following sections outline the reasons why the chairman's report has proven to be the most popular in the UK context, outlines its specific linguistic and communicative characteristics, and discusses issues surrounding its authorship.

2.10.1 Rationale for choosing the chairman's report

The chairman's report is a tried and tested medium for the investigation of impression management in narrative corporate report sections (Jones 1988; Smith and Taffler 1992a, 1992b, 1995, 2000; Clatworthy and Jones 2001, 2006; Sydserff and Weetman 2002; Curtis 1998, 2004a; Smith et al. 2005). It is included in the annual reports of almost all UK companies, which simplifies sample selection. What is more, its brevity allows the selection of a large sample of firms, which, in turn, allows for a more detailed analysis and thus greater validity.

processes include both verbal and non-verbal indicators, such as use of passive voice or avoidance of eye contact during exaggerations and concealments.

The chairman's report is the most likely narrative annual report section to contain evidence of impression management since, unlike the Operating and Financial Review³⁷, the company is under no statutory, professional, or stock exchange requirements to provide a chairman's report. Also, it is not subject to audit other than audit checking for information inconsistencies with the financial statements.

Since it is not under close scrutiny by regulatory bodies and does not constitute a legal requirement, misrepresentation contained therein is more unlikely to be detected and more unlikely to result in company litigation than misrepresentation contained in regulated documents. For this reason, both the opportunity and the incentives for management to engage in impression management within the chairman's report are high. This is especially the case, since due to its nature as an informal communication vehicle between internal and external parties, it is the most likely narrative annual report document to be read³⁸ and thus the most worthwhile for the use of impression management.

The chairman's report has no specified format and the contents can differ from company to company. However, most chairman's reports include a review of the results for the year, details about the dividend, a description of the major changes in the company's activities for the year, and a review of the achievements of the directors and other employees. It may also provide an insight on how the chairman views the company's future. Its lack of predefined format makes it an ideal vehicle for impression management since it provides companies with the freedom to shape the chairman's reports to their individual requirements.

Furthermore, since impression management is concerned with the manipulation of outsiders' perceptions of firm performance and prospects, the overall purpose of the chairman's report, namely to provide "*an interpretative account of [firm] performance within the context of its operating environment as noted by its governing*

³⁷ Since May 2005, the Operating and Financial Review is regulated by RS1, an Accounting Standards Board Reporting Standard, which is mandatory for all quoted companies in the UK.

³⁸ Lee and Tweedie (1981) found that professional institutional investment specialists named the Chairman's report as the next important section inside the corporate annual report after the profit and loss account and the balance sheet.

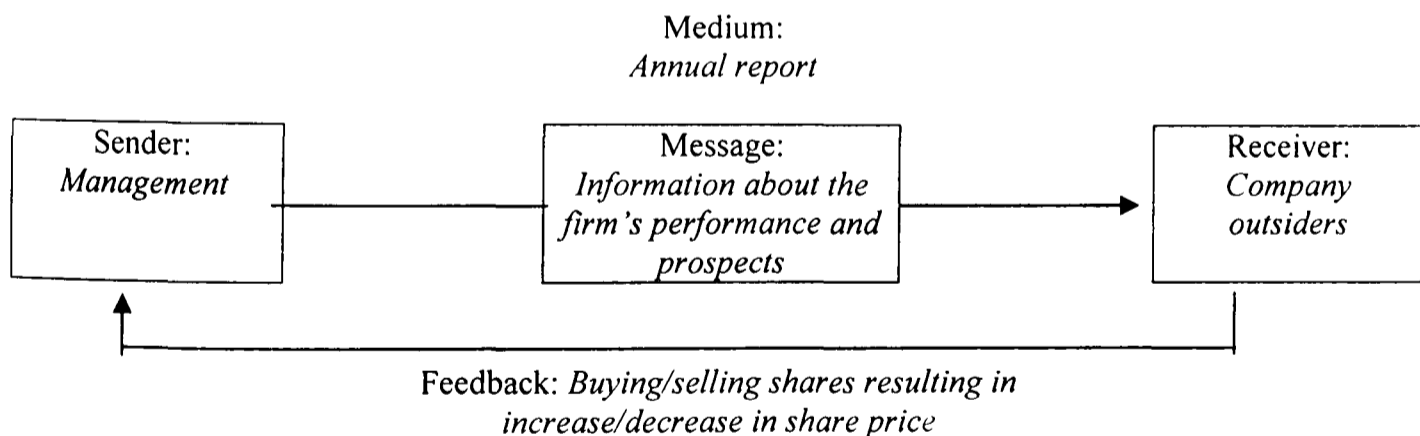
body” (Clarke and Murray 2000: 145), makes it ideally suited to impression management.

Finally, Clarke and Murray’s (2000: 150) survey of the perceptions of UK investment trust chairmen about the role of the chairman’s report in communications policy and management shows that chairmen are fully aware of the impression management function of the chairman’s report. The study suggests that “*there is a definite perception of impression management underpinning the purpose of the chairman’s report*”. It can therefore be assumed that the chairman’s report is the most likely vehicle for impression management purposes.

2.10.2 Communicative and linguistic dimensions of the chairman’s report

As already discussed in sections 2.1.1 and 2.10.2, from a communication perspective, the chairman’s report is part of the corporate communication process which involves six elements, namely (1) sender, (2) message, (3) medium, (4) channel, (5) receiver, and (6) feedback (see Figure 2.12).

Figure 2.12: Features of the communication process in corporate reporting



The sender, in the case of the chairman’s report, the chairman, initiates the communication process. S/he, or someone on his/her behalf, encodes a message, i.e. puts the message into words or images, and selects a channel for transmitting the message to a receiver. The message is the information that the sender wants to transmit. In the case of the chairman’s report, the message revolves around company performance and prospects. The medium is the means of communication, such as a

telephone conversation or a letter. In corporate communication the media include press releases, shareholder meetings, and the annual report, which is the medium for the chairman's report. The channel is the means of communication, such as print, mass, electrical, and digital. The channel for the chairman's report is either print (hard copy) or digital (*pdf* file). The receiver is the person or group for whom the message is intended. In the case of the chairman's report this group consists primarily of shareholders and secondarily of stakeholders, such as customers, employees, and the government. The receiver decodes, i.e. interprets the meaning of the message. Feedback entails the transfer of information from the receiver back to the sender. In case of the chairman's report this occurs in the form of buying or selling shares.

In linguistic terms, a chairman's report is a speech event (Levinson 1983). A speech event is characterised by the following participants, namely the speaker/writer and the addressee/group of addressees.³⁹ The speaker/writer conveys a message, as grammaticalized in the first person singular (*I, me, my, mine, myself*). An addressee/a group of addressees is any of the immediate intended recipients of the speaker's/writer's communication, as grammaticalized in the second person (*you, your, yours, yourself/yourselves*). In the chairman's report the writer is the chairman, or his/her representative, and the group of addressees is (primarily) the shareholders.

In her analysis of the construction of professional and institutional identity by means of pronoun use in speeches Van De Mierop (2006: 4, in press) points out that "*the we-form is quite often used to refer to an institutional referent, thus positioning the speaker as a representative of the organization, while the I-form can reflect the presence of the speaker in his speech through which he may present himself as an expert.*"

The use of first person pronouns (*I* and *we*) is similar in chairman's reports. The first person singular (*I, me, mine, myself*) is used sparingly in chairmen's reports. It is used in the context of actions undertaken by the writer in his/her professional function as a chairman/chairwoman, as demonstrated by Example 1.

³⁹ In her study on the writer-reader association in business prose Jameson (2004) points out that the *I* and the *you* in the text do not refer to 'real people', but rather represent "*the textual identities of the*

Example 1: Use of first person singular

*... on behalf of the Board **I** would like to thank all **my** colleagues throughout the Group ...*
(Barratt Developments PLC 2002).

Key: Words in bold refer to pronoun use demonstrated by example

The investigation of the sample of chairman's reports used in this study indicates that the first person plural (*we, us, our, ours, ourselves*) predominates in UK chairman's reports. In the English language, the first person plural can be either used in an inclusive or in an exclusive way. The inclusive use of the first person plural refers to a group including both the speaker and the addressee/group of addressees, while an exclusive use of the first person plural refers to a group including the speaker, but not the addressee/group of addressees.

In the chairman's report the exclusive use of the first-person plural prevails. It is used in the context of actions undertaken by the writer as part of an institutional entity, i.e. either the board of directors, management or the company as a kind of 'plural personality', including the board of directors, management, and staff. This is demonstrated by Example 2.

Example 2: Use of exclusive first person plural

***Our** results for the year to 31 December 2002 show another year of organic growth for the Group, with turnover increasing by 29%. Further substantial progress has been made towards the development of Atlantic and expanding **our** range of increasingly successful products.*
(Atlantic Global PLC 2002).

Key: Words in bold refer to pronoun use demonstrated by example

The use of the second person plural occurs in the context of actions undertaken by the group impacting on the shareholders. This is demonstrated by Example 3.

characters implied in the text" (228), whom she refers to as 'the implied writer' and 'the implied

Example 3: Use of second person

*During my time as **your** Chairman, the Group has experienced both very good and very bad trading conditions and our results have reflected this. ... What I can assure **you** is that **your** Board and the management are absolutely committed to taking whatever actions are necessary to restore shareholder value. (Cookson Group PLC 2002).*

Key: Words in bold refer to pronoun use demonstrated by example

The use of the third-person singular and plural, i.e. references to ‘others’, occurs mainly in the context of describing the actions of members of the management team or board of directors. This is demonstrated by Example 4.

Example 4: Use of third person

*Richard Haythornthwaite, a non-Executive Director since 1999, is also retiring from the Board at the same time. We thank **him** most sincerely for his able and committed contribution. ... I would like to conclude by paying a particular tribute to all our people, management and staff alike. **They** have responded with professionalism and vigour to downsizing, rapid changes and tough decisions. (Cookson Group PLC 2002).*

Key: Words in bold refer to pronoun use demonstrated by example

2.10.3 The authorship of the chairman’s report

When chairman’s reports are analysed, it is natural to ask whether the results reflect the motives of the chairman, of management, i.e., company executives, of internal corporate communication departments or of outside agencies, such as public relations agencies, management consultants, and design and image agencies which are often involved in the preparation of annual reports.

First, it needs to be noted that the content of the annual report is the chairman’s responsibility. This is due to the fact that the chairman is responsible for the governance of the company (Clarke and Murray 2000) which involves running the board. S/he thus plays a significant role in company matters reserved to the board,

reader’.

such as approving strategy, acquisitions and disposals, dividend and financing policy and the annual report (Davison 2001).

In the context of this study, the assumption is that the chairman's report carries the stamp of management, rather than that of the chairman or of outside agencies. Findings from prior research show that management exerts considerable influence on both its content and style during the entire writing process.

Clarke and Murray's (2000) survey of the perceptions of UK investment trust chairmen on the role of the chairman's report in corporate communications policy shows that although only 14 percent of chairmen are solely responsible for writing the chairman's report, internal staff, rather than outside agencies tend to be responsible for preparing the chairman's report. In fact, of those chairmen who do not write the report themselves, 94 percent receive help from management. What is more, 88 percent of chairman's reports are prepared as a draft by management and subsequently amended and approved by chairmen.

In fact, twelve percent of chairman's reports in the sample of the present study show the direct influence of management by means of constituting either (1) a combined report by the chairman and the CEO or (2) a combined chairman's report and review of operations. The latter is a reflection of chairman/CEO duality (see section 5.1.3).

The chairman's report can thus be regarded as part of the company's corporate communications policy which reflects the views of both the board and management regarding firm performance and prospects. The involvement of senior management in the preparation of the annual report is confirmed by Ogden and Clarke (2005: 318-319) who interview the senior executives of six UK water companies in order to determine the role of the annual report as an impression management vehicle.

Typically, the chief executive officer (CEO) initiated the process of preparation, requiring contributions from fellow executive directors about their areas of responsibilities. These would undergo several iterations as they were combined into a coherent whole by the CEO and the executive management team. Further iterations followed the consideration of the draft report by the full board of directors before it was finally signed off and sent for printing.

This means that both chairmen and management spend a good deal of time reviewing and changing the text, before the chairman's report is released to the public.

However, even if corporate communication departments or outside agencies are involved, there are two reasons for believing that this is not an important problem in terms of authorship. First, any good corporate communications department, public relations agency or design consultant knows how to produce words and images that feel appropriate and comfortable to the corporate client.⁴⁰

Moreover, studies in both management and psychology have successfully used texts with multiple authorships for the analysis of underlying motives. Winter (1987) and House et al. (1991) find the inaugural speeches of US presidents, which are the result of input by both speech writers and presidents, useful indicators of leader appeal, leadership success, and leader characteristics.⁴¹

As stated previously, the reading difficulty of narrative annual reports sections can be either attributed to managerial manipulation by means of reading ease manipulation or to 'bad writing'. Whereas the former represents a deliberate effort on part of management to mislead readers about firm performance and prospects and thus constitutes impression management, the latter is due to lack of skill on part of the writer.

Since it is impossible to differentiate between the two, it is necessary to make certain assumptions about the composition of narrative corporate report sections. In the context of this study it is assumed that narrative corporate report sections are written by either skilled writers or individuals experienced in corporate reporting. This is due to the fact that narrative annual reports are important corporate communication documents which are used for marketing and investor relation purposes. Considering the adverse effect of a badly executed annual report in terms of money and reputation, it can be assumed that companies spend both time and care ensuring that they

⁴⁰ Forman and Argenti's (2002) research report on corporate communication within five large US firms shows the strong link between corporate communication departments and top management, especially the CEO. They find that corporate communication departments provide "*sophisticated assistance to ... CEOs in the crafting of their voice and images*" (11).

communicate exactly what the companies want them to communicate. In fact, research indicates that companies take a lot of care on their narrative annual report documents (Clarke and Murray 2000; Forman and Argenti 2002).

2.11 Summary and conclusions

Previous accounting research focusing on impression management has almost exclusively focused on an agency theory concept of impression management which regards narrative corporate report sections as vehicles for influencing the perceptions and decisions of outside parties regarding firm performance and prospects. What is more, both the managerial motivation to engage in impression management and impression management strategies in corporate narrative documents are based on agency theory explanations of managerial behaviour. Thus, impression management is regarded as originating from managerial incentives to maximise economic benefits.

However, an analysis of impression management under behavioural finance assumptions of managerial and investor behaviour shows impression management to fit into the framework of ‘moody investing’ which is based on the assumption of rational managers using both affective and cognitive strategies to manipulate the perceptions of irrational investors regarding firm performance and prospects.

Previous accounting research has identified four manifestations of impression management in narrative corporate report sections, namely the obfuscation of negative organizational outcomes, the attribution of performance, performance comparisons, and choice of earnings number.

The first of these, namely the obfuscation of negative organizational outcomes, has been examined in four manifestations, namely reading ease manipulation, rhetorical manipulation, thematic manipulation, and narrative disclosure. Reading ease manipulation obfuscates bad news by making the prose more difficult to read. Rhetorical manipulation obfuscates bad news by means of persuasive language.

⁴¹ I would like to thank Robert Ellis from the School of Business at the University of Northern British

Thematic manipulation manipulates the amount of positive and negative content in the text. Narrative disclosures obfuscate bad news by means of theme selection. Obfuscation of negative organisational outcomes also occurs by means of disclosing biased accounting numbers in the narrative corporate report sections.

It has been shown in this chapter that social psychology can provide additional insights into managerial impression management in a financial reporting context in terms of providing (1) a wider concept of impression management, (2) non-economic reasons for individuals to engage in impression management, and (3) additional strategies adopted by individuals engaging in impression management. It provides an analysis of the circumstances prompting impression management by means of accountability theory which regards impression management as resulting from the accountability relationship between management and shareholders. This leads managers to engage in impression management in order to win rewards and avoid sanctions. And last, but not least, social psychology research provides a framework for analysing the impression management behaviour of individuals dependent on the expected reaction – either approval or disapproval - of a relevant other party. Since managerial impression management is presumed to provide biased or distorted representations of firm performance and prospects, research on dissimulation provides important insights and new methods for detecting impression management in narrative corporate report sections.

This study is based on the assumption that the mixed and inconclusive results from previous studies examining the association between impression management and firm performance are due to the questionable reliability and validity of measures of impression management, particularly readability measures. Chapter three which is devoted to the measurement of impression management in the form of (1) reading ease manipulation and (2) self-presentational dissimulation by means of linguistic indicators addresses this issue.

Columbia for pointing out research in this area.

Chapter 3: MEASUREMENT OF IMPRESSION MANAGEMENT

This chapter introduces new methodologies from linguistics and social psychology that may be applied empirically to the measurement of impression management in narrative corporate report sections. This thesis breaks new ground in this respect not only by using measures of reading difficulty that are more robust than others that have been employed to date,⁴² but also by applying other contemporary language-based methods to the analysis of impression management in the form of self-presentational dissimulation. Whilst this chapter provides an outline of the three methodologies that are proposed, together with a discussion of how they may be applied to corporate reports, their empirical application will be presented later in chapter six.

3.1 Content analysis

The analysis of narrative corporate report sections necessitates a methodology capable of analyzing text in a systematic way. Previous impression management research in accounting has used content analysis which is a textual analysis technique developed by the social sciences and has only recently been applied in accounting research.

... it is a methodology that categorises narrative segments. Once sample narrative segments (i.e. words, sentences, paragraphs, etc.) are placed into categories and frequency counts for each category are developed, conclusions can be drawn about thematic content. (Tennyson et al. 1990: 394)

Its objective is to “*extract and analyse themes inherent within the message*” (Jones and Shoemaker: 1994: 143). The advantage of using content analysis is that it allows the quantification of thematic content by means of a content score, which can then be statistically related to underlying economic circumstances (Tennyson et al. 1990: 395). The focus of content analysis in accounting research from an impression management perspective is on examining the association between thematic content and financial performance. It strives to uncover ‘hidden messages and themes’ within the narrative sections.

⁴² See Appendix IX for an explanation of all the linguistic terminology arising in the context of the discussion of the cohesion-based approach of measuring reading difficulty.

Research is carried out by either researcher-based specification of themes and subsequent manual categorisation or by means of computerized text analysis programs. The choice between the two involves a trade-off between objectivity and psychological and linguistic validity. Computerized text analysis programs guarantee complete objectivity, but the process of analysis and classification is completely mechanical, which can lead to a decrease in psychological and linguistic validity. Manual content analysis is more subjective, but the results might be more valid, since researchers are able to use their judgment for analysis and classification.

3.1.1 Thematic and syntactic content analysis

Accounting research distinguishes between two different approaches, namely syntactic content analysis, which “*focus[es] on analysing the readability of the text using syntactical features*” and thematic content analysis, which is interested in “*identify[ing] specific trends, attitudes or content categories from the text and then draw inferences from them*” (Jones and Shoemaker 1994: 143). The objective of the former is to “*analyse and quantify the cognitive difficulty of reading the message*”, whereas that of the latter is to “*extract and analyse themes inherent within the message*” (Jones and Shoemaker: 1994: 143).

Whereas thematic content analysis entails the examination of the content of texts, syntactic content analysis involves the investigation of the linguistic aspects of texts. The former is used to investigate both the obfuscation of negative organisational outcomes in the form of (1) narrative disclosure and (2) thematic manipulation, and impression management in the form of performance attributions and use of performance referents. The latter is used to investigate obfuscation in the form of reading ease manipulation.

Thematic content analysis

To conduct thematic content analysis, the text is broken down, or coded, into manageable categories on a variety of levels, i.e. either words, phrases, sentences, or themes. It follows that content analysis may be categorized into ‘form-oriented’, which focuses on occurrences of narrative segments, and ‘meaning-oriented’, which focuses more specifically on thematic content (Smith and Taffler 2000: 627). The former involves the routine counting of words or phrases and the latter focuses more

specifically on analyzing underlying themes, where the research objective is to “*extract and analyse themes inherent within the message*” (Jones and Shoemaker: 1994: 143). In impression management in accounting, the term ‘thematic content analysis’ is used in this context, where the main concern is the analysis of the information content of texts.

The advantage of using content analysis is that it allows the quantification of thematic content by means of a content score, which can then be statistically related to underlying economic circumstances (Tennyson et al. 1990: 395). The research objectives of the existing accounting studies using this methodology have ranged from comparing the thematic content of the reports of companies with increasing and declining performance (narrative disclosure) and examining positive and negative organizational outcomes (thematic manipulation) to uncovering management’s performance explanations (attribution) (See Appendix III for a an overview of the thematic content analysis approaches undertaken by previous impression management studies).

Table 3.1 categorises these three types of impression management into form- and meaning-oriented studies:

Table 3.1. Overview of impression management studies using thematic content analysis		
	Form-oriented	Meaning-oriented
Narrative disclosure	<ul style="list-style-type: none"> • Clatworthy & Jones (2006) 	<ul style="list-style-type: none"> • Ingram & Frazier (1980) • Frazier et al. (1984) • Tennyson et al. (1990)
Thematic manipulation	<ul style="list-style-type: none"> • Abrahamson & Park (1994) • Abrahamson & Amir (1996) • Bryan (1997) • Smith and Taffler (2000) • Clatworthy & Jones (2006) • Clatworthy & Jones (2003) 	<ul style="list-style-type: none"> • Smith & Taffler (2000)
Attribution		<ul style="list-style-type: none"> • Staw et al. (1983) • Fiol (1995) • Hooghiemstra (2001) • Aerts (1994, 2001, 2005) • Ogden and Clarke (2005)

In each case, the key issue that has confronted researchers has been the same. As Smith and Taffler (1995: 1195) note, the main problem in the development of impression management research has concerned the objectivity of the research process:

The information content of accounting narrative statements has remained largely unexplored to date because of the absence of an acceptable methodology, capable of analysing content in an objective manner. The development of computer software, in recent years, to explore the keyword and thematic content of narrative has substantially overcome the problem of investigator subjectivity ...

Another problem with thematic content analysis is the sheer labour-intensity of data collection, resulting in relatively small sample sizes:

First, it is very difficult to develop a reliable coding scheme, even for simple coding judgments. Second, when such reliable coding schemes have been developed, it is very costly (time-consuming) to code each element of text according to the coding scheme. Third, such coding has to be carried out twice in order to calculate inter-coder reliability. For these three reasons, most content analysis studies have a small sample size (usually less than 100 observations) and are confined to rather simple coding judgments. (Abrahamson and Amir 1996: 1163)

Impression management research has used a variety of computer programs for automated content analysis. Table 3.2 provides an overview of content analysis programs used in previous impression management research and compares their thematic dimension with that of *Linguistic Inquiry and Word Count*, the program used in this study (see section 3.4.2 for a more detailed discussion of *Linguistic Inquiry and Word Count* and Appendix IV for a more detailed discussion of automatic content analysis programs used in previous research).

Table 3.2: Computerised content analysis programs

	Academic origin	Accounting application	Thematic dimensions
<i>WORDS</i>	Medicine	<ul style="list-style-type: none"> • Frazier et al. (1984) • Tennyson et al. (1990) 	No thematic dimensions. Key words (based on frequency counts)
<i>DICTION</i>	Linguistics	<ul style="list-style-type: none"> • Sydserff & Weetman (2001) • Yuthas et al. (2002) 	<ul style="list-style-type: none"> • Certainty • Optimism • Activity • Realism • Commonality
<i>Oxford Concordance Program</i>	Linguistics	<ul style="list-style-type: none"> • Smith & Taffler (2000) 	No thematic dimensions. Key words
<i>Linguistic Inquiry and Word Count</i>	Psychology (focus on personal narratives)	<ul style="list-style-type: none"> • This study 	<ul style="list-style-type: none"> • Linguistic dimensions • Psychological processes • Relativity • Personal concerns (thematic dimensions)

Syntactic content analysis

Previous accounting research from an impression management perspective has successfully employed computerised content analysis to analyze the thematic aspects of accounting texts using various thematic content analysis programs, including *WORD* and *DICTION*. However, due to lack of an appropriate methodology and suitable syntactic content analysis programs,⁴³ the linguistic aspects of accounting texts, including reading difficulty, have not been systematically explored.

⁴³ The most widely used approach is the use of word processing programs for the computation of readability scores. For example, *WORD* provides the *Flesch Reading Ease* score via its *Tools* option.

This opens up the field for methodological development in the form of syntactic content analysis and in the form of suitable syntactic content analysis programs. Research in corpus linguistics and recent advances in computational linguistics provide the building blocks of both a syntactic content analysis methodology and computer programs which allow empirical quantitative analysis of the linguistic aspects of texts.

Corpus linguistics constitutes the study of language through corpus-based research. A corpus can be defined in the following way:

A collection of linguistic data, either written texts or a transcription of recorded speech, which can be used as a starting-point of linguistic description or as a means of verifying hypotheses about a language. (Crystal 1991).

In the context of this study, the corpus constitutes of 93 chairman's reports of listed UK companies.

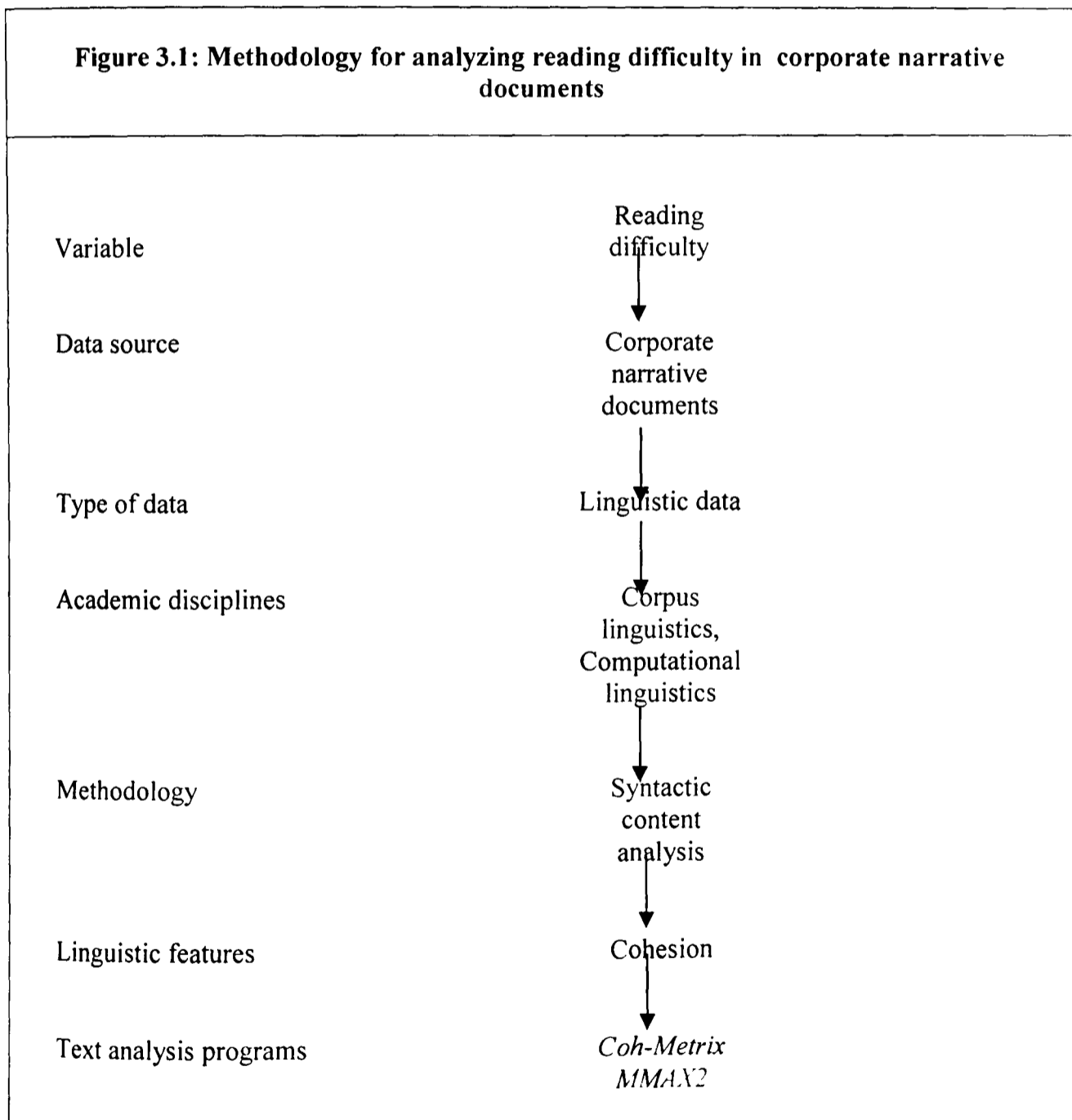
Corpus analysis involves all procedures related to the processing, usage and analysis of corpora. It utilizes research from computational linguistics for either automated or computer-assisted analysis of the linguistic features of sample texts. For this purpose, texts which have been rendered machine-readable need to be annotated with additional information in order to allow the speedy and easy retrieval and analysis of the linguistic information contained in the corpus.

Three main areas of corpus-based linguistic study are lexis (e.g. word use, idioms, irregular plurals), syntax, i.e. sentence level features (e.g. use of prepositions, verb forms, pronouns, agreement), and discourse, i.e. whole-text features (e.g. cohesion, discourse markers). The analysis of reading difficulty focuses on discourse level phenomena, specifically cohesion, i.e., the interconnection within and between sentences.

Syntactic content analysis programs allow the quantitative analysis of the linguistic aspects of texts, such as pronoun use, use of prepositions, discourse markers, and cohesion. There are two types of computer programs available, namely (1) automatic and (2) user-assisted programs. Whereas automatic programs ones operate in a black-

box format, i.e. it is not possible to observe the processes involved leading to the output, user-assisted programs are interactive and require user-input. The current study uses two text analysis programs for analysing reading difficulty, namely (1) *Coh-Matrix* which automatically generates measures of reading difficulty and (2) *MMA2* which is a computer-based tool for creating linguistic annotations. They are discussed in more detail in section 3.3.4.

Figure 3.1 illustrates the interassociation between impression management in the form of reading ease manipulation and the methodologies used in this study for its capture, measurement, and analysis.



3.1.2 Methodological principles of content analysis

This study adopts a quantitative content analysis approach to the measurement of impression management in corporate narrative documents. This entails “*objective and systematic counting and recording procedures to produce a quantitative description of the symbolic content in a text*” (Neuman 1997: 273) and is based on the following six principles: (1) objectivity/intersubjectivity, (2) *a priori* design, (3) intercoder reliability, (4) validity, (5) generalisability, and (6) replicability (see Neuman 1997).

Objectivity/intersubjectivity

Objectivity/intersubjectivity is maximized by selecting a representative sample (see section 5.1.2).

A priori design

A priori design means that all decisions on variables, their measurement and coding must be made before the observation begins (see section 3.3.2).

Intercoder reliability

This study uses three approaches for measuring impression management, two of which involve automatic content analysis resulting in computer-generated scores of reading difficulty (*Coh-Metrix*) and self-presentational dissimulation. However, as the third approach entails the manual coding of text (see section 3.3.2), it needs to be ensured that the “*obtained ratings are not the idiosyncratic results of one’s rather subjective judgment*” (Tinsley and Weiss 1975: 359). This process is referred to as intercoder reliability and entails using two or more coders for a sub-sample of content in order to achieve maximum reliability. In this study, the annotation was carried out by the author, with a sub-sample of texts (ten percent, i.e. nine randomly chosen chairman’s reports) being co-coded by a linguistics graduate.

The statistical procedure for measuring intercoder reliability is Scott’s *pi* and Cohen’s *kappa*, and Krippendorff’s *alpha* which measure agreement for coding nominal categories (Lombard et al 2004). However, marking cohesion entails establishing links between nouns and noun phrases which is a grouping task. For this purpose, we can use approaches used in computational linguistics for evaluating the performance of computer annotation tools.

Interannotator agreement evaluates how well two coders agree in marking cohesive relations. “*The scoring algorithm generates separate scores for recall (the number of correctly identified [cohesive] links over the number of links in the “gold standard” or key) and precision (the number of correctly identified links over the number of links actually generated in the response)*” (Hirschman et al. 1997: 2). Comparing the annotation of two coders, coder 1 (key) and coder 2 (response), the pairs of noun phrases coder 1 has marked as cohesive are referred to as the key and the pairs of noun phrases coder 2 has marked as cohesive are referred to as the response.⁴⁴ In comparing the coding of cohesive noun phrases between coder 1 and 2, there are three possible scenarios, namely (1) true positive (TP), which refers to the pairs of noun phrases both coder 1 and coder 2 have marked as cohesive, (2) false positive (FP), which refers to the pairs of noun phrases coder 2 has marked as cohesive, but coder 1 has not marked as cohesive, and (3) false negative (FN), which refers to the pairs of noun phrases coder 2 has not marked as cohesive, but coder 1 has marked as cohesive. These three scenarios form the basis of the measures of precision and recall. Precision (P) is measured as $P = TP/(TP + FP)$ and recall is measured as $R = TP/(TP + FN)$.

Interannotator agreement is then measured by means of the F-statistic, which measures the average of precision and recall, expressed mathematically as $F = 1/[(\alpha/P) + (1-\alpha)/R]$. The F-statistic, which measures an average of precision and recall, is computed as $F = 1/[(\alpha/P) + (1-\alpha)/R]$. Alpha (α) allows researchers to weight precision and recall. If precision and recall are assigned equal weights, then alpha = 0.5.⁴⁵

⁴⁴ This comparison can be carried out relatively easily by means of the *MMAX2* Query console, which allows the user to detect, browse, and quantify cohesive relations on previously annotated texts. The ‘display’ command lists all noun phrases marked as cohesive in a given text. Subsequently, the noun phrases marked as cohesive by coder 1 and coder 2 can be compared.

Formula 1: Measuring interannotator agreement

$$F = \frac{1}{\frac{\alpha}{P} + \frac{1-\alpha}{R}}$$

However, the output of its search facility, the *MMAX2* Query Console, which provides a means for detecting, browsing, and quantifying cohesive relations on previously annotated texts, can be used as a basis for computing reading difficulty measures. Interannotator agreement, along with details of the intercoder reliability sample, is reported in Appendix V.

Validity

Validity is gained by thoroughly understanding research objectives. This is done by basing measures of reading difficulty on research carried out by linguistics and psychology (see section 3.3.1).

Generalisability

Generalisability refers to the extent to which research findings can be applied to and taken as a measure of target population, i.e. the entirety of UK listed firms. This is achieved by a careful sample selection which includes companies from a wide variety of industries and sizes (see section 5.1.1.).

Replicability

Replicability refers to the ability and degree of difficulty for other researchers to replicate the research to challenge the results. This is achieved by providing full

⁴⁵ See Manning and Schütze (1999) for a detailed discussion of computing interannotator agreement for textual links, such as coreference.

information on the research methodology and procedures (section 3.3.2). It includes the following: (1) code book/coding list (section 3.3.2), (2) coding guidelines and instructions issued to coders (Appendix VI and VII), (3) method of coding used in the case of human coding (Appendix VI and VII), (4) details of software programs used (section 3.3.4), and (4) all data supporting conclusions (Appendix V).

3.2 Conventional approaches to measuring reading difficulty

The concept of reading difficulty or readability originates in education research where it is used for grading primary school texts based on different reading levels. Accounting research from an impression management perspective has adopted the concept of readability and its various measures for investigating the obfuscation of negative organizational outcomes in narrative annual report documents by means of reading ease manipulation.

There are three approaches to syntactical difficulty, namely (1) a text-centred approach, (2) a user-centred approach, and (3) an integrative approach focusing on both aspects. Whereas text-centred approaches regards syntactical difficulty as a function of the text itself (readability), user-centred approaches regard it as a function of the reader, including their education and background knowledge (understandability). The integrative approach is based on both textual aspects and user characteristics.

Table 3.3 provides an overview of the various concepts, units of analysis, methodologies, measures and hypotheses underlying the three different approaches to reading difficulty used in previous research.

This research uses a text-centred approach, whereby syntactic complexity is analyzed using discourse analysis. The concept of textual complexity which lies at the heart of the study is discussed in section 3.3.1.

<i>Focus</i>	<i>Text-centered components</i>		<i>User-centred components</i>	<i>Integrative approach</i>
Concept of readability	Readability	Textual complexity	Understandability	Communicative effectiveness
Unit of analysis	Sentence level	Text level	Text level	Sentence level ¹
Methodology	<ul style="list-style-type: none"> • <i>Lix</i> • <i>Fog</i> • <i>Flesch</i> 	Discourse analysis	<i>Cloze</i>	Texture index
Metrics	<ul style="list-style-type: none"> • Word length • Sentence length • Number of syllables per word 	<ul style="list-style-type: none"> • Amount of cohesive ties • Cohesion density • Association between new and given information 	Deletion of every n th word	<ul style="list-style-type: none"> • Topicality • Conjunction • Connectivity • Situationality • Conjunction • Shift in info category • Intertextuality • Specificity
Hypothesis	Long words and long sentences make a text difficult to read	Lack of cohesive devices make a text difficult to read	Lack of background knowledge and unfamiliarity with topics and terminology make a text difficult to read	Lack of communicative effectiveness makes a text difficult to read

New measure used for the first time in current research

¹ The unit of the level is the so-called t-unit, which consists of a main clause and all the subordinate clauses attached to it.

3.2.1 Text-centred approach

Text-centred approaches claim that reading difficulty is a function of the text itself, i.e., it is based on elements such as word length, sentence length or number of syllables per word. Reading difficulty, or readability, is measured by means of so-called ‘readability formulae’ or ‘scores’ which give an indication of the syntactical difficulty of text:⁴⁶

[Readability scores are based on] counts of language variables in a written document to generate an estimation of reading difficulty. ... Most measures of readability rely on sentence and word length as primary determinants of the reading level of a given document. Typically, a mathematical model is used to ascertain the reading level by weighing different combinations of variables. (Baker and Kare 1992: 1)

Readability formulae are therefore “*a function of the length of sentences and the size of words in a text*” (Harrison and Bakker 1998: 122). They represent a “*single summary reading ease score*” (Courtis 1995: 6) for a particular text or text passage.

Readability formulae work by comparing a calculated score with “*predetermined standards of written materials graded according to difficulty*” (Courtis 1995: 5), ranging from children’s comics to scientific articles. They thus represent objective and quantifiable methods of measuring comprehension difficulty.

However, to transfer a methodology originally developed in education research to assess the difficulty of reading material for school children to a corporate reporting context could lead to potential validity problems. This is for two reasons, namely (1) the different ages of the target readers and (2) the fact that there is no yardstick for assessing the reading difficulty of narrative corporate report sections since they have never been subject to grading. Thus, the application of readability formulae in a corporate reporting context is highly questionable (Stevens et al. 1992: 371).

The most commonly used readability formulae in accounting research are the *Flesch* and *Lix* scores. They are based on counting of sentences, words, syllables and characters. The counts are subsequently input into a formula which represents the

⁴⁶ See Lewis et al. (1986) for a comprehensive overview of the characteristics of readability formulae, including *Dale-Chall*, *Flesch*, *Fog*, *Kwolek*, the *Fry Graph*, and *Lix*.

reading ease of a particular text. Whereas the *Flesch* score “is related to memory span”, the *Lix* score is associated with the “reader’s speed of recognition” (Courtis 1995: 5).

Flesch score

The *Flesch* score measures sentence length and syllables per 100 words as shown in Formula 2. The closer the score is to zero, the more incomprehensible is the text under investigation. “The underlying assumption is that the longer the sentences and the longer the words within these sentences, then the more difficult the text being measured” (Sydes and Hartley 1997: 143). The advantage of the *Flesch* score is that it is very simple to apply since it is part of word-processing packages such as *Word*.

Formula 2: *Flesch* score

$$206.835 - 0.846wl - 1.016S$$

wl = word length = number of syllables per 100 words

S = average number of words per sentence (= total number of words/total number of sentences)

Fog score

The *Fog* score is similar to the *Flesch* approach, except that it is based on the percentage of words with three or more syllables in a passage. The calculation is shown in Formula 3. The measure is a function of sentence length and percentage of hard words, i.e. words with three or more syllables.

Formula 3: *Fog* score

$$0.4 \times (S + SW)$$

S = average number of words per sentence

SW = the percentage of words with three or more syllables

Lix score

The calculation of the *Lix* score is shown in Formula 4. A low *Lix* score indicates a high level of readability.

Formula 4: <i>Lix</i> score
$S + LW$ S = average number of words per sentence LW = the percentage of words of seven or more letters

Kwolek score

Kwolek measures readability by sentence length and the percentage of hard words, i.e. words with more than three syllables. The calculation is shown in Formula 5.

Formula 5: <i>Kwolek</i> score
$0.593 \times (S/2 + SW)$ S = average number of words per sentence SW = the percentage of words with three or more syllables

Dale-Chall score

Reading difficulty is conceptualised as a function of sentence length and word difficulty. Word difficulty is not based on length of words measured by means of letters or syllables, but on familiarity, based on a list of 3,000 words best known by eight year olds in the US. The calculation is shown in Formula 6.

Formula 6: Dale-Chall score

$$(0.1579 \times UW) + (0.0496 \times S) + 3.6365$$

UW = percentage of unfamiliar words

S = average number of words per sentence

Since readability scores reduce readability to a single measure, they have been criticized by accounting, linguistics, and education researchers for being too simplistic:

How easy a text is for an individual to read is the result of the interaction of a number of different factors. It is a multifaceted phenomenon, reflecting properties both of texts and readers and the interaction between them. (Bailin and Grafstein 2001: 292)

Readability formulae do not take text features such as lexis, i.e. vocabulary, and rhetorical features into consideration, which play a part in rendering a text difficult to read. Thus, readability formulae can be regarded as mere predictors of text difficulty:

Predictors are shortcuts to making tentative decisions in the absence of more precise information. This is so, because there is no direct link between estimates (or predictions of) text difficulty and reader comprehension. (Fulcher 1997: 501)

What is more, research has shown readability measures to lack so-called “*inter-formula consistency*” (Stevens et al. 1992: 372), as far as judging how easy or difficult a particular type of text is to read. This problem is accentuated further by computer packages, which have been found to be unreliable in calculating readability scores (Sydes and Hartley 1997: 144). Their conclusions after testing four different computer packages are:

- (i) ... different readability scores will be obtained from ostensibly the same readability measure if different computer packages are used, and (ii) ... this is more likely to be the case when programs are used on more difficult texts.

These findings call into question both the validity and the reliability of readability scores and thus the results of reading ease manipulation studies based on these measures.

Based on the *Flesch* score, a program has been developed by *Deloitte Consulting* in order to highlight jargon and obfuscation in corporate communication documents. The software attaches itself to the toolbar of *Microsoft Word* and works in the same way as a spell-checker, i.e., it searches documents for jargon and complex language. Known as *Bullfighter*, the program takes conventional readability scores one step further by means of constructing a ‘bull composite index’ which constitutes a combination of the *Flesch* score and certain business jargon (the so-called ‘bullshit words’ such as *synergy*, *knowledge capital*, and *core competencies*). Based on this index, documents are ranked on a scale of 1 to 10, one representing the lowest and 10 being the highest in jargon and obfuscation. *Deloitte* have tested *Bullfighter* on various corporate documents produced by 30 top listed US companies from the *Dow Jones Industrial Averages* (Deloitte 2003). They found an association between clear communication and financial performance. When tested on the corporate communications of *Enron* between 1999 and 2001, it showed that *Enron's* corporate communications were becoming increasingly vague and ambiguous, as the company’s financial situation began to deteriorate. However, Smith et al. (2005) do not find any association between the ‘bull composite index’ and the financial performance of 277 Malaysian companies.

3.2.2 User-centred approach

User-centred approaches regard reading difficulty as a function of reader characteristics, such as background knowledge, interest in the subject of the text under investigation, level of general education, and reading speed and strategies (Fulcher 1997: 501). The limitations posed by lack of reader involvement have been addressed in accounting research by means of differentiating between ‘readability’ and ‘understandability’, with readability being text-centred and understandability being reader-centred:

Readability thus measures the textual difficulty of a passage; while understandability measures the ability of a reader to gain knowledge from a text, and is contingent not only on syntactical difficulty, but also on reader characteristics such as the reader's background, prior knowledge, interest, and general reading ability. Different readers may, thus, exhibit different levels of understanding because of their individual reading abilities. The readability or syntactic complexity of a text, however, is essentially fixed. Readability is a prerequisite of aggregate understandability; but does not guarantee individual understandability. (Jones, 1997: 105f.)

Understandability is measured by means of the *cloze* test. This requires the deletion of words or phrases from a text at either random or fixed intervals. Then, target readers are asked to complete the text. Subsequently, a percentage score is calculated which indicates the success of readers at guessing the missing words. Thus, the *cloze* test involves the “*direct assessment by readers of textual complexity*” (Jones 1997: 106). Whereas the *Flesch* and *Lix* scores measure complexity of display, the *cloze* score measures meaning (Jones 1996: 87).

In fact, Smith and Taffler (1992a), who compare *cloze* with *Flesch* and *Lix* scores, find significant differences for all of them in same text. Only *Flesch* and *Lix* scores are highly correlated. They also find the level of the *cloze* score to be dependent on the user’s level of accounting sophistication. This indicates that different concepts of reading difficulty are being measured which leads them to the following conclusion:

... understandability is related both to complexity of context and to education and experience, and constitutes a different measure to readability indices calculated independently of either user or context. (Smith and Taffler 1992a: 93)

Smith and Taffler (1992a) attribute the relatively low *cloze* scores recorded even for sophisticated users of accounting information, such as partners and managers of Big 8 accounting firms to the comprehension difficulty of the accounting narratives.

However, these results could also be an indication that the measure itself is flawed. Jones’ findings (1997: 124) suggest severe shortcomings as far as the *cloze* test’s “*measurement of comprehension, ... validity, and ... [its] precise meaning*” are concerned. In fact, what the *cloze* score is really testing is not comprehension, but inference, i.e. the ability of the reader to correctly guess missing words (Jones 1997: 118). Since text comprehension is a function of cognitive processes, psychology provides more adequate methodologies for measuring understandability than the *cloze* procedure. Studies on text processing focus on recall and recognition which is measured by means of questionnaires and multiple-choice tests (Britton and Gulgoz, 1991; McKeown et al. 1992).

Furthermore, due to its reliance on reader participation, the *cloze* procedure can only measure, but not predict readability (Lewis et al. 1986: 202). Another drawback of the *cloze* procedure is its dependency on direct reader involvement through personal contact or questionnaires (Lewis et al. 1986: 202), which makes it very time-consuming and impractical for accounting researchers. Consequently, there are only two accounting studies using the *cloze* procedure (Smith and Taffler 1992a,b).

What is more, there is a lack of evidence as far as the *cloze* procedure's suitability for all types of texts or genres and age groups is concerned. Like readability measures, the *cloze* score was originally developed by education researchers. Since narrative annual report documents differ substantially from elementary school texts, the validity of the *cloze* score is questionable in a financial reporting context.

Thus, both readability and understandability measures suffer from the drawback that their underlying concept of reading is too simplistic. They ignore the purpose of reading a particular text and the reading strategies employed:

Readers use texts for a wide range of reasons: to get an overview of a subject, to answer specific questions, to carry out a task, etc. They may read sequentially, or dip into the text where they think it might be useful; they may skim read, search for specific information, or study in depth. (Harrison and Bakker 1998: 124)

In fact, a user-centred approach to reading difficulty is unsuitable for the analysis of narrative corporate report sections. Research from an impression management perspective regards the annual report as being used by a wide, largely undifferentiated audience (Stanton and Stanton 2002). This includes user groups with specialized financial knowledge, such as institutional shareholders, financial analysts, and auditors and user groups with limited understanding of finance and accounting, such as small shareholders, the general public. This is especially the case for chairman's reports, which form the basis of analysis in this study. Due to their different education, background knowledge, and different motivations for reading the annual report, these various user groups will show different levels of understandability. For this reason, it is impossible to construct a readability measure based on reader-based standards.

What is more, from a practical point of view, it would be very difficult to assess the understandability of these different user groups. Even if an alternative methodology to the *cloze* procedure, such as questionnaires and multiple choice tests, were adopted, the practical problems regarding response rates and lengthy application and evaluation remain.⁴⁷

What is more, as discussed in section 2.2, the majority of impression management research, including this study, focuses on managerial behaviour and is concerned with the issue of whether managers attempt to manipulate investor perceptions of firm performance and prospects. In the context of reading ease manipulation this entails measuring the reading difficulty of narrative corporate report sections. However, an approach based on reader responses focuses on investor behaviour and thus does not provide the right methodological fit with the implicit or explicit research question underpinning impression management research from a managerial behaviour perspective.

For these reasons, this study adopts a text-centred approach for assessing reading difficulty (see section 3.3.1).

3.2.3 Integrative approach

The texture index (Sydserff and Weetman 1999) constitutes an alternative reading difficulty measure which was developed specifically for evaluating the reading difficulty of the Operating and Financial Review. It represents an attempt to overcome the shortcomings of previous approaches to reading difficulty by means of combining both text- and user-centred elements:

Readability formulae have been criticised as a method for scoring accounting narratives because of their focus on word- and sentence-level features and not on whole-text aspects, their lack of regard for the interests and motivation of the reader, and their inappropriateness for evaluating adult-based and technical accounting narratives. [The texture index] addresses these criticisms. (Sydserff and Weetman 1999: 459)

⁴⁷ In some respects, Weetman et al.'s (1994) survey of analysts and institutional investors' views on the Operating and Financial Review represents research on the relevance aspect of a particular narrative annual report document to two specific user groups.

The texture index is based on the work of Roseberry (1995) and was originally developed as a tool to help writers evaluate the reading difficulty of their texts. In its adaptation to a financial reporting context, it consists of seven indexicals which represent seven criteria for evaluating texts.⁴⁸ Five indexicals are text-centred, namely (1) topicality, (2) conjunction, (3) connectivity, (4) shift in information category, (5) specificity; and two are user-centred, namely (6) intertextuality and (7) situationality.

Topicality

Topicality refers to “*the degree to which the narrative adheres to the main topic(s) and the overall topic framework*” (Sydserff and Weetman 1999: 465). This element captures a thematic, rather than a syntactic feature in that it checks for the presence or absence of pre-defined topics or themes. It is thus related to thematic content analysis. As a result, the texture index represents a unique combination of both syntactic and thematic features.

However, since the topics relate specifically to the Operating and Financial Review, the texture index cannot be transferred to the analysis of other narrative corporate reports. This is especially the case for unregulated narrative corporate documents, such as the chairman’s report, where companies have complete freedom in choosing the content.

Conjunction

Conjunction “*is concerned with the specific words or phrases ... which function as links and bind narratives together*” (Sydserff and Weetman 1999: 468), such as *and*, *although*, *after all*, etc.

Connectivity

Connectivity measures the degree to which each succeeding part of the narrative refers to an earlier part by means of creating semantic links from one text-unit to the

⁴⁸ The texture index captures similar criteria of communicative effectiveness as those established by a panel of five experts in the field of reading/writing research (Fulcher 1997), namely (a) linguistic structure, (b) contextual structure (purpose and audience, context of use, information gaps, layout and visual support), (c) conceptual structure (degree of familiar and unfamiliar text content, informational associations, degree of abstractness, and temporal structure), and (d) reader-writer association (use of pronouns, tense and voice).

next by means of repetition of words or phrases. A text unit is defined as a main clause with all its dependent sub-clauses. Connectivity refers to the same concept as grammatical cohesion which constitutes the basis for the measures of reading difficulty developed in section 3.3.1.

Shift in information category

Shift in information category refers to the measure of coherence resulting from shifts in information category. Consequently, *“the measure of topic shift is therefore a quantification of how many information categories are contained in the report and how frequently the category changes”* (Sydserff and Weetman 1999: 471).

Specificity

Specificity measures the extent of specific references in a text, i.e. the extent of quantified information provided.⁴⁹

Intertextuality

Intertextuality *“concerns the factors that make use of one narrative dependent upon the knowledge of other material”* (Sydserff and Weetman 1999: 467). In this particular context, it refers to the interconnection of the narrative sections of the annual report with the financial statements and notes.

Situationality

Situationality tests whether the Operating and Financial Review fits with the rest of the annual report. Situationality *“is either satisfied or not for the narrative as a whole and is therefore not relevant to a unit-by-unit analysis”* (Sydserff and Weetman 1999: 472).

⁴⁹ This measure is similar to Krumbholz's (1994) precision scale and Wiseman's (1982) degree of specificity, who use them as a way of quantifying information provided in the narrative sections of annual reports, with the aim of constructing disclosure indices. The former categorises information onto a sliding scale into a) point information, b) interval information, c) comparative information, d) additional information or explanation, and e) not classifiable information. Krumbholz (1994) also classifies information into a) verbal, b) numerical, and c) mixed. Wiseman (1982) classifies information into a) quantitative information, b) specific, but non-quantitative information, and c) items referred to in general terms.

Scoring

The unit of analysis is extended beyond the word level and comprises an “*independent clause with all subordinate clauses attached to it*” (Sydserff and Weetman 1999: 463), which is referred to as a text-unit or t-unit.

Narrative sections are scored for each indexical and the indexical scores are subsequently combined to provide a score for texture. The scoring system is a categorical score of 0, 1 or 2; zero denoting the absence of a particular characteristic and one and two different degrees of presence of this particular feature. The methodology is similar to that of a voluntary disclosure index, only that the texture index captures components of reading difficulty, whereas the voluntary disclosure index measures the amount and type of voluntary information contained a particular narrative section of an annual report.

The advantage of this new approach compared with its predecessors is that it constitutes a more complex measure of reading difficulty than conventional readability measures. This is reflected in the lack of association between the texture index and the *Flesch* readability score:

The generality of low correlation coefficients between each indexical and the Flesch readability scores ... provides a strong indication that the indexicals offer information about the narrative which is not captured in a readability score. (Sydserff and Weetman 1999: 473)

However, there are a number of methodological problems associated with the texture index relating to its (a) subjectivity, (b) unit of analysis and to (c) some its indexicals. First of all, the texture index is a very subjective measure whose analysis and scoring approach depends entirely on the judgment of the researcher. Secondly, the text unit does not extend beyond the sentence which means that the analysis does not pick up on phenomena occurring over several sentences. The importance of extending the unit of analysis beyond the sentence will become apparent in the discussion of cohesion in section 3.3.1, which not only occurs within, but also between sentences.

We have already discussed the impracticality of a user-centred approach to reading difficulty for narrative corporate report sections. What is more, the two user-centred indexicals in the texture index are problematic in themselves.

First of all, the indexical ‘intertextuality’ refers to the interconnection of information in the narrative corporate report sections with information found in other sections of the annual report. This only covers one aspect of intertextuality, namely functional intertextuality (Devitt 1991), i.e. a particular text is part of a larger macrotext, in this particular case the entire annual report.

However, Devitt (1991) proposes a three-dimensional concept of intertextuality, namely (1) referential, (2) functional, and (3) generic, which collectively account for the interaction between texts. Generic intertextuality refers to drawing on previous texts written in response to similar situations, referential intertextuality refers to the use of reference within one text to another, and functional intertextuality refers to a particular accounting text as being part of a larger macrotext. In a corporate reporting context referential and generic intertextuality mean that a particular Operating and Financial Review (or any other narrative corporate document) does not stand on its own, but has to be seen and read in the context of corporate reporting in general and in the context of other examples of the Operating and Financial Review in particular.

Secondly, the indexical ‘situationality’ is misunderstood by Sydserff and Weetman (1999). Coined by De Beaugrande and Dressler (1981), it does not refer to whether a particular text occurs in the relevant context, but it means that the writer and reader must share the same background knowledge for a text to be ‘readable’ or easily understood.

There are also problems with two of the five text-centered indexicals. The term ‘information category’ within the indexical ‘shift in information category’ is not clearly defined and it is hard to reliably differentiate it from the term ‘topic’ used in the indexical ‘topicality’. What is more, relating to the indexical ‘conjunction’, there is no linguistic basis supporting Sydserff and Weetman’s (1999) claim that additive conjunctions are inferior to adversative or causal conjunctions. In fact, when

presenting a list of activities or events, additive conjunctions are the only appropriate linguistic means to do so.

Since the Operating and Financial Review (OFR) is regulated by a non-mandatory Accounting Standards Board statement which provides a thematic framework and gives preference to quantified information, the two indexicals ‘topicality’ and ‘specificity’ constitute specific criteria for the OFR and cannot be transferred to the analysis of any other narrative corporate report section. As mentioned previously, other narrative corporate report sections, such as the chairman’s report, are unregulated and thus cannot be assessed in terms of ‘topicality’ and ‘specificity’.

3.3 Measuring reading difficulty in the current study

The discussion of conventional reading difficulty measures has shown the basic problem underlying the study of reading ease manipulation in corporate reports to be a methodological one. Since the investigation of reading ease manipulation in narrative corporate report sections entails analyzing the way language is used to manipulate the readers’ perceptions of firm performance and prospects, it necessitates a methodology which (1) incorporates insights from linguistics and psychology on crucial aspects of reading difficulty and which (2) allows the empirical quantitative analysis of texts.

3.3.1 A cohesion-based approach to measuring reading difficulty

The measures proposed in this study are based on a text-centred approach to reading difficulty. As discussed in section 3.2.1, text-centred approaches regard reading difficulty as a function of the text and not of user-characteristics. This provides a better methodological fit with the research focus of this study which is on managerial impression management rather than the effectiveness of impression management.⁵⁰

⁵⁰ Text-centred approaches are better suited to exploring the question of whether managers use corporate narrative documents for impression management purposes, whereas user-centred approaches are better suited to exploring the issue whether impression management is effective.

The two new approaches to measuring reading difficulty proposed in his study address two validity problems inherent in conventional concepts and measures of readability, namely a linguistic and a psychological one.

Conventional readability measures suffer from validity problems since “*the linguistic assumptions underlying readability formulae are problematic ... [in that they] do not in fact measure what they were designed to measure*” (Bailin and Grafstein 2001: 298). This is due to the fact that the linguistic criteria “*that form the basis for readability scores do not constitute a satisfactory basis for assessing reading difficulty*” (Bailin and Grafstein 2001: 286).

What makes a text difficult to read and understand goes beyond word and sentence length. Undoubtedly, long words takes longer to process since they occur less frequently and thus take more time to access and interpret. Long sentences are also more difficult to understand, since they make more demands on working memory (Graesser et al. 2004: 194).

This study introduces two objective and quantifiable methods of measuring readability which are based on research carried out by linguistics and psychology. They thus overcome the validity problems inherent in readability formulae and *cloze* scores and the subjectivity and methodological problems inherent in the texture index.

This is achieved by means of (1) basing assumptions of what constitutes text on research carried out by discourse analysis,⁵¹ a sub-discipline of linguistics, (2) basing assumptions of reading difficulty on psychological insights on comprehension difficulty, (3) using both manual textual annotation and an automated reading difficulty generator developed by research in linguistics and psychology.

Both approaches of measuring reading difficulty introduced in this study are based on cohesion as the central concept of reading difficulty. Cohesion, i.e. the interconnection within and between sentences, constitutes a crucial aspect of reading

⁵¹ For the purpose of this study text linguistics and discourse analysis are regarded as one and the same discipline. Text linguistics or discourse analysis is the linguistic sub-discipline which extends the

difficulty.⁵² However, one approach uses manual text annotation, whereas the other employs an automatic, computer-based reading difficulty generator developed by linguists and psychologists. Both approaches have several advantages and disadvantages. Automatic content analysis provides more objectivity, reliability, and speed. On the other hand, manual content analysis is superior in terms of validity, which is due to the human judgment of cohesive associations within a text.

The validity of the automatic content analysis approach to reading difficulty can be tested by means of a correlation analysis between the reading difficulty measures generated by both approaches. Thus, using both manual and computerised content analysis allows us to determine which approach is better suited to capturing reading difficulty. If we find correlation between the measures of reading difficulty generated by the two different approaches, this means that computerised content analysis constitutes a substitute for human judgment on cohesion and thus represents the superior way of measuring the reading difficulty of narrative corporate report sections, due to its speed and ability to handle larger sample sizes. However, if we find no correlation between the reading difficulty measures generated by the two approaches, this is an indication that computers are not able to adequately capture textual cohesion.

Linguistic validity of cohesion

Although the limitations of readability measures have been widely recognised by accounting researchers, they have been used for the last thirty years⁵³ for lack of a better alternative.

This study focuses on cohesion⁵⁴ which has been identified in the education literature as a “*cornerstone of comprehension*” (Graesser et al. 2002: 82).⁵⁵ It has also been

analysis of written texts beyond the sentence level. It thus provides the means for analyzing the complex interassociations between sentences.

⁵² The cohesion-based measures of reading difficulty proposed in this study are based on the same concept as the indexical ‘connectivity’ in Sydserff and Weetman’s (1999) texture index.

⁵³ Adelberg (1978) constitutes one of the first studies using readability measures.

⁵⁴ ‘Cohesion’ is discussed in the wider context of what is referred to as ‘coherence’ in psychology research.

⁵⁵ Although lack of cohesion is a crucial aspect of reading difficulty which has not been operationalised in previous research, it is not the only feature of several features which renders a text difficult to read.

identified as a crucial aspect of text by linguistics in that it differentiates texts from 'non-texts' (Halliday and Hasan 1976: 2). This means that texts are not just a collection of sentences, but represent a network of both grammatical and semantic connections which go beyond the sentence level.

Typically, in any text, every sentence except the first exhibits some form of [link] with a preceding sentence, usually with the one immediately preceding. In other words, every sentence contains at least one anaphoric tie [= a word or phrase which refers back to an earlier word or phrase] connecting it with what has gone before. (Halliday and Hasan 1976: 293)

If these interconnections within and between sentences are missing, a text becomes difficult to read and comprehend. Thus, linguistically valid measures of reading difficulty need to capture in some way the extent to which a text contains connective devices. Conventional readability formulae, which are entirely based on word and sentence length, are thus inadequate measures of reading difficulty since they do not capture this interrelatedness within and between sentences.

Cohesion is thus a crucial element of reading difficulty and can be defined in the following way:

[Cohesion] is the network of lexical, grammatical, and other relations which provide links between various parts of a text. These relations or ties organize and, to some extent create a text, for instance by requiring the reader to interpret words and expressions by reference to other words and expressions in the surrounding sentences and paragraphs. Cohesion is a surface relation; it connects together the actual words or expressions that we can see or hear (Baker, 1992: 180).

Thus, cohesion refers to the grammatical or lexical associations that connect different parts of a text. It establishes continuity between one part of the text and another (Halliday and Hasan 1976). This continuity is necessary for the understanding of text. If it is missing, i.e. if a text lacks cohesion, a text is difficult to read and understand. Thus reading difficulty can be regarded as a function of cohesion.

Halliday and Hasan (1976) present a taxonomy of two types of cohesive ties or relations (1) grammatical and (2) lexical. Grammatical cohesion provides links

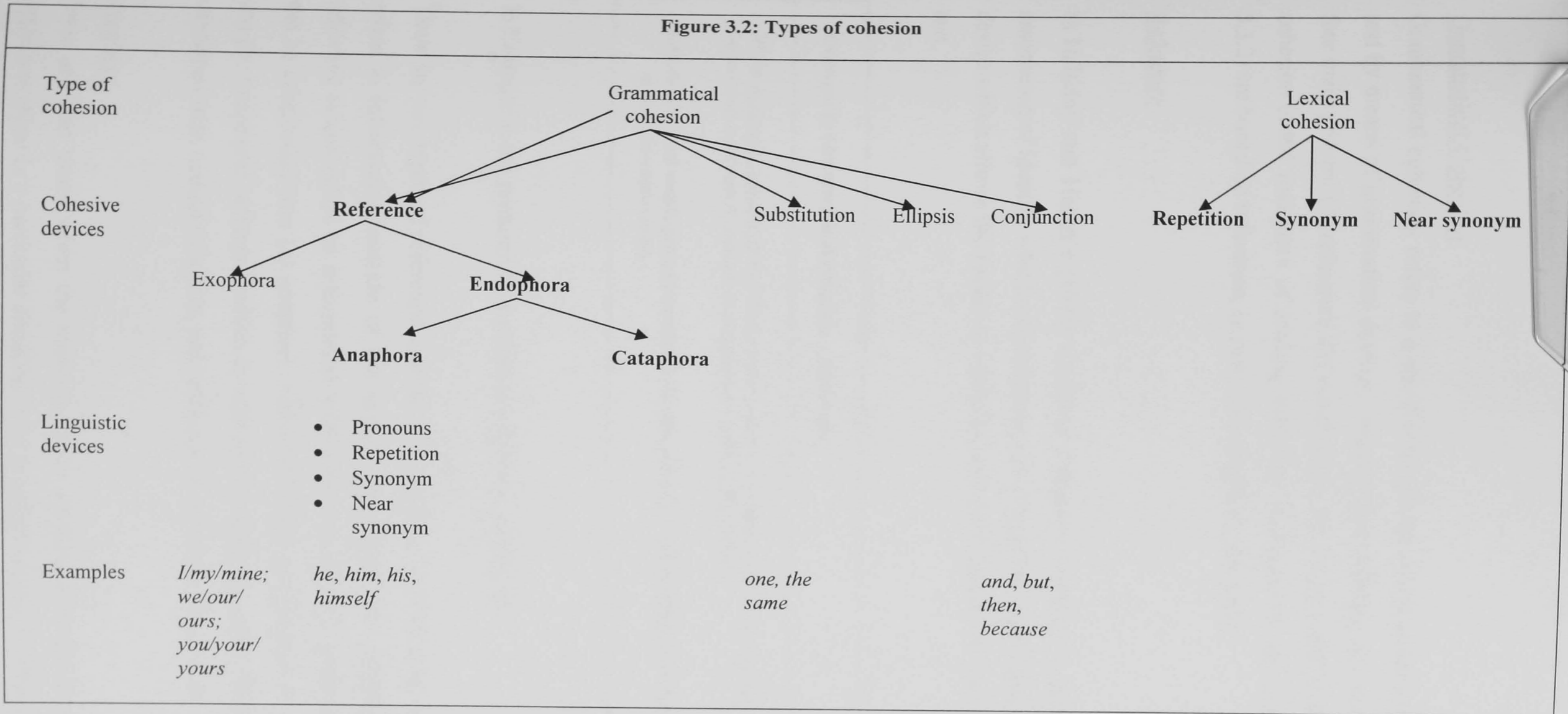
Others include "word frequency, concept density, level of abstraction, the appropriateness of the organisation, coherence and logical presentation of ideas" (Courtis 1995: 6).

between textual elements by means of grammatical ties and lexical cohesion by means of vocabulary.

The concept of cohesion plays an important part in reading difficulty since it provides the linguistic cues to how sentences should be related conceptually. If they are missing, a text becomes more difficult to read and understand.

Figure 3.2 illustrates the two types of cohesion, the various cohesive devices, and the respective linguistic resources available for linking one part of a text to another. The cohesive devices which form the basis of the cohesion measures developed in this study are rendered in bold.

Figure 3.2: Types of cohesion



Grammatical Cohesion

Grammatical cohesion refers to a set of associations which connect different parts of text by means of grammatical devices. Grammatical cohesion can be sub-divided into four main groups: (1) reference, (2) substitution, (3) ellipsis, and (4) conjunction. The cohesion-based measures of reading difficulty developed in this study (see section 3.3.2) are based on reference, in particular anaphoric reference.

Reference

In Halliday and Hasan's (1976) model of cohesion, reference is used to denote the association of identity which exists between two linguistic expressions. Reference is a device which allows the reader or hearer to trace participants, entities, events, etc. in a text.

Example 5: Grammatical cohesion – Reference

While economic conditions may be no more certain than **they** were twelve months ago, order input levels continue to remain at satisfactory levels (Linx 2002).

Key: Underlined words/phrases constitute the antecedents; Bold words/phrases constitute the anaphoric expressions.

In Example 5, the pronoun *they* refers to *economic conditions*.

There are two types of reference, namely (1) exophoric or situational reference which refers to information outside of the textual world and (2) endophoric or textual reference which refers to information within the text. In turn, endophoric reference can be subdivided into (a) anaphoric reference which is reference to preceding text and (b) cataphoric reference which is reference to following text. Since this study is concerned with textual cohesion, only endophoric reference is relevant.

Exophora

There are also times when the meaning is not explicit from the text itself, but is obvious to those in a particular situation. This is called exophoric reference.

Example 6: Grammatical cohesion – Exophoric reference

I am pleased to report that Linx achieved its stated objective for the year of maintaining underlying profitability while continuing to invest in the future development of our businesses around the world (Linx 2002).

Key: Underlined words indicate exophoric reference.

As readers outside of this environment, we do not know who the *I* being referred to is. But, most likely, the people interested in *Linx's* chairman's report are aware of the identity of the person referred to with the first person singular pronoun *I*.

Endophora

Endophora are expressions whose meaning is explicit from the text itself.

Example 7: Grammatical cohesion – Endophoric reference

While economic conditions may be no more certain than **they** were twelve months ago, order input levels continue to remain at satisfactory levels (Linx 2002).

Key: Underlined words/phrases constitute the antecedents; Bold words/phrases constitute the anaphoric expressions.

Example 7 demonstrates endophoric reference. The pronoun *they* in the second sentence refers back to *economic conditions* in the first sentence. Reference signals to the reader what kind of information is to be retrieved. *They*, therefore, signals to the reader that they need to look back in the text to find its meaning.

Endophoric reference can be subdivided into anaphoric reference which is reference to preceding text and cataphoric reference which is reference to following text.

Cataphora

Cataphora refer forward to a later expression.

Example 8: Grammatical cohesion – cataphoric reference

*We have no doubt that under **its** new leadership Poundstretcher will go from strength to strength* (Brown & Jackson 2002).

Key: Underlined words/phrases constitute the expression being referred to; Bold words phrases constitute the cataphoric expressions.

In example 8 the possessive pronoun *its* refers forward to *Poundstretcher*.

Anaphoric reference is based on the concepts of antecedents and anaphors. Anaphors refer back to earlier expressions which are called antecedents. Example 5 shows how the anaphoric expression *they* refers back to the earlier expression *economic conditions*, which acts as the antecedent. Following Müller and Straube (2001), anaphors include pronouns (Example 5), direct anaphors (Example 9), and expressions standing in a conceptual IS-A or hyponym-hyperonym relation specified by their antecedent (Example 10):

In Example 5 the personal pronoun *they* refers back to *economic conditions*. Anaphoric expressions by means of pronouns are referred to as pronominal anaphors. Pronominal anaphors include personal pronouns (*they, them*, etc.), reflexive pronouns (*themselves, each other*), possessive pronouns (*their, theirs*), and demonstrative pronouns (*these, those*).

Example 9: Anaphoric reference by means of direct anaphors

*The Board proposes a final dividend of 5.6p per share (5.5p), bringing the total for the year to 8.4p per share (8.2p), an increase of 2%. **This dividend** is covered 3.1 times by earnings* (Linx 2002).

Key: Underlined words/phrases constitute the antecedents; Bold words/phrases constitute the anaphoric expressions.

Example 9 shows that, in lay terms, direct anaphors involve repetition. Linguistically, in direct anaphors the identity of the head of both noun phrases is realized by the same

noun, namely *dividend*. Example 19 demonstrates the concepts of noun phrases and heads of noun phrases.

Example 10: Anaphoric reference by means of hyperonym

*In the current year we have ... established a fully-fledged distribution operation in the USA to sell and support laser products in **that important market** (Linx 2002).*

Key: Underlined words/phrases constitute the antecedents; Bold words/phrases constitute the anaphoric expressions.

In Example 10 *in that important market* functions as the hyponym and *the USA* as the hyperonym. Hyponym is a subordinate term, i.e. a word of narrower or more specific meaning that comes ‘under’ another term with a wider or more general meaning. For example, *rose* is the hyponym of *flower*. Hyperonym is a superordinate term, i.e. a word with a broad meaning constituting a category into which words with more specific meanings fall. For example, *flower* is the hyperonym of *rose*, *lily*, etc.

Substitution

Substitution differs from reference in the respect that another word takes the place of the entity that is being discussed. In nominal substitution, the pronoun *one* is often used to substitute for the noun occurring previously in the text.

Example 11: Grammatical cohesion – Substitution

*The Board remains confident that the market and product choices we have made are **the right ones**. (Network Technology 2002)*

Key: Underlined words/phrases constitute the antecedents; Bold words/phrases constitute the anaphoric expressions.

Example 11 demonstrates how the expression *ones* in the second part of the sentence takes the place of *the market and product choices* in the first part of the sentence.

Ellipsis

Whereas substitution is replacing one word with another, ellipsis involves the absence of that word. Ellipsis entails the grammatical structure pointing to an item or items that can fill the slot in question. Ellipsis thus requires retrieving specific information from preceding information that can be found in the text.

Example 12: Grammatical cohesion – Ellipsis

In the current year we have launched important new products in our Linx inkjet and Linx Xymark laser businesses ... and [] established a fully-fledged distribution operation in the USA to sell and support laser products in that important market (Linx 2002).

Key: Underlined words/phrases constitute the antecedents; brackets indicate the ellipsis.

In Example 12 the phrase *we have* is ellipped in the second part of the sentence. However, based on the cues in the first part of the sentence, there is only one possible interpretation, namely *we have established a fully-fledged distribution operation in the USA to sell and support laser products in that important market*.

Conjunction

Conjunction links two sentences or clauses together by means of conjunctions, such as *and, although, because, before, according to*, etc. Conjunction thus involves the use of formal markers to connect sentences, clauses and paragraphs with each other. Unlike reference, substitution, and ellipsis, the use of conjunction does not instruct the reader to supply missing information either by looking for it elsewhere in the text or by filling structural slots. Instead, conjunction signals the way the writer wants the reader to relate what is about to be said to what has been said before.

Example 13: Grammatical cohesion – Conjunction

*I am pleased to report that Linx achieved its stated objective for the year of maintaining underlying profitability **while** continuing to invest in the future development of our businesses around the world (Linx 2002).*

Key: Bold words constitute conjunctions.

In Example 13, the two clauses are linked by means of the conjunction *while* which temporally links the two events described in the sentence.

Lexical cohesion

Lexical cohesion refers to the role played by the selection of vocabulary in organizing relations within a text. A given lexical item cannot be said to have a cohesive function *per se*, but any lexical item can enter into a cohesive relation with other items in a text. Thus, lexical cohesion covers any instance in which the use of a lexical item recalls the sense of an earlier one.

Halliday and Hasan (1976) divide lexical cohesion into two main categories, namely (1) reiteration and (2) collocation.⁵⁶ Reiteration, as the name suggests, involves repetition of lexical items. A reiterated item may be (1) a repetition of an earlier item, (2) a synonym or near-synonym, (3) a super-ordinate, or (4) a pronoun.

Example 14: Lexical cohesion by means of reiteration

We have established a distribution operation in the UK. with the purpose of selling our products in the UK. in Great Britain. in that important market. there.

Key: Underlined words/phrases constitute the antecedents; Bold words/phrases constitute the anaphoric expressions.

Reiteration is not the same as reference, however, because it does not necessarily involve the same identity of the antecedent and the anaphoric expression. This means that the devices repetition, synonyms and near synonyms can be used either referentially or non-referentially. In the referential use of repetition grammatical cohesion and lexical cohesion co-occur.

⁵⁶ Collocation refers to a customary association of words with other words, such as in the phrases *innocent bystander*, *far reaching consequences*, etc.

Example 15: Referential use of repetition

The Board proposes a final dividend of 5.6p per share (5.5p), bringing the total for the year to 8.4p per share (8.2p), an increase of 2%. **This dividend** is covered 3.1 times by earnings (Linx 2002).

Key: Underlined words/phrases constitute the antecedents; Bold words/phrases constitute the anaphoric expressions.

In Example 15, *dividend* in the second sentence refers to the same extra-linguistic entity as *dividend* in the first sentence, i.e. they have a common referent.

Example 16: Non-referential use of repetition

In the current year we have launched important new products in our Linx inkjet and Linx Xymark laser businesses[and] expanded sales of Linx **products** in China by more than 30% (Linx 2002).

Key: Underlined words/phrases constitute the antecedents; Bold words/phrases constitute the anaphoric expressions.

However, in Example 16, *products* in the first and in the second sentence refer to different extra-linguistic entities, i.e. they have different referents. *Products* in the first sentence refers to new products, whereas *products* in the second sentence refers to all Linx products.

Psychological validity

In order to establish the psychological validity of cohesion as a key factor of reading difficulty, the interassociation between cohesion and text processing needs to be explored. Research in psychology focuses on investigating the effect of altering cohesion on text processing.

Increasing textual cohesion encourages the connection of ideas in the text, with the result that as each new idea is introduced, it can be integrated into an ongoing mental representation of the text (Zwaan and Radvansky, 1998). Textual cohesion can be promoted through referential and causal connectives, which enable readers to integrate text information with a minimum of effort, presumably because associations

among text ideas are clarified (e.g., Loxterman et al. 1994; McKeown et al., 1992; McNamara and Kintsch, 1996).

High levels of cohesion⁵⁷ positively influence syntactic processing and comprehension of main ideas by enabling readers to construct referential and causal links between adjacent text segments (Campbell 1995; McKeown et al., 1992).

There are two types of text processing, namely (1) shallow text processing and (2) deep text processing. Shallow text processing refers to the “*understanding of verbatim text and main ideas ... i.e., what readers actually encounter in a text*”. Deep text processing refers to “*the construction of an integrated representation of the text in memory. These representations go beyond shallow processing in that they require the reader to integrate all important text information into a holistic representation that gives readers the ‘big picture’*” (Lehman and Schaw 2002: 740).

Shallow text processing manifests itself in recall and recognition, which can be measured by means of recall of text facts and multiple choice-questions (Britton and Gulgoz, 1991; McKeown et al. 1992). Deep text processing is measured by means of keyword sorting tasks.

Studies show that manipulating cohesion results in a positive association between high cohesion and shallow text processing, measured by means of recall of text facts and multiple choice-questions (Britton and Gulgoz, 1991; McKeown et al. 1992).

If increasing textual cohesion results in improved performance on text comprehension, this means that the less cohesive a text, the more difficult it is to read. Thus, according to the obfuscation hypothesis, impression management by means of reading ease manipulation should result in low cohesion of narrative corporate report sections.

⁵⁷ Cohesion is referred to as ‘local coherence’ and contrasted with ‘global coherence’, which refers to “*the extent to which the reader is able to construct textwide inferences and integrate broad text ideas into ... a mental representation of the text that integrates background knowledge with text information to create a full picture of the situation described in the text*” (Lehman and Schaw 2002: 738).

However, understanding written text does not only depend on cohesion, but also on other text-processing variables, including world knowledge (McNamara 2001) and relevance (Lehman and Schraw 2002). Relevance refers to the extent to which text segments are relevant to the reader's goals and purposes.

McNamara (2001), who examines the interrelationship between cohesion⁵⁸ and world knowledge on text processing, finds that low-knowledge readers find high cohesion texts easier to read, whereas the opposite is the case for high-knowledge readers. The reason for this phenomenon is that cohesion gaps require the reader to make inferences either from world knowledge or from previous textual information.

When inferences are generated, the reader makes more connections between ideas in the text and knowledge. This process results in a more coherent mental representation. Hence, cohesion gaps can be beneficial for high-knowledge readers because their knowledge affords successful inference making. (Graesser et al. 2004: 194)

In the context of the present study, this means that for expert users of narrative corporate report sections, such as fund managers and investment analysts, reading difficulty should be directly associated with high cohesion, whereas for 'naïve' users, such as individual shareholders, reading difficulty should be inversely associated with high cohesion.

Lehman and Schraw (2002), who investigate the effect of manipulating cohesion, coherence and relevance on both shallow and deep text processing, find cohesion and coherence breaks to have few effects on text comprehension. However, relevance, i.e. the extent to which text segments are relevant to the reader's goals and purposes, impacts both on shallow and on deep text processing.

What research in psychology shows is that text comprehension is not a simple process in that it depends on a variety of factors, including textual aspects, such as cohesion, and user characteristics, such as world-knowledge and textual relevance, and on the interaction between these factors.

3.3.2 Manually generated cohesion-based measures of reading difficulty

Cohesion analysis focuses on the interassociation between antecedents and anaphoric/exophoric expressions, irrespective of the type of association existing between them. Anaphoric/exophoric expressions included in the analysis are (1) reference, (2) substitution, and (3) reiteration (repetition, synonyms and near synonyms). This framework is loosely based on Biber et al.'s (1998: 110-122) corpus linguistics approach to discourse characteristics.

Examples 17 to 20 illustrate the four concepts used in the cohesion analysis introduced in this study, namely (1) cohesive association, (2) cohesive set, (3) noun phrase, and (4) potentially cohesive noun phrase.

Example 17: Interassociation between antecedent and anaphoric expression

*I am pleased to report that Linx achieved **its** stated objective for the year of maintaining underlying profitability while continuing to invest in the future development of our businesses around the world.*

Key: Underlined words/phrases constitute the antecedents; Bold words/phrases constitute the anaphoric expressions.

Cohesion analysis is based on the cohesive associations within a text whose function is to link different parts of the text by means of grammatical and semantic ties. In Example 17 the cohesive association is formed by the anaphoric expression, the possessive pronoun *its*, which refers back to *Linx*, its antecedent.

The antecedent with all its connected anaphoric/exophoric expressions is referred to as a cohesive set. Example 18 consists of a cohesive set consisting of the anaphor *a final dividend of 5.6p per share* and two anaphoric expressions, namely *this dividend* and *the dividend*:

⁵⁸ In psychology research 'coherence' is used in the same sense as 'cohesion', namely as "the extent to which the associations between ideas and text are explicit" (McNamara 2002: 51).

Example 18: Cohesive set

*The Board proposes a final dividend of 5.6p per share ... **This dividend** is covered 3.1 times by earnings. If approved at the Annual General Meeting, **The dividend** will be paid on 22 November 2002 ... (Linx 2002).*

Key: Underlined words/phrases constitute the antecedents; Bold words/phrases constitute the anaphoric expressions.

The cohesion analysis introduced in this study is limited to the interassociations between noun phrases. A noun phrase is a word or group of words functioning in a sentence exactly like a noun, with a noun or pronoun as head. A noun phrase can be a noun or pronoun alone, but is frequently a noun or pronoun with pre- and/or post-modification. Semantic interassociations between verbs, adjectives and adverbs, such as *to profit* and *profitable* or *to progress* and *progressively* are ignored.

Example 19 contains sentences illustrating the different types of noun phrases which commonly occur in texts. Noun phrases are underlined, heads of noun phrases are shown in italics, and anaphoric expressions are rendered in bold.

Example 19: Noun phrases

*While [economic conditions] may be no more certain than [**they**] were [*twelve months*] ago, [*order input levels*] continue to remain at [*satisfactory levels*].*

Key: Words in brackets indicate noun phrases; underlined words constitute the heads of noun phrases; Bold words/phrases constitute anaphoric expressions.

The concept of potentially cohesive noun phrases is central to the calculation of the cohesion measures used in this study (see section 3.3.2). It refers to noun phrases which could stand in a cohesive association with other noun phrases. Potentially cohesive noun phrases form the so-called cohesive level of a text.

Example 20: Potentially cohesive noun phrases (cohesive level)

*I am pleased to report that **Linx** achieved **its stated objective** for the year of maintaining underlying profitability ... (Linx 2002)*

Key: Underlined words/phrases constitute potentially cohesive noun phrases; Bold words/phrases constitute the noun phrases which stand in a cohesive association to one another.

Example 20 contains four potentially cohesive noun phrases, two of which stand in a cohesive association with one another, namely *Linx*, which acts as the antecedent, and *its stated objective*, which acts as the anaphoric expression with *its* referring back to *Linx*.

Cohesion provides grammatical and semantic links within and between sentences. Earlier the important role of cohesion in text creation and in text comprehension was demonstrated. We can thus conclude that texts lacking cohesion are difficult to read and understand.⁵⁹ The three measures of reading difficulty introduced in the following sections are based on cohesion, namely (1) amount of cohesive ties within a given text, (2) cohesion density, and (3) association between new and given information. They represent a text-centred approach to textual difficulty and thus an alternative to conventional readability scores, such as *Lix*, *Fog* and *Flesch*. In order to reflect the whole-text aspect of reading difficulty, the term ‘reading difficulty’ is replaced by ‘textual complexity’ in the context of cohesion analysis.

Amount of cohesive ties

This simple measure of textual complexity is based on the amount of cohesive ties in a given text. As has been pointed out, texts lacking cohesive ties are difficult to read and comprehend. Thus, the measure ‘amount of cohesive ties’ is based on the following assumption: *The fewer cohesive ties, the more difficult a text is to read and*

⁵⁹ This is based on the assumption of a uniform readership across the entire sample. However, as discussed earlier, there is research suggesting that the direction of association between cohesion and reading difficulty might be a function of differential reading strategies depending on background knowledge (McNamara 2001). Results regarding the direction of association between reading difficulty measured in terms of *Flesch Reading Ease* and in terms of cohesion-based measures (*Coh-Matrix*) and firm size suggest that the perceived target readership is dependent on firm size (see chapter 6, section 6.2.3).

comprehend. The measure is expressed as percentage of total number of cohesive noun phrases per total number of potentially cohesive noun phrases.

Cohesion density

Cohesion density reflects the fact that overlapping terms make a text more cohesive and thus easier to process and read (Graesser et al. 2003). A lack of overlapping terms means that the reader needs to infer the association between two pieces of information in a given text.

In Example 21 cohesion is achieved by means of the overlapping term *dividend* which occurs in all three sentences.

Example 21: Overlapping terms

[The Board] proposes [a final dividend of 5.6p per share, bringing [the total for the year] to [8.4p per share], [an increase of 2%]. [**This dividend**] is covered 3.1 times by [earnings]. If approved at [the Annual General Meeting] [**the dividend**] will be paid on [22 November 2002] to [shareholders] on [the register] at [the close of business] on [1 November 2002] (Linx 2002).

Key: Underlined words/phrases constitute the antecedents; Bold words/phrases constitute the anaphoric expressions

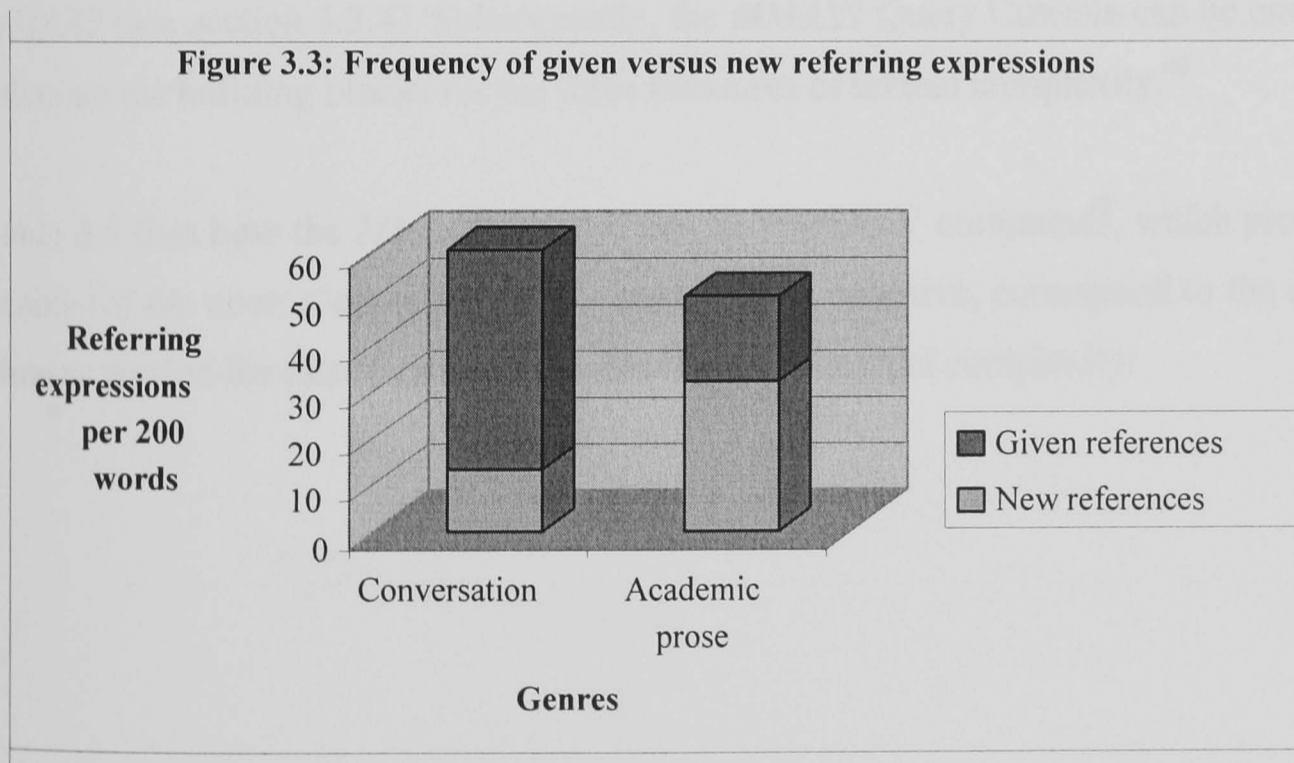
The measure of cohesion density reflects this aspect of cohesion by means of measuring the number of references, substitutions and reiterations associated with a particular antecedent. We can therefore postulate that cohesion density is a function of the number of anaphoric expressions associated with a particular antecedent. Thus, the measure of cohesion density is based on the following assumption: *The less anaphoric expressions associated with the antecedents in a given text, the more difficult a text is to read and comprehend.*

Cohesion density can be set at various levels, dependent on the extent of overlap to be measured, namely as the percentage of cohesive sets with either (a) two or more, (b) three or more, or (c) four or more cohesive ties per total number of cohesive sets in a given text. In the context of this study, cohesion density is measured as the percentage of cohesive sets with two or more anaphoric expressions per total number of cohesive sets.

Proportion of given vs. information

Following Biber et al. (1998) the status of information plays a role in determining textual complexity. The status of information is expressed in a dichotomous association of new vs. given information, where non-cohesive noun phrases and antecedents are classified as new information and anaphoric expressions as given information. The proportion of new and given information is then used as a measure of textual complexity.

The textual complexity inherent in the proportion of new and given information is related to memory span. The more given information a text contains, the smaller the memory span needed to process the text. This is the reason why the proportion of new vs. given information varies widely between spoken and written genres. Figure 3.3 demonstrates that spoken text, such as conversation, has a lot more given information as opposed to new information than, e.g., academic prose. This is due to the fact that readers can refer back to information presented earlier in the text, whereas listeners cannot.



Source: Biber et al. (1998)

We therefore posit the following: *The higher the proportion of new vs. given information, the more difficult a text is to read and comprehend.*

New information is measured as the total number of non-cohesive noun phrases plus the total number of antecedents. Given information is measured as the total number of anaphoric expressions.

Table 3.4 summarises three measures of reading difficulty applied in this paper.

Table 3.4: Measures of textual complexity	
1.	Percentage of cohesive noun phrases per total number of potentially cohesive noun phrases.
2.	Percentage of total number of cohesive sets containing two or more anaphoric expressions per total number of cohesive sets.
3.	Percentage of total number of anaphoric expressions per total number of non-cohesive noun phrases plus total number of antecedents

The first step in the manual calculation of cohesion-based reading difficulty measures is to mark all potentially cohesive noun phrases and annotating all antecedents, anaphoric expressions, and cohesive sets of the 93 Chairman's Reports with the aid of *MMAX2* (see section 3.3.4). Subsequently, the *MMAX2* Query Console can be used to calculate the building blocks for the three measures of textual complexity.⁶⁰

Table 3.5 lists how the *MMAX2* Query Console 'statistics' commands, which provide counts for the noun phrases previously annotated as cohesive, correspond to the noun phrases needed for calculating the three measures of textual complexity:

⁶⁰ Appendix IV provides an example of an annotated chairman's report. Appendix V lays out the coding scheme used in this study and provides a detailed explanation on the procedures involved in using *MMAX2* for annotating cohesive relations.

Table 3.5: Building blocks for measures of textual complexity in MMAX2

	Noun phrase type	Query	Calculation
(1)	All potentially cohesive noun phrases	STATISTICS npchunks;	---
(2)	All non-cohesive noun phrases	STATISTICS npchunks (coref_class={empty});	---
(3)	All cohesive noun phrases	---	(1) – (2)
(4)	All antecedents	STATISTICS npchunks (coref_class = {initial});	---
(5)	All anaphoric expressions	---	(3) – (4)
(6)	All cohesive noun phrases in an n-member set	STATISTICS npchunks (coref_class = {n});	None

Table 3.6 lists the three cohesion-based concepts of textual complexity, the measures used, the noun phrase types needed for calculating the three measures, the codes used for analysis and the direction of association with textual complexity.

Table 3.6: Overview of *MMAX2*-based measures of textual complexity

Concept	Measure	Calculation	Code	Direction of association
Amount of cohesive ties	Cohesive noun phrases/Potentially cohesive noun phrases	(Total number of potentially cohesive noun phrases – total number of empty noun phrases)/total number of potentially cohesive noun phrases	TIES	Negative
Cohesion density	Cohesive sets with ≥ 2 cohesive associations/Cohesive sets	Total number of cohesive sets with ≥ 2 cohesive associations/total number of cohesive sets	DENSITY	Negative
Association between given and new information	Given information/new information	Total number of anaphors/(Total number of antecedents + total number of empty noun phrases)	GIVNEW	Negative

3.3.3 Automatically generated cohesion-based measures of reading difficulty

Coh-Matrix's key reading difficulty measures are based on cohesion. In *Coh-Matrix* the category 'referential cohesion' takes account of the role of cohesion in reading difficulty. *Coh-Matrix* contains four referential cohesion measures, namely (1) adjacent argument overlap, (2) argument overlap, (3) adjacent stem overlap, and (4) stem overlap (see Table 3.7). Whereas the first two are based on the cohesion between nouns, pronouns, and noun phrases, the latter two are based on cohesion between words sharing common stems, including nouns (*profit(s)*, *profitability*), adjectives (*profitable*), and verbs (to *profit*).

Table 3.7 defines these four cohesion-based measures of reading difficulty and shows how they are calculated. For argument overlap and stem overlap this is not possible within the confines of a table, since they entail measuring cohesion between all sentences in a paragraph.

Table 3.7: Four referential cohesion measures in *Coh-Matrix*

Cohesion measure	Description	Calculation
1 Adjacent argument overlap	Proportion of adjacent sentences that share one or more arguments (i.e. noun, pronoun, noun-phrase)	Number of adjacent sentences containing a cohesive relationship between nouns, pronouns, or noun-phrases / (Total number of sentences - 1)
2 Argument overlap	Proportion of all sentence pairs in a paragraph that share one or more arguments (i.e. noun, pronoun, noun phrase)	Number of adjacent sentences containing a cohesive relationship between nouns, pronouns, or noun-phrases / [total number of sentences x (total number of sentences - 1)] / 2
3 Adjacent stem overlap	Proportion of adjacent sentences that share one or more word stems	Number of adjacent sentences containing a cohesive relationship between word stems / (Total number of sentences - 1)
4 Stem overlap	Proportion of all sentence pairs in a paragraph that share one or more word stems	Number of adjacent sentences containing a cohesive relationship between word stems / [total number of sentences x (total number of sentences - 1)] / 2

Cohesive relationships are measured (1) between two different types of textual units and (2) across two different types of distance or cohesive span in a given text.⁶¹ Textual units are defined in terms of (a) arguments and (b) stems. Argument refers nouns⁶² and noun phrases and stem to morphological units within words, including nouns (*profit(s)*, *profitability*), adjectives (*profitable*), and verbs (*to profit*). Argument overlap occurs when a noun or noun-phrase in one sentence is in a cohesive relationship with a noun or noun-phrase in another sentence. Stem overlap occurs when a stem in one sentence is in a cohesive relationship with a stem in another sentence. As indicated in Table 3.7, adjacent argument overlap and argument overlap are based on the cohesion between nouns and noun phrases, adjacent stem overlap and stem overlap are based on cohesion between words sharing common stems, including Example 21 (section 3.3.2) demonstrates referential cohesion between nouns and noun phrases. Cohesive span refers to either (a) adjacent or (b) all sentences in a given text. Adjacent sentences are successive sentences. For example, if a text consists of four sentences, then the adjacent sentences would be sentences 1-2, 2-3, and 3-4.⁶³ In contrast, all sentences are all possible pairs of sentences: 1-2, 2-3, 3-4, 1-3, 1-4, and 2-4.⁶⁴ As indicated by Table 3.7, adjacent argument overlap and adjacent stem overlap measure cohesion between adjacent sentences, whereas argument overlap and stem overlap measure cohesion between all sentences.

Strictly speaking, stem overlap does not measure referential relations, but lexical cohesion in a wider sense. Although the measures are referred to as referential cohesion measures, they effectively capture both grammatical and lexical cohesion, as the computer is unable to distinguish between referential use of repetition and non-referential use of repetition. Whereas referential use of repetition involves a reference

⁶¹ See <http://141.225.14.26/CohMetrixWeb2/HelpFile2.htm>.

⁶² A noun is a type of word that names a person or thing. Common nouns name persons or things which are not peculiar to one example, i.e. are of a general nature (*director*, *balance sheet*), whereas proper nouns name persons or things of which there is only one example (*Asia*, *Enron*). Concrete nouns refer to physical things (*factory*, *annual report*), and abstract nouns to concepts (*prudence*, *dishonesty*).

⁶³ For the calculation of the ratios involved in the measures based on adjacent sentences this means that in a text of N sentences the denominator is always N-1.

⁶⁴ For the calculation of the ratios involved in the measures based on all sentences this means that in a text of N sentences the denominator is always $[N \times (N-1)]/2$.

to the same extra-linguistic entity, non-referential use of repetition involves reference to different extra-linguistic entities.⁶⁵

The drawback of the four measures of referential cohesion is that they capture the interassociation of sentences solely on a morphological basis. This means that they only capture the interrelatedness between nouns and noun phrases sharing the same stem. This means that they capture cohesion by means of direct anaphors and repetition, such as illustrated in examples 9 (page 163), 15 (page 167), and 16 (page 167), but not cohesion by means of pronoun, hyperonym, synonym, and superordinate, such as illustrated in examples 5 (page 161), 10 (page 164), and 14 (page 166).

3.3.4 Computer programs

The current study uses two text analysis programs for computing reading difficulty measures, namely (1) *Coh-Matrix* which automatically generates measures of reading difficulty and (2) *MMAX2* which is an annotation tool for marking, storing, retrieving, and quantifying textual elements which subsequently form the basis of reading difficulty measures.

*Coh-Matrix*⁶⁶

Coh-Matrix is a web-based automated computer tool developed by the Department of Psychology at the University of Memphis, Tennessee⁶⁷ for the analysis of reading difficulty which computes reading difficulty measures at various levels of language and world knowledge. It thus functions as an alternative to conventional readability formulae. It has a maximum processing capacity of about 15,000 words per document.

Coh-Matrix computes 44 readability scores based on various levels of linguistic analysis. By applying research in computational linguistics and linking it to research

⁶⁵ Referential use of repetition: *The Board proposes a final dividend of 5.6p per share (5.5p), bringing the total for the year to 8.4p per share (8.2p), an increase of 2%. This dividend is covered 3.1 times by earnings (Linx 2002).*

Non-referential use of repetition: *In the current year we have launched important new products in our Linx inkjet and Linx Xymark laser businesses [and] expanded sales of Linx products in China by more than 30% (Linx 2002).*

⁶⁶ This study uses the 1.4 version of *Coh-Matrix*

⁶⁷ <http://cohmetrix.memphis.edu>.

in discourse analysis, psycholinguistics, and education, the methodology is both linguistically and psychologically valid and objective (McNamara et al. 2002).

Incorporating both text-based and reader-based aspects of reading difficulty, *Coh-Matrix* takes insights from research in linguistics and psychology on board. Readability is viewed as an interaction between a text and a reader's cognitive aptitudes (Kintsch, 1994; Miller and Kintsch, 1980; McNamara et al. 1996). *Coh-Matrix* adjusts the output based on the anticipated readers' knowledge, language skills, and other cognitive aptitudes by means of five Latent Semantic Analysis (LSA) space options, namely (1) college level, (2) science, (3) narrative, (4) encyclopedia, and (5) physics. The LSA space captures the world knowledge needed to understand specific texts and is based on comparisons with corpora of specific genres. Thus, the resulting LSA scores provide a statistical representation of world knowledge which captures judgments and intuitions of humans (McNamara et al. 2002).

After setting the parameters representing the amount of the anticipated readers' education and background knowledge, *Coh-Matrix* automatically generates a score for each reading difficulty measure. Just as any other content analysis program, it has the drawback of entering text into "... *a veritable black box from which output emerges*" (Neuendorf, 2002, 129). However, it has the advantage of being easy to apply, objective, reliable, and fast, thus facilitating larger sample sizes than manual approaches, such as the texture index.

MMAX2

MMAX2 is a "*highly customizable [text] annotation tool for creating, browsing, visualizing and querying linguistic annotations*" (Müller 2004: 2). It has been specifically developed for the annotation of linguistic features extending beyond the sentence level, including anaphoric relations, which form the basis of textual cohesion, the main feature of the reading difficulty measures developed in this study (see section 3.3.1).⁶⁸ The advantage of using *MMAX2* over completely automated corpus analysis programs, such as *Coh-Matrix*, is that it provides an interactive

⁶⁸ It has been developed by the European Media Laboratory GmbH (<http://eml-r.villa-bosch.de>). It is written in Java and processes XML-encoded texts which make use of standoff annotation. It uses an XML parser and XSL stylesheet processor.

approach to textual analysis, which allows the input of the researcher and thus results in greater linguistic validity.

Unlike *Coh-Matrix*, *MMAX2* does not compute reading difficulty measures. However, it contains a search facility, the *MMAX2* Query Console, which serves as a means of detecting, browsing, and quantifying cohesive relations on previously annotated texts. The ‘statistics’ command provides counts for the noun phrases previously annotated as cohesive. These counts can be used as a basis for computing reading difficulty measures.⁶⁹ See section 3.3.2 on the application of the *MMAX2* Query Console in relation to the cohesion-based measures of reading difficulty developed in this study.

3.4 Measuring self-presentational dissimulation

Since impression management in a corporate reporting context entails presenting “*information in a manner that is intended to distort readers’ perceptions of corporate achievements*” (Godfrey et al. 2003: 96), it constitutes self-presentational dissimulation, i.e. constructing a public image of firm performance and prospects which is inconsistent with the way management may see firm performance and prospects. Although self-presentational dissimulation has been recognized as one aspect of impression management (Courtis 2004a: 292; Huang 2004: 19), it has not been analysed in a systematic way. Thus, by developing a methodology based on linguistic markers of self-presentational dissimulation, the current study contributes to the literature.

3.4.1 Linguistic markers of self-presentational dissimulation

In social psychology there is a growing body of research on the automated linguistic analysis of dissimulation. It is concerned with identifying linguistic cues which are associated with dissimulation. Research has established four types of linguistic cues which differentiate true from false stories, namely (1) word counts, (2) pronoun use,

⁶⁹ What is more, the output of the Query console can also be used as a basis for calculating intercoder reliability statistics, i.e. interannotator agreement. See section 3.3.3 and Appendix III.

(3) words pertaining to feelings and the senses, and (4) exclusive terms (Burgoon et al. 1996; Burgoon et al. 2003; Newman et al. 2003; Pennebaker et al. 2003).

These linguistic cues “*are the result of anxiety, negative emotional states, and cognitive demand*” (Carlson et al. (2004: 7) occurring during self-presentational dissimulation. In this respect, the methodology constitutes a ‘verbal polygraph test’; instead of detecting and recording changes in physiological characteristics, such as a person’s pulse and breathing rates, it is based on changes in language use when engaged in deceptive communication. Unlike the use of impression management strategies, such as the obfuscation of negative organisational outcomes or the attribution of performance, these changes are entirely unconscious. This means that they are hard to influence and control and thus provide a good indication of whether impression management has taken place.

Word count

DePaulo et al. (2003), Burgoon et al. (2003) and Vrij (2000) find lying to be associated with less detail, thus resulting in shorter communication. However, Zhou et al. (2004) find the opposite when investigating dissimulation in a computer-mediated communication setting. Hancock et al. (2004) argue that verbosity, i.e. the amounts of words used, is dependent on the communicative context. Deceivers use fewer words in interrogative contexts in order to avoid contradicting earlier statements. In more conversational contexts, individuals engaging in dissimulation “*produce more words in order to provide additional evidence*” (Hancock et al. 2004: 2) to support their pretence.

Self-reference

Newman et al. (2003) find that individuals who construct public images which are inconsistent with their self-image use less first person singular pronouns (*I, me, mine, and my*) than individuals who construct public images that are a reflection of their self-image. According to Newman et al. (2003: 666), the use of self-references in the form of first-person is a “*subtle proclamation of one’s ownership of a statement*”. Consequently, individuals engaged in self-presentational dissimulation tend to avoid the use of self-references as a way of distancing themselves from their stories and of avoiding responsibility for their behaviour.

References to others

Evidence for the use of second and third person pronouns is contradictory. Whereas Newman et al. (2003) find individuals engaged in self-presentational dissimulation to use fewer second and third person pronouns, DePaulo et al. (2003) and Zhou et al. (2004) find the opposite.

Emotion words

Newman et al. (2003) and Vrij (2000) find negative emotion words to be directly associated with self-presentational dissimulation. Newman et al. (2003: 666) point out that “*individuals engaged in impression management may feel guilty either about lying or about the topic they are discussing.*” This discomfort is reflected in the use of more words reflecting negative emotions, such as *difficult*, *disappointing*, or *loss*. Burgoon et al. (2003) and Zhou et al. (2004) find that individuals engaging in self-presentational dissimulation show more expressiveness both in the use of positive and negative emotion words.

Cognitive complexity

Finally, Newman et al. (2003: 666) point out that “*the process of creating a false story should consume cognitive resources ... leading [individuals engaged in self-presentational dissimulation] to tell less complex stories.*” Prior social psychology research shows complexity to be reflected in the use of exclusive words, such as *except*, *but*, and *without*.

Table 3.8 summarizes the association between the linguistic markers and self-presentational dissimulation.

Table 3.8: Association between linguistic markers and self-presentational dissimulation

	Linguistic cues	Examples	Reason	Prior research findings: Association with dissimulation
1)	Word count	----	?	Direct/inverse
2a)	Pronoun use (References to self)	1 st person singular : <i>I, me, my, mine</i>	Dissociation from statement	Inverse
2b)	Pronoun use (References to others)	3 rd person: <i>s/he, they, his, them, etc.</i>	?	Insignificant/inverse
3)	Emotion words	<i>Exciting, win, difficult</i>	?	Insignificant/direct
3a)	Positive emotion words	<i>Exciting, win</i>		Insignificant/direct
3b)	Negative emotion words	<i>Difficult, disappointng, loss,</i>	Negative emotional state, guilt, discomfort	Direct
4)	Markers of cognitive complexity	<i>But, except, without</i>	Cognitive demand	Inverse

Some aspects of self-presentational dissimulation have been investigated previously, albeit in isolation and with different assumptions. Rutherford (2005) examines self-reference, but only in the form of the word *company* and not in the form of first-person pronouns. Positive and negative emotion words have been studied both in context of the ‘Pollyanna principle’ (Hildebrandt and Snyder 1981; Clatworthy and Jones 2003; Rutherford 2005) and in impression management research focusing on thematic manipulation (Abrahamson and Park 1994; Abrahamson and Amir 1996; Smith and Taffler 2000). The ‘Pollyanna principle’ describes an impression management strategy based on the attempt of firms to present themselves in the best possible light which manifests itself in the predominant use of positive words, regardless of their financial performance. Thematic manipulation is based on the assumption that management conceals negative organizational outcomes by not reporting them or by not reporting them to the same extent as they report positive organizational outcomes.

Cognitive complexity has been studied in the context of reading ease manipulation (in the sense that reading difficulty is a function of cognitive complexity). The more cognitively complex a text is, the more difficult it is to read and understand. However,

the assumptions underlying reading difficulty and cognitive complexity are diametrically opposed. Whereas the obfuscation hypothesis predicts reading difficulty to be directly related to ‘bad news’, self-presentational dissimulation by means of cognitive complexity predicts an association in the opposite direction. Self-presentational dissimulation is assumed to take up a substantial amount of cognitive resources resulting in less cognitive complexity in texts.

However, the focus of studies in social psychology on linguistic-based cues of dissimulation is on interpersonal communication between one speaker/writer and one addressee involving personal topics (see Table 3.9).

Table 3.9: Text types used in dissimulation studies

	Setting	Nature	Spoken	Written
Newman et al. (2003)	Laboratory	Personal	Monologues, dialogues	Essays
Hancock et al. (2003)	Laboratory	Personal	Dialogues	---
Frank et al. (2004)	Laboratory	Personal	Monologues	---
Zhou et al. (2004)	Laboratory	Personal	---	E-mail
Hancock et al. (2004)	Laboratory	Personal	---	Messaging

As Zhou et al. (2004: 83) point out, “*language expression changes along with situational factors, such as speech community, register, genre, text and discourse type.*” This observation is consistent with linguistic research on differences between speech events or genres. A genre represents a particular type of text, such as a chairman’s report, a newspaper article, or a novel, which represents the “*linguistic realization of some social activity*” (Connor 1996: 126). All texts belonging to a particular genre therefore share a “*particular structure, style, content, and intended audience*” (Swales 1990: 58).

This means that written texts exhibit different types of linguistic features than spoken communication. What is more, narrative corporate report sections not only differ from academic papers, newspaper articles, but also from other types of corporate communication, such as press releases and interim statements.

In order to provide evidence for linguistic differences between genres, the mean values across the 82 dimensions of *Linguistic Inquiry and Word Count*, the text analysis program used for the analysis of dissimulation, are used as proxies for genre characteristics. A comparison of the mean values of chairmen's reports with four genres, namely (1) Emotion Writing, (2) Control Writing, (3) Books, and (4) Talking⁷⁰ shows that they differ considerably across the majority of dimensions.⁷¹ This is evidence of genre-dependent linguistic differences. The contradictory results of previous studies on linguistic cues of dissimulation could be due to these genre differences.

Genre-dependent linguistic differences have implications for adopting a methodology developed for particular communicative situations and types of text to the analysis of narrative corporate report sections. The chairman's report constitutes a speech event characterised by one writer (company chairman) and a group of addressees (shareholders) (see chapter two, section 2.10). This results in a specific pronoun use.

The first person singular (*I, me, mine, myself*) is used sparingly in chairmen's reports. It is only used in situations referring to actions taken by the chairman himself, e.g. "*In last years report I stated my belief*" (Heart of Midlothian 2002), "*I am delighted to welcome both Michael Stevens and John Hemingway to the Board as non-executive Directors*" (Artisan 2002), and "*I would like to thank my management team and all our employees*" (AEA 2002).

In chairman's reports the exclusive use, i.e., a group including the speaker, but not the addressee, of the first person plural (*we, us, our, ours, ourselves*) predominates. It is used to refer to actions taken by the board of directors, management or the company as an entity with a plural personality including the board of directors, management, and staff, e.g. "*The progress we made in the first half of this financial year*" (AEA 2002), "*We used £236,000 of shareholders' funds to buy in shares in the market*"

⁷⁰ Emotion writing studies require participants to write about their emotions and thoughts about personally relevant topics. Control Writing involves writing about non-emotional topics, such as plans for the day or descriptions of ordinary objects or events. Books refers to a semi-random sample of pages from the 30 best-selling fiction books of 1995. Talking files come from transcripts collected from individuals who are talking in non-experimental settings (i.e., correlational studies).

(Christie 2002), “*We took a decision to write down the carrying values of Rugby and Clandon*” (Blooms of Bressingham 2002).

The third person singular and plural (*he, she they* etc.) is used to refer to individuals within the company, either board members or employees, e.g. “*His [Nicholas Wrigley, non-executive director] experience of the City has been of great value to us*” (4Imprint 2002), “*Our record results would not have been achieved without their [employees] hard work, enthusiasm and skill*” (Barratt 2002), and “*I am grateful to the entire Board for their support*” (Medical Solutions 2002).

For this reason, the linguistic profile of dissimulation needs to be altered to reflect these genre-dependent differences of pronoun use. The linguistic elements constituting references to ‘self’ are changed from first person singular pronouns to references to the company in the form of (a) first person plural pronouns (*we, us, our, ours, and ourselves*), (b) the name of the company, and (c) *the Group*. The linguistic elements constituting references to ‘other’ are changed from third person singular and plural to references to competitors in the form of *the industry, the sector, and competitors*.

The chairman’s report constitutes a written medium which is available by means of various channels (print, *pdf*). What is more, the chairman’s report falls into the category of ‘technical’ or ‘professional’ writing and is thus inherently different from personal communication (in the form of video footage and essays) on which research on dissimulation is based.

These characteristics impact on the linguistic cues associated with ‘cognitive complexity’. Since the chairman’s report constitutes technical writing, ‘cognitive complexity’ is not regarded as being represented by exclusive terms (such as *but, except, and without*) and motion words (such as *walk, move, and go*), but as being a product of complex sentence structure. Exclusive terms and motion words are more common features of informal and spoken communication. In written communication cognitive complexity can be regarded as a function of complex sentence structure.

⁷¹ See Appendix VI for table of differences between genres.

Complex sentence structure is achieved by means of conjunctions such as *but*, *after*, and *although* which link sentences together in terms of meaning.

Following Burgoon et al. (2003) and Zhou et al. (2004), we expect self-presentational dissimulation in chairmen's reports to be associated with more expressiveness not only in the use of negative, but also in the use of positive emotion words. The following examples illustrate the use of positive and negative emotion words in the sample of chairman's reports: "I look forward to the future with *confidence*" (Bizspace 2002), "We are *pleased* to report that the Group has made *excellent progress* during the year ended 31 March 2002" (Clarity Commerce Solutions 2002), "I am *shocked* and very *disappointed* by this result" (Bailey 2002), and "The Group's *disappointing* performance resulted mainly from a *failure* to adapt expeditiously to changing market conditions" (Brown and Jackson 2002).

Table 3.10 outlines the linguistic markers for chairmen's reports, their abbreviation, data source, measurement, and their expected association with 'bad news'.

Three models of self-presentational dissimulation are used which differ in terms of level of decomposition of the marker emotion words. The level 1 model contains the category emotion (affect) in general and the level 2 model decomposes emotion into subcategories positive emotion (posemo) and negative emotion (negemo). Table 3.10 indicates which linguistic markers are used in the two different models.

Table 3.10: Linguistic markers in chairmen's reports

Model	Linguistic markers	Abbreviation	Examples	Data source	Measurement	Association with 'bad news'
1 2	Word count	WC	----	LIWC	total word count in text	-
1 2	References to self	Self	1st person plural : <i>we, us, our, ours, ourselves</i> + <i>the Group</i> + name of the company	Custom dictionary	% of total word count in text	-
1 2	References to others	Other	<i>Industry, sector, competitor(s), rival(s)</i>	Custom dictionary	% of total word count in text	i.s./-
1	Emotion words	Affect	<i>Exciting, win, difficult</i>	LIWC : Affect	% of total word count in text	i.s./+
2	Positive emotion words	Posemo	<i>Exciting, win</i>	LIWC : Positive emotions	% of total word count in text	i.s./+
2	Negative emotion words	Negemo	<i>Difficult, loss</i>	LIWC: Negative emotions	% of total word count in text	+
1 2	Markers of cognitive complexity	CogComplex	Conjunctions: <i>And, but, after, although, despite</i>	Custom dictionary	% of total word count in text	-

Model 1 = level 1 model (emotion words); Model 2 = level 2 model (positive/negative emotion words)

3.4.2 Linguistic Inquiry and Word Count

Linguistic Inquiry and Word Count (LIWC) is a text analysis program developed by psychologists which not only allows the analysis of linguistic features and content, but also stylistic aspects of language use across a wide range of contexts. Since “*understanding linguistic style reveals rich psychological information about a person, reflecting their underlying organizational guides of thinking and behaviour*” (Niederhoffer 2003), *LIWC* is a valuable tool for analyzing impression management.

LIWC has been used in numerous studies to reveal reliable linguistic fingerprints for psychological phenomena such as personality (Gill and Oberlander 2003; Pennebaker and King 1999), emotion (Gill and Oberlander 2003; Pennebaker and King 1999), and deception (Newman et al. 2003; Hancock et al 2004).

LIWC examines written language and classifies it along up to 82 language dimensions, including (a) 17 standard language categories (e.g. articles, prepositions, pronouns – including first person singular, first person plural, etc.), (b) 25 word categories representing psychological processes (e.g. positive and negative emotion categories, cognitive processes, such as use of causation words, self-discrepancies), (c) 10 dimensions related to relativity (e.g. time, verb tense, motion, space), and (d) 19 traditional content dimensions (e.g. occupation, home, money). The *LIWC* dimensions are hierarchically organized. For example, the word ‘optimistic’, falls into five categories, namely ‘optimism’, ‘positive emotion’, ‘overall affect,’ ‘words longer than six letters’ and ‘adjective’.

The program analyzes text files on a word-by-word basis, calculating the number of words that match each of the 82 *LIWC* dimensions, expressed as percentages of total words in the text, and records the data into one of 82 preset dictionary categories. The *LIWC* dictionary comprises over 2,300 words and stems. Each category is composed of a list of dictionary words. See Appendix IX for dictionary categories and sample words.

Several sources (e.g. natural language of conversing adults, written diaries, speeches, a thesaurus, and an English dictionary) were used to form the dictionary. The program classifies about 80 percent of the language used by people. *LIWC*’s external validity

was tested by comparing *LIWC* scales and judges' ratings, which were found to be highly correlated. This means that *LIWC* is a good research tool for measuring (a) psychological processes, (b) cognitive strategies, (c) thematic content, and (d) various linguistic features.

3.5 Summary and conclusions

This chapter has provided an overview of the measurement and methodologies used to analyze impression management by means of reading ease manipulation and self-presentational dissimulation.

The weaknesses of previous research lies both in the linguistic characteristics associated with the measures of reading difficulty and the methodologies chosen to analyze them.

The methodologies proposed in this study have two major advantages over traditional approaches. First of all, they are based on linguistic and psychological research, which provides them with content validity. Discourse analysis is the linguistic discipline focusing on whole-text aspects, such as the interconnection within and between sentences. It thus provides the basis for measures for reading difficulty in the form of textual complexity. These measures have been provided with psychological validity by research carried out into text processing. The linguistic markers in narrative sections are based on research in psychology on word use associated with self-presentational dissimulation. Thus, the linguistic characteristics of obfuscation provided in this study possess psychological validity.

Secondly, the investigation of impression management is carried out by means of computerised text analysis programs, which are based on recent advances in corpus and computational linguistics. They not only have the advantage of being fast, objective, and allowing the analysis of large amounts of data, but also provide linguistic validity and easy replicability. *Coh-Matrix*, a web-based tool automatically generates measures of reading difficulty. *MMAX2*, a text analysis program developed

by linguistics, is based on an interactive approach. *LIWC*, a text analysis program developed by social psychology, carries out a completely automated text analysis.

This chapter has provided an in-depth discussion of the measurement of impression management (dependent variable). The following chapter deals with the research methodology adopted in this study. It involves the selection of sample companies chosen to analyse the use of impression management, the measurement of company characteristics (independent variables) hypothesized to influence the use of impression management, namely 'good/bad news', firm size, and industry classification, the hypothesized direction of association between impression management and the company characteristics, and the statistical methods chosen to analyse the association between impression management and the company characteristics.

Chapter 4: RESEARCH QUESTIONS AND HYPOTHESES

The study analyzes the use of impression management in UK chairman's reports and the company characteristics influencing its use. The majority of previous impression management research is based on the view that "*annual reporting [is] an exercise in obfuscation. Sections of the reports are allegedly managed so as to present management in as favourable light as possible ... For a corporation with poor or indifferent performance, there is opportunity to create an impression at variance with an overall reading of the report*" (Stanton and Stanton 2004: 57).

This view has given rise to the obfuscation hypothesis which examines the association between impression management and firm performance. It is based on the assumption of an information incongruity between the narrative corporate report sections and the financial accounts. If management has not engaged in impression management, the information provided by the financial accounts and the narrative statements on the firm's performance and prospects are consistent (assuming no earnings management has taken place). If, however, the information in the financial accounts is not consistent with the information in the narrative statements, we can assume that management may have used the narrative statements to manipulate the impressions and decisions of annual report users.

The current study investigates the use of impression management in UK chairman's reports since their characteristics make them likely vehicles of impression management (see chapter two, section 2.10). Specifically, the study examines impression management in the form of obfuscation of negative organisational outcomes by means of (1) reading ease manipulation and (2) self-presentational dissimulation.

Following the majority of prior impression management research, the current study is based on agency theory explanations of managerial behaviour, on which the majority of impression management studies are based. Four hypotheses are tested. The first tests chairman's reports for evidence of impression management in the form of (1)

reading ease manipulation and (2) self-presentational dissimulation. The second hypothesis predicts an association between impression management (in the form of reading difficulty or self-presentational dissimulation) and accounting ‘good/bad news’ (the obfuscation hypothesis). The remaining two hypotheses concern the association between impression management and firm size and industry classification.

4.1 Impression management in the form of reading ease manipulation

Since “*management is not neutral in its presentation of accounting narratives*” (Curtis 1998: 466), it tends to obfuscate negative organizational outcomes (Adelberg 1979: 187). Reading ease manipulation entails the obfuscation of negative organisational outcomes by means of rendering corporate narrative report documents difficult to read. Thus reading difficulty is used as a proxy for obfuscation.

Using a variety of measures of reading difficulty and a range of narrative annual report sections, previous research has found corporate narrative report documents difficult to read (Lewis et al. 1986; Curtis 1986). We thus expect chairman’s reports to be difficult to read. The hypothesis for testing is:

H_{1a}: Narrative corporate report sections are difficult to read.

4.1.1 Association between reading difficulty and accounting ‘good/bad news’

The prior literature has established a link between financial performance and reading difficulty by arguing that the obfuscation of negative organisational outcomes is especially pronounced when bad news is reported. Curtis (2004: 300) states that in such circumstances “*obfuscation as a writing technique*”, i.e. reading ease manipulation, is used in order to “*cloud issues and add obliqueness seeks to sidetrack the attention of all but the most determined reader.*”

This inverse association between reading difficulty and firm performance has been confirmed by previous research, i.e. poorly performing firms have been shown to

engage more in reading ease manipulation than well-performing firms (Adelberg 1979; Smith and Taffler 1992a; Subramanian et al. 1993; Sydserff and Weetman 2002).

We thus expect the narrative annual sections of companies with accounting ‘bad news’ to be more likely to show evidence of reading ease manipulation than the narrative corporate report sections of companies reporting accounting ‘good news’. It is hypothesized that reading ease manipulation is directly associated with accounting ‘bad news’ and inversely associated with accounting ‘good news’. We test the hypothesis that the narrative corporate report sections of companies reporting accounting ‘good news’ are easier to read than those with accounting ‘bad news’.

H_{1b}: Narrative corporate report sections of companies reporting accounting ‘good news’ are easier to read than those with accounting ‘bad news’.

4.1.2 Association between reading difficulty and firm size

The literature contains conflicting arguments regarding the direction of association between impression management and firm size. Table 4.1 summarises the various hypotheses underlying the arguments, their explanation, and predicted direction of association between reading difficulty and firm size.

Table 4.1: Summary of association between reading difficulty and firm size

<i>Hypothesis</i>	<i>Argument</i>	<i>Study</i>	<i>Explanation</i>	<i>Predicted association with firm size</i>
Impression management	'Public eye' argument	• Courtis (1998)	Intention to deflect attention by means of obfuscation	Direct
Impression management	Monitoring hypothesis	• Abrahamson and Park (1994)	Intention to deflect attention to avoid sanction for poor performance	Inverse
Impression management	Political cost hypothesis	---	Intention to deflect attention from 'good news'	Inverse
Reflection of organisational complexity	Complexity of operations	• Jones (1988) • Rutherford (2003)	Complex issues lead to complex language	Direct
Writing expertise	Availability of communication specialists	• Baker and Kare (1992) • Courtis (1995)	Communication specialists are able to communicate more clearly than management	Inverse

Courtis (1998) views obfuscation by means of reading ease manipulation to be directly related to press coverage, which can be regarded as a proxy for firm size. He argues that companies in the public eye aim “to reduce the chances of interference from investors, government and regulatory agencies” (462) by means of confusing their readership by obfuscating negative organisational outcomes. Thus, he argues that firm size is directly associated with reading difficulty.

However, this explanation of managerial behaviour runs contrary to agency theory explanations of managerial behaviour, on which the majority of impression management studies are based. The managerial aim to maximise economic (and psychological benefits) forms part of the positive accounting theory hypotheses (bonus plan hypothesis) of the accounting behaviour of organisations (Watts and Zimmerman 1986, 1990). The political cost hypothesis claims that firms in the public eye, such as large firms, do not want to attract attention to high profitability since this can result in new taxes or regulations. It thus follows that large firms have no incentives to engage in impression management by obfuscating negative

organisational outcomes, since they do not want to portray their financial performance in the best possible light. Applying the political cost hypothesis, it thus follows that large firms are less likely to engage in impression management than small firms. Therefore, reading ease manipulation is inversely related to firm size.

What is more, the monitoring hypothesis states that increased monitoring by outside shareholders, governmental bodies, analysts, etc. decreases the opportunity for management to engage in impression management since it increases the chances of being found out and sanctioned (Abrahamson and Park 1994). Since large firms are under more scrutiny from the public, the financial community, and from analysts, they have less opportunity and incentives to engage in impression management. Thus, reading ease manipulation is hypothesized to be inversely associated with firm size.

Jones (1988) and Rutherford (2003) also regard impression management (in the form of obfuscation as manifested by reading ease manipulation) and firm size to be directly related by arguing that larger firms have more complex operations which results in syntactically more complex narratives. This hypothesis is confirmed by Jones's (1988) results. He finds reading difficulty to be directly related to firm size. However, this could equally be attributed to the limited validity of the *Flesch* readability score, which is the proxy of impression management used by Jones (1988).

However, other studies propose an inverse association between reading difficulty and firm size, by arguing that large firms have more funds at their disposal to produce annual reports which are clearly written. They have in-house PR departments which produce the company's annual reports or employ outside agencies to do so (Baker and Kare 1992; Courtis 1995). For this reason, their narrative sections should contain less reading difficulty than those of small companies.

It has to be noted that both the 'complexity of operations' and the 'availability of communication specialists' argument provide explanations for a link between reading difficulty and firm size, but not for a link between reading ease manipulation and firm size. It may be true that complex operations lead to more complex language than simple operations and that communication specialists are able to write more clearly than management. However, this is an argument for the link between firm size and

writing style and not firm size and impression management by means of reading ease manipulation. In section 2.3.1 it was argued that reading difficulty as a result of bad writing is due to a lack of skill on part of the writer and does not constitute impression management. However, reading difficulty which is used deliberately to obfuscate negative organisational outcomes constitutes reading ease manipulation since it is used to influence outsiders' perceptions and decisions of firm performance.

As a matter of fact, the availability of communication specialists should lead to a direct association between reading difficulty and firm size, since professional writers should be more skilled at impression management by linguistic means.

In line with the agency theory framework underlying this study, we adopt a political cost hypothesis and argues that reading ease manipulation is inversely related to firm size, since large companies are more reluctant to obfuscate negative organisational outcomes, as they do not want to draw too much attention to positive financial performance. Thus, we hypothesize that large companies are less likely to engage in reading ease manipulation than small companies which makes the narrative corporate report sections of large companies easier to read than those of small companies.

H_{1c}: Narrative corporate report sections of large companies are easier to read than those of small companies.

4.1.3 Association between reading ease manipulation and industry

Courtis (1995) finds no difference in the reading difficulty of chairman's reports between different sectors. We do not expect to find any difference in the impression management behaviour of firms belonging to different industrial sectors. We thus expect consumer cyclical, industrial, and technology companies to show the same strength and direction of associations between reading difficulty and 'good/bad news' and firm size.

H_{1d}: There is no difference between sectors in the strength and direction of association between the reading difficulty of corporate narrative report documents and (i) accounting 'good/bad news' and (ii) the size of firms.

4.2 Impression management in the form of self-presentational dissimulation

Previous impression management studies have not analysed narrative corporate report documents for evidence of self-presentational dissimulation. However, since “*management is not neutral in its presentation of accounting narratives*” (Courtis 1998: 466), corporate narrative report documents are likely to involve presenting a public image of firm performance and prospects inconsistent with the way management may see firm performance and prospects. This means that corporate narrative report sections are likely to contain self-presentational dissimulation.

Research on the psychological aspects of word use has identified five linguistic markers which are indicative of self-presentational dissimulation, namely word count, self-reference, references to others, use of emotion words, and cognitive complexity. We thus posit that the narrative corporate report sections of companies will show evidence of linguistic markers.

H_{2a}: Companies use self-presentational dissimulation in their corporate narrative documents which manifests itself in (1) a low word count, (2) few self-references, (3) few references to others, (4) a high number of emotion words, in particular a high number of negative emotion words, and (5) few markers of cognitive complexity.

4.2.1 Association between linguistic markers and ‘good/bad news’

In line with the obfuscation hypothesis we argue that firms reporting ‘bad news’ in their financial statements are more likely to present a public image of firm performance and prospects which is inconsistent with how management may see firm performance and prospects (i.e. engage in self-presentational dissimulation) than firms reporting ‘good news’. Thus, self-presentational dissimulation is expected to be directly associated with ‘bad news’.

H_{2b}: *Narrative corporate report sections of companies reporting accounting 'bad news' contain more linguistic markers of self-presentational dissimulation (i.e. (1) a lower word count, (2) fewer self-references, (3) fewer references to others, (4) a higher number of emotion words, in particular a higher number of negative emotion words, and (5) fewer markers of cognitive complexity) than those of companies reporting accounting 'good news'.*

4.2.2 Association between linguistic markers and firm size

Following the political cost hypothesis outlined in section 4.1.2, we expect smaller companies to contain more evidence of dissimulation than larger companies. This is due to the fact that large companies do not want to attract public attention by means of highlighting positive financial performance. They thus feel less inclined to engage in impression management by means of obfuscating negative organisational outcomes. It is thus hypothesized that firm size is inversely associated with linguistic markers.

H_{2c}: *Narrative corporate report sections of small companies contain more linguistic markers of self-presentational dissimulation (i.e. (1) a lower word count, (2) fewer self-references, (3) fewer references to others, (4) a higher number of emotion words, in particular a higher number of negative emotion words, and (5) fewer markers of cognitive complexity) than those of large companies.*

4.2.3 Association between linguistic markers and industry

We do not expect to find any difference in dissimulation of firms belonging to different industrial sectors. We thus expect consumer cyclical, industrial, and technology companies to show the same strength and direction of associations between the linguistic markers and 'good/bad news' and firm size.

H_{2d}: *There is no difference between sectors in the strength and direction of association between linguistic markers of self-presentational in corporate report documents and accounting 'good/bad news' and the size of firms.*

4.3 Summary and conclusions

This study examines four hypotheses. The first hypothesis states that narrative corporate report sections will show evidence of impression management in the form of reading ease manipulation and self-presentational dissimulation. Furthermore, impression management in the form of reading ease manipulation and self-presentational dissimulation is hypothesized to be directly associated with accounting ‘bad news’ and inversely associated with firm size. We expect there to be no difference in the use of impression management between companies from different industrial sectors.

Chapter five is devoted to discussing the measurement of accounting ‘good/bad news’ and firm size. Four measures of ‘good/bad news’, two of which have not been used in impression management research before and incorporate industry comparators and time-series aspects of firm performance, are presented.

Chapter 5: RESEARCH METHODOLOGY

This chapter lays out the processes involved in selecting a representative sample of firms for analysis, discusses the measurement of independent variables which have been hypothesized to impact on the use of impression management, introduces the statistical analysis used to examine the association between impression management and company characteristics, and presents the hypothesized direction of association between these variables.

5.1 Population and selection of sample

Chairman's reports of UK listed companies are analysed in this study. The population of listed companies is identified from which a sample comprising three industry sectors, varying in size, is selected for analysis.

5.1.1 Population

The companies are selected from the subscription-based *Thomson One Banker-Analytics* database (<http://banker.thomsonib.com/>) and the population from which the sample is selected comprises all UK companies (UK domicile) listed on the London Stock Exchange on 30 April 2004 (1,983 companies).

5.1.2 Sample

The aim of sample selection in this study is to derive a sample comprising a variety of industries and firm sizes. The companies were first grouped into sectors, based on the Dow Jones Market Sector classifications. In order to generate a large enough sample, the three sectors with the highest number of companies were selected for analysis (Financial Services companies are excluded due to their unique features). The three resulting sectors are Consumer Cyclical (CYC; n = 359), Technology (TEC; n = 176), and Industrial (IDU; n = 397).

The base year for analysis is 2002. Companies are eliminated from the population for three reasons. First of all, companies with missing values for end of year market capitalization for 2002 are deleted since this forms the basis of the measurement of firm size. Secondly, companies with large changes in year end market capitalization between 2001 and 2002 are deleted as this signifies major capital restructuring. Finally, since the financial measures need to be comparable across the whole sample, they need to cover the same length of time. For this reason, companies with missing values for end of fiscal year date for 2001 and/or 2002 are deleted and companies with less than 11 and more than 13 months between fiscal year end dates of 2001 and 2002 are deleted. This leaves the 324 Consumer Cyclical companies, 164 Technology companies, and 369 Industrial companies (see Table 5.1).

Traditionally, statistical texts point to a minimum sample size of 30 random observations, which is based on simulation studies involving the Central Limit Theorem. For correlation analysis, the general rule of thumb is the sample should comprise no less than 50, and that 30 per variable would be sufficient to obtain acceptable power in multivariate regressions (Cohen 1988). For analysis of variance, which detects differences among groups, the usual rule of thumb is that the number of observed cases that are needed to maintain an adequate power is 30 per cell. Thus, a sample size of 90 firms would be adequate, either if there are no more than three independent regression variables, or similarly, a sample size of 90 firms would be adequate, if there are no more than three ANOVA groups.

Thus, once the industry sectors were identified, a sample of 31 companies from each sector was selected using systematic sampling to ensure heterogeneity of firm sizes. For this purpose, the companies in each sector are ranked according to size (end of year market capitalization 2002 in £million) and sample members are chosen at regular intervals. The sampling interval is the ratio N/n , i.e. where N represents the population and n the desired sample size, i.e. 31. As a result, the sample consists of 93 companies from three sectors, each covering the full range of firm sizes⁷² (see Table 5.1).

⁷² Since some of the very small companies originally included in the sample do not have a website or provide annual reports to the *Thomson Analytics* database, it was impossible to obtain annual reports

Table 5.1: Sample selection

	Consumer cyclical	Technology	Industrial	Total
Total in sector	359	176	397	932
<i>Eliminations</i>				
Market capitalisation not available/large change in market capitalisation	342	171	389	902
Missing values	337	171	378	886
Non-calendar years	334	171	371	876
Final in sector	324	164	369	857
Sample selected	31	31	31	93

Appendix I lists the 93 companies in the sample indicating the industry sector and size for each company.

5.1.3 Data collection

Financial variables

The database *Thomson One Banker-Analytics* is used to download all the financial variables from 1999 to 2003, including end of year market-capitalisation, total assets, total sales (turnover), income before taxation and interest (pre-tax income), and fiscal year-end date.

In order to verify the financial information downloaded from the *Thomson One Banker-Analytics* database, two accounting numbers, namely turnover and pre-tax income, which form the basis of the ‘good/bad news’ measures introduced in section 5.2.1. and which are most commonly disclosed in chairman’s reports, were cross-checked against the financial accounts and the chairman’s reports of the annual reports of all the sample companies.

Annual reports

Chairman’s reports were obtained by downloading the 2002 annual reports in *pdf* format from the company websites and, if not available there, from <http://www.northcote.co.uk>. If not available from these two sources, they were

for four of the originally selected companies. This necessitates substituting them by the company either above or below them in ranking by firm size, depending on data availability.

obtained via *Thomson One Banker-Analytics*, which provides scanned annual reports in *pdf* format.

Seven companies (Exel, Robert Wiseman Dairies, Sopheon, Springhealth, Staffware, Stylo, and Superscape)⁷³ provide a combined chairman's report and chief executive's review, one company (Know Technology Solutions)⁷⁴ only provides a chief executive's review, and three companies provide a combined chairman's report and review of operations (Smart Approach, Venturia, and Wetherspoon)⁷⁵. Since they are very similar in both style and coverage of topics to conventional chairman's reports, they are taken as substitutes thereof.

5.1.4 Data preparation

Converting documents into machine-readable format

Photographs and their captions, images, charts, graphs, and tables are deleted from the chairman's reports. If present, form of address (*Dear shareholder*) and greeting (*Yours faithfully*) are also deleted from the text.

The conversion of chairman's reports from *pdf* to text format is carried out by copying and pasting the text into *Word*. Conversion from scanned annual reports in *pdf* format is more laborious, since it entails printing the chairman's reports, rescanning them and converting them into text format (*Word* document) using *Textbridge*.

⁷³ *Exel* does not provide narrative annual report sections in the conventional format, but presents documents endorsed by both the chairman and the chief executive. The document entitled 'performance' is analysed in lieu of the chairman's report since it covers the same topics as conventional chairman's reports. *Robert Wiseman Dairies* provides a statement from both the chairman and the managing director which covers the same topics as conventional chairman's statements. *Springhealth* provides a document entitled 'chairman's and chief executive's review' which covers the same topics as conventional chairman's reports. *Staffware* and *Stylo* have a combined chairman and chief executive and provide documents entitled 'chairman's and chief executive's statement' and 'chairman's statement and operating review' which are similar in both style and content to conventional chairman's reports. *Superscape* provides a document entitled 'statement from the chairman and chief executive' which covers similar topics to the conventional chairman's statement.

⁷⁴ *Know Technology* solutions does not have a chairman, but only a chief executive, whose review is very much in the same format and covers the same content as the chairman's reports of the other companies in the sample.

⁷⁵ In all three cases, the chairman is an executive chairman and provides a combined chairman's statement and review of operations covering similar topics as conventional chairman's statements.

Using Coh-Metrix

We set the parameters representing the amount of the anticipated readers' education and background knowledge to the default setting 'college level' which is based on the Touchstone Applied Science Associates, Inc. (TASA) corpus. It contains files covering novels, newspaper articles, and other information. This captures the fact that narrative annual report sections not only contain financial information, but also information about the specific nature of the business in which the company is engaged, e.g. construction, publishing or football.

After pasting each text into a window, *Coh-Metrix* automatically generates a score for each of the four reading difficulty measures and presents the output in the form of an Excel spreadsheet.

Converting text documents into MMAX2 format

Before MMAX2, the computerized annotation tool used to analyse the texts for cohesion, can be run, the text documents have to be converted into *MMAX2* format. In addition, in order for the cohesion analysis to be carried out, all noun phrases have to be identified. Both tasks are carried out by the software provider.⁷⁶

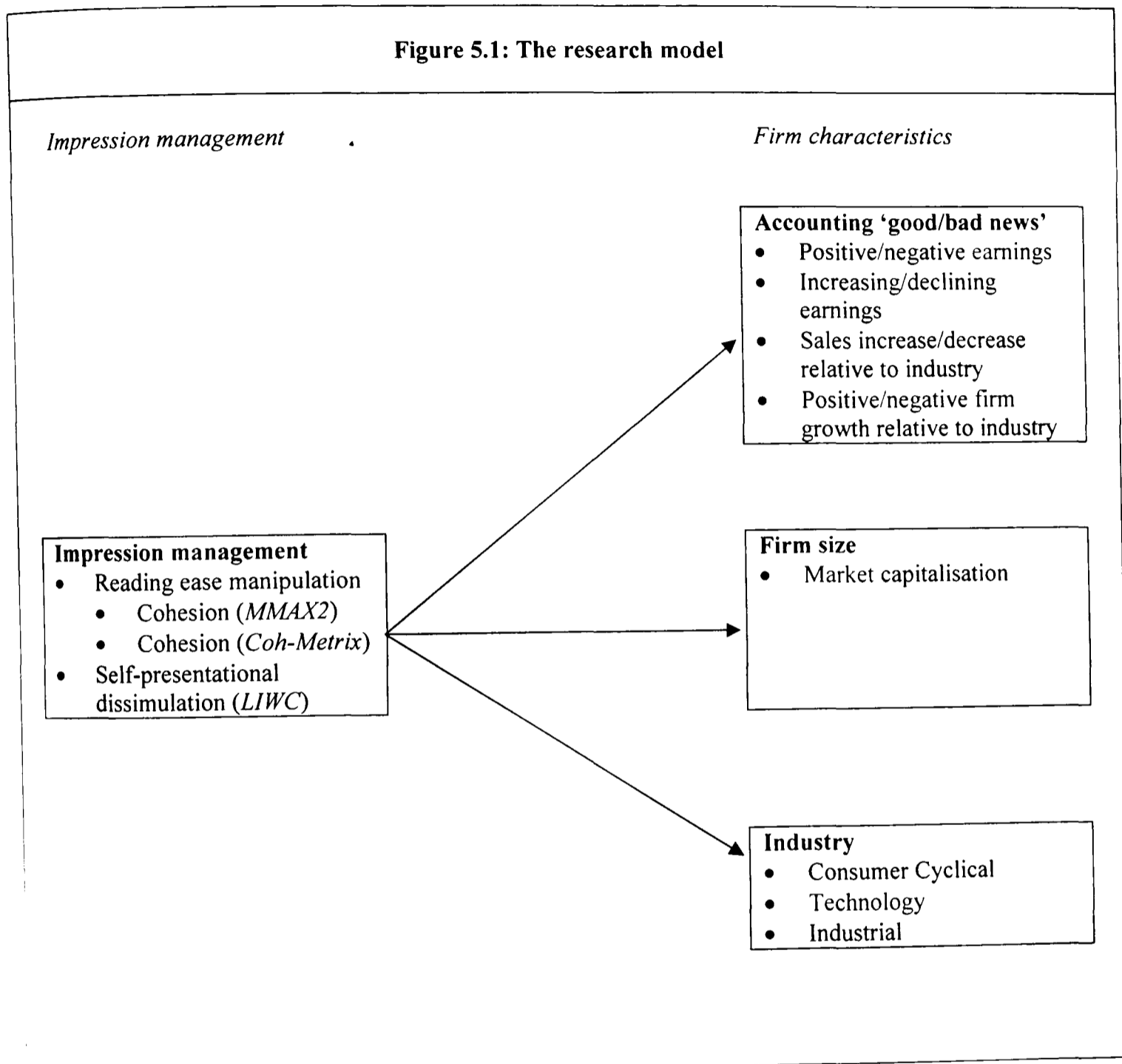
The coding manual (see Appendix VII), which is based on guidelines produced by research in computational linguistics regarding coreference annotation,⁷⁷ provides more detailed information on post-edit procedures within *MMAX2* and text annotation.

Previous studies test whether the use of impression management is dependent on a multitude of company characteristics, such as firm size, industry classification, listing status, various corporate governance factors (board composition, managerial share

⁷⁶ Converting the texts into *MMAX2* format requires the following procedure: First, all text documents have to be converted from plain text format into *XML* code. *XML* stands for *eXtensible Markup Language*. It involves embedding the structure and classification system of information inside the document itself. *XML* is a way for the document to carry information about itself. Documents thus describe the information they contain. As a result, texts encoded in *XML* do not only hold the text itself, but also the structure and even classification of the information inside the document by means of tags. Identification of noun phrases is carried out automatically by means of a noun phrase chunker (NP-Chunker), which involves recognizing the chunks of text consisting of noun phrases (NPs).

⁷⁷ See the website of the 7th Message Understanding Conference (MUC-7)
http://www.itl.nist.gov/iaui/894.02/related_projects/muc/proceedings/co_task.html.

ownership, institutional share ownership, etc.), and others. This study focuses on two company characteristics, namely firm size and industry classification. Figure 5.1 illustrates the research model used in this study.



5.2 Measurement of 'good/bad news'

Previous studies have found impression management to vary according to financial performance in the sense that poorly performing companies show more evidence of impression management than well-performing companies (Abrahamson and Park

1994; Adelberg 1979; Aerts 1994; Hooghiemstra 200; Short and Palmer 2003; Smith and Taffler 1995, 2000; Sydserff and Weetman 2002; Tennyson et al. 1990).

5.2.1 Previously used measures

Previous studies use two different research designs, namely (1) 'good/bad news' in the form of sample selection and (2) 'good/'bad news' as an independent variable. In addition, measures of financial performance on which 'good/bad news' is based vary.

'Good/bad news' in the form of sample selection

This approach has the advantage of establishing a clear differentiation between 'good news' and 'bad news' firms. It involves either (1) selecting the top and bottom firms in a sample, ranked by increasing/declining performance (Courtis 1998; Clatworthy and Jones 2001a, b; Sydserff and Weetman 2002) or (2) a sample composed of failed and non-failed companies, matched by size and industry (Smith and Taffler 1992a, b, 1995, 2000; Tennyson et al. 1990).

'Good/bad news' as an independent variable

This involves comparing financial performance over a time-period of at least two years. For example, a company can be said to be reporting 'good news', if its performance has improved from one year to the next. By contrast, a company can be said to be reporting 'bad news', if its financial performance has deteriorated from one year to the next (Frazier et al. 1984; Baker and Kare 1992; Subramanian et al. 1993; Courtis 1995; Hooghiemstra 2001; Rutherford 2003).

Thus, 'good/bad news' involves a relative measure of financial performance, reflecting positive change in performance for 'good news' and negative change in performance for 'bad news'. This results in a sample division into (1) companies reporting 'good news' (increase in performance from Y_0 to Y_1) and (2) companies reporting 'bad news' (decrease in performance from Y_0 to Y_1).

The two most commonly used financial performance measures are (1) net income (Subramanian et al. 1993; Hooghiemstra 2001; (2) profit before taxation (Courtis

1998; Clatworthy and Jones 2001, 2006). Others include return on assets (ROA) (Aerts 1994; Courtis 1995) and return on equity (ROE) (Aerts 1994).

Aerts (2005: 505) argues that using relative measures of financial performance (i.e. positive vs. negative percentage change in performance) is more meaningful in the context of impression management since “*corporate narrative explanations usually focus on changes in performance rather than on absolute performance levels.*”

5.2.2 Measures used in this study

This study uses four measures of ‘good/bad news’, namely (1) positive/negative earnings (PE), (2) positive/negative earnings growth (PEI), (3) relative positive/negative sales growth (RSI), and (4) relative positive/negative long-term firm growth (RG).

Positive/negative earnings (PE) measures whether earnings (income before tax) are positive/negative in absolute terms in the year of analysis (2002). Positive/negative earnings growth (PEI) measures the positive/negative change in earnings between two years (2001-2002). Relative positive/negative sales growth (RSI) measures the positive/negative growth in sales (measured as total sales) of a company relative to its industry⁷⁸ between two years (2001 and 2002). Relative positive/negative long-term firm growth (RG) measures the growth of a company (averaged over sales and total assets) relative to its industry over four years (1999-2003).⁷⁹ Each variable is a dummy variable, with a value of 0 if the measure is negative, and a value of 1 if positive.

Table 5.2 provides an overview of the four measures of ‘good/bad news’ used in this study.

⁷⁸ In RSI and RG industry measures are calculated by including the total number of firms in the population which belong to the industry in question. As indicated in section 5.1.2, this includes 359 Consumer Cyclical companies, 176 Technology companies, and 397 Industrial companies.

⁷⁹ Slope coefficient on the logarithmic change from a seemingly unrelated panel regression.

Table 5.2: Measurement of 'good/bad news'

Proxy measure	Abbrev.	Definition	Measurement
(1) Positive/negative earnings	PE	Positive earnings = ≥ 0 in Y_1 ; Negative earnings = < 0 in Y_1	Positive = 1; negative = 0
(2) Positive/negative earnings growth	PEI	Positive earnings change = earnings increase from Y_0 to Y_1 ; Negative earnings change = earnings decrease from Y_0 to Y_1	Positive = 1; negative = 0
(3) Relative positive/negative sales growth	RSI	Relative positive sales growth = Sales growth from Y_0 to Y_1 is above industry; Relative negative sales growth = Sales growth from Y_0 to Y_1 is below industry	Positive = 1; negative = 0
(4) Relative positive/negative long-term firm growth	RG	Relative positive long-term firm growth = growth in sales and assets from Y_{-2} to Y_2 is above industry; Relative negative long-term firm growth = growth in sales and assets from Y_{-2} to Y_2 is below industry	Positive = 1; negative = 0

Whereas positive/negative earnings (PE) and positive/negative earnings growth (PEI) are based on financial performance measures used in previous research, relative positive/negative sales growth (RSI) and relative positive/negative long-term firm growth (RG) constitute an extension of previously used measures of financial performance. The first two measures (positive/negative earnings and positive/negative earnings growth) are concerned with financials and measure company-specific 'good/bad news'. The latter two measures (relative positive/negative sales growth and relative positive/negative long-term firm growth) are concerned with fundamentals and measure 'good/bad news' as relative to industry. Industry-relative measures of 'good/bad news' reflect the reality that investment decisions are driven by financial performance relative to competitors. Economic conditions might be such that an entire industry suffers a downturn. In such a case, 'good news' for a particular company might mean a smaller loss than its competitors.

Research in earnings management has provided substantial evidence concerning benchmark beating in firms. In this study it is assumed that obfuscation of negative organizational outcomes in narrative corporate report sections is intended to influence the perception of a shortfall when such targets are missed. In this context, it is generally assumed that managers seek firstly to report a profit and not a loss (Hayn,

1995), and secondly to report results that improve upon last year's performance (Burgstahler and Dichev, 1997; Degeorge et al. 1999).⁸⁰ However, annual earnings may be influenced by a number of non-contemporaneous factors, such as corrections to past valuations and the prudent recognition of current value-increasing activities whose income effect is deferred until its eventual certain realization in future periods. Therefore, we also consider a broader accounting-based indicator of performance that provides a global measure of current activities, i.e. sales. In this context, it is assumed that negative nominal sales growth and lower sales growth than the firm's competitors represent missed targets.

5.3 Measurement of firm size

Previous research shows firm size (Jones 1988; Baker and Kare 1992; Curtis 1995; Short and Palmer 2003; Aerts 2005) to be an important factor in explaining impression management behaviour.

Cooke (1991: 176) argues that size can be measured in a number of different ways and there is no overriding theoretical reason to select one rather than another. Previous impression management studies have used (1) market capitalization (Curtis 1995), (2) total assets/log total assets (Baker and Kare 1992; Aerts 1994, 2001, 2005; Smith et al. 2005), (3) turnover/log turnover (Jones 1988; Aerts 1994, 2001), (4) number of employees (Short and Palmer 2003), and (5) number of common shares outstanding (Baker and Kare 1992).

In this study firm size is measured in terms of 2002 end of year market capitalization (thousand pounds), i.e., the value of a company obtained by multiplying the number of its issued ordinary shares by its market price. In order to achieve a more normal distribution of values, the log value is taken.

⁸⁰ A further earnings target that is commonly researched is that of meeting or beating consensus analysts' earnings forecasts - see Burgstahler and Eames (1999); Payne and Robb (2000); Pope et al. (2001). However, the availability of consensus forecasts requires a strong analyst stock following. As this would stratify the sample for the present study, due to the lack of available forecasts for smaller firms in the UK, this benchmark is not considered here.

Appendix I lists the size (in thousand pounds sterling) for each of the companies in the sample.

5.4 Measurement of industry classification

Courtis (1995) does not find impression management in the form of reading ease manipulation to be associated with industry differences. However, Aerts (2005) finds a direct association between impression management in the form of performance attribution and industry sector.

The sample contains three industry groups, namely Consumer Cyclical (CYC), Technology (TEC), and Industrial (IDU), based on the *Dow Jones* Market Sector classifications. Appendix I identifies the industry sector for each company in the sample.

5.5 Predicted response of impression management to firm characteristics

The prior literature has established a link between financial performance and impression management by arguing that the obfuscation of negative organisational outcomes is especially pronounced when ‘bad news’ is reported. This inverse association between reading difficulty and firm performance has been confirmed by previous research, i.e. poorly performing firms have been shown to engage in more impression management than better-performing firms (Abrahamson and Park 1994; Adelberg 1979; Aerts 1994; Frazier et al. 1984; Hooghiemstra 2001; Short and Palmer 2003; Smith and Taffler 1992a, 2000; Subramanian et al. 1993; Sydserff and Weetman 2002; Tennyson et al. 1990).

Previous hypotheses are not consistent on the direction of association between impression management and firm size. The monitoring hypothesis states that increased monitoring by outside shareholders, governmental bodies, analysts, etc. decreases the opportunity for management to engage in impression management since

it increases the chances of being found out and sanctioned (Abrahamson and Park 1994). Since large firms are under more scrutiny from the public, the financial community, and from analysts, it is hypothesized that they have less opportunity and incentives to engage in impression management.

However, Curtis (1998) views obfuscation by means of reading ease manipulation to be directly related to press coverage, which can be regarded as a proxy for size. He argues that companies in the public eye aim “*to reduce the chances of interference from investors, government and regulatory agencies*” (462) by means of confusing their readership by obfuscating. Jones (1988) and Rutherford (2003) also regard impression management in the form of obfuscation and size to be directly related by arguing that larger firms have more complex operations which results in syntactically more complex narratives.

However, in keeping with agency theory explanations of managerial behaviour, on which the majority of impression management studies are based, the direction of association between impression management and firm size adopted in this study is based on the political cost hypothesis (see chapter four, section 4.1.2). The political cost hypothesis claims that firms in the public eye, such as large firms, do not want to attract attention by high profitability since this can result in new taxes or regulations. It thus follows that large firms have no incentives to engage in impression management by obfuscating negative organisational outcomes, since they do not want to portray their financial performance in the best possible light. Applying the political cost hypothesis, it thus follows that large firms are less likely to engage in impression management than small firms. Therefore, impression management is assumed to be inversely related to firm size.

Previous research does not find industry classification to be related to impression management differences (Curtis 1995). For this reason, it will be assumed that there is no association between impression management and industry classification.

In summary, impression management is hypothesized to be directly related to ‘good/bad news’, since managers of underperforming firms have higher incentives to

hide information from outsiders. Impression management is hypothesized to be inversely associated with size since large firms face higher political costs if they portray firm performance in the best possible light. Industry is hypothesised to make no difference on the impression management behaviour of companies. Table 5.3 summarizes the hypothesized direction of association between impression management and ‘good/bad news’, firm size and industry.

Table 5.3: Hypothesized direction of association between impression management, ‘good/bad news’, firm size, and industry classification

Variable	Proxy measure	Name	Definition	Direction of association
Good/bad news	Earnings	<i>PE</i>	Good news = 1; Bad news = 0	Direct
	Earnings growth	<i>PEI</i>	Good news = 1; Bad news = 0	Direct
	Relative sales growth	<i>RSI</i>	Good news = 1; Bad news = 0	Direct
	Relative long-term firm growth	<i>RG</i>	Good news = 1; Bad news = 0	Direct
Company size	Log Market capitalization	<i>logSIZE</i>	Number of its issued ordinary shares x their market price	Inverse
Industry	Dow Jones industry classification	<i>IND</i>	CYC, IDU, TEC	None predicted

5.6 Statistical analysis

Previous impression management research uses correlation analysis (Baker and Kare 1992; Smith and Taffler 1992a; Subramanian et al. 1993), regression analysis (Jones 1988; Rutherford 2003), and ANOVA (Aerts 2005; Clatworthy and Jones 2001b) to examine the association between impression management and various company characteristics.

This study uses bivariate and multivariate analysis to analyse impression management in chairman’s reports. The bivariate analysis examines the association between impression management and firm size by means of ordinary least square regression analysis (OLS) and the association between impression management and ‘good/bad news’ by means of one-way analysis of variance (ANOVA). The multivariate analysis examines the association between impression management and ‘good/bad news’ and

firm size by means of the general linear model (GLM). GLM extends ANOVA by means of adding firm size as a covariate while preserving the difference between the two means and allows for interaction between the variables.

In order to examine potential industry differences, the bivariate and multivariate analysis is first carried out for the whole sample and then for each industry sector separately.

5.7 Summary and conclusions

After discussing the measurement of impression management in chapter four, chapter five has provided an overview of the research methodology used to examine the use of impression management in chairman's reports. This has comprised (1) sample selection, (2) measurement of 'good/bad news' and firm size, (3) predicted response of impression management on 'good/bad news' and firm size, and (4) statistical analysis techniques used to examine the use of impression management and its association with 'good/bad news' and firm size.

Chapter six presents the results of these statistical tests and interprets them. It thus provides answers to the research questions asked in this study, namely (1) whether chairman's reports are used for impression management purposes and (2) whether the use of impression management is dependent on 'good/bad news' and varies according to firm size and industry.

Chapter 6: RESULTS

This chapter reports the results of the statistical analysis of impression management in chairman's reports. The first section describes the sample of companies reporting favourable or unfavourable outcomes and the size of the firms in the sample. The second and the third section evaluate the obfuscation hypothesis by means of examining the association between impression management in the form of (1) reading difficulty and (2) self-presentational dissimulation and 'good/bad news' and firm size. The second section considers reading difficulty, where conventional readability scores (*Flesch Reading Ease*) are calculated together with two additional approaches to measuring reading difficulty based on textual cohesion that are new to accounting research. The first approach is annotation-based (*MMAX2*) and calculates three measures of textual cohesion and the second uses a web-based automatic generator of reading difficulty measures (*Coh-Matrix*) and calculates four measures of textual cohesion. The third section gives the test results when the linguistic markers of self-presentational dissimulation are employed in order to evaluate the obfuscation hypothesis.

6.1 Measures of firm performance and firm size

For the statistical tests carried out in this study, the reporting of either good or bad news is treated as a 0, 1 dummy variable, and is measured in four different ways. Classification as 'bad news' depends on whether (1) the earnings figure is negative ($PE = 0$), (2) the growth in earnings is negative ($PEI = 0$), (3) sales growth relative to the sector is negative ($RSI = 0$), and (4) the longer-term growth of the firm relative to the sector is negative ($RG = 0$).

The dummy variable is scored as 1 for good news, and 0 otherwise. Although there are instances of break-even outcomes in the population as a whole, and of no change in earnings, sales or assets from one year to the next, there are no such occurrences in the sample. Also, when outcome relative to the sector is calculated, there are no instances where an individual firm's performance is exactly the same as the sector

average. Therefore, for each of the four measures of ‘good/bad news’, good news always represents a positive outcome and bad news a negative outcome.

Table 6.1 shows the number of companies in the sample reporting positive and negative organizational outcomes across the four proxy measures of accounting ‘good/bad news’.

	‘Good news’ No.	‘Bad news’ No.	Total No.
(1) Positive/negative earnings (PE)	52	41	93
(2) Positive/negative earnings growth (PEI)	55	38	93
(3) Positive/negative relative sales growth (RSI)	57	36	93
(4) Positive/negative relative longer-term firm growth (RG)	59	34	93

It can be seen that there is a roughly 3:2 split into ‘good news’ and ‘bad news’ companies across all four measures.

In addition, controls are added to each main effects estimation in order to allow for differences in reporting that are attributable to firm size or industry membership. For this purpose, firm size is measured as the natural logarithm of market capitalisation in 2002, and industry sub-samples are based on the Dow Jones market classification. Table 6.2 shows that sample selection has resulted in heterogeneity regarding firm size.

<i>Variable</i>	N	Mean	Median	StDev	Min	Max	Q1	Q3
LogSize	93	3.825	3.770	2.139	-1.810	8.720	2.425	5.410
<i>By industry</i>								
CYC	31	4.449	4.070	2.151	0.230	8.720	2.630	6.400
TEC	31	2.823	3.130	1.893	-1.810	6.620	1.730	3.870
IDU	31	4.204	4.550	2.059	0.200	8.090	2.030	5.490

Table 6.3 shows that none of the four measures of ‘good/bad news’ is strongly correlated with firm size. This means that firm size does not create a bias in the reporting of either good or bad news.

	PE	PEI	RSI	RG
PEI	0.407 0.000			
RSI	0.273 0.008	0.327 0.001		
RG	0.450 0.000	0.277 0.007	0.680 0.000	
SIZE	0.378 0.000	0.059 0.577	0.008 0.938	0.029 0.780
Cell Contents:	Correlation (P-Value)			

6.2 Measures of reading difficulty

6.2.1 Descriptive statistics of measures of reading difficulty

For this study reading difficulty is measured using two new methodologies which both treat reading difficulty as a function of textual cohesion. The first approach uses three measures of cohesion-based reading difficulty which are the result of manual text annotation (by means of *MMAX2*) and the second approach uses four cohesion-based measures of reading difficulty which are automatically generated by means of a web-based tool (*Coh-Matrix*). The resulting seven new measures of reading difficulty are compared to two traditional reading difficulty measures, namely the *Flesch Reading Ease Score* and the *Flesch-Kincaid Grade Level* (See descriptive statistics in Table 6.4).

Table 6.4: Descriptive statistics of traditional reading difficulty measures

Variable	N ⁸¹	Mean	Median	StDev	Min	Max	Q1	Q3
<i>Flesch Reading Ease</i>	88	42.810	43.466	7.834	22.404	60.659	39.599	47.328
<i>Flesch-Kincaid</i>	88	11.524	12.000	0.892	7.026	12.000	11.294	12.000

Due to lack of benchmarks for the new cohesion-based reading difficulty measures, the reading difficulty of chairman's reports can only be assessed in terms of the two traditional readability measures namely *Flesch Reading Ease* and *Flesch Kincaid Grade Level*.⁸²

The *Flesch Reading Ease* measure rates text on a 100-point scale. The higher the score, the easier it is to understand the document. A score of 60 to 70 is considered optimal for easy comprehension. The *Flesch-Kincaid Grade Level* formula converts the Reading Ease score to a U.S. grade-school level. The higher the number, the harder it is to read the text. Grade levels range from 0 to 12.

Table 6.4 shows the descriptive statistics of the readability scores for the chairman's reports examined in this study. With a mean value of 42.8 for the *Flesch Reading Ease* score and a mean value of 11.5 for the *Flesch-Kincaid Grade Level* formula, chairman's reports are considered difficult to read. This is in accordance with previous research (Lewis et al. 1986; Curtis 1986).

The first approach is based on three cohesion-based measures of reading difficulty that are computed following text annotation (by means of *MMAX2*, a computerised textual annotation tool), namely (1) the number of cohesive ties in a given text, (2) the cohesion density of a given text, and (3) the proportion of new versus given information in a given text. (See descriptive statistics in Table 6.5).⁸³

⁸¹ *Flesch Reading Ease* and *Flesch-Kincaid* scores are computed with *Coh-Matrix* which has a maximum processing capacity is about 15,000 words per document. This resulted in a reduction of sample size from 95 to 88 firms when calculating the *Flesch Reading Ease*, the *Flesch-Kincaid*, and the four cohesion-based reading difficulty scores generated by *Coh-Matrix* (see Table 6.6).

⁸² The results for the *Flesch Reading Ease* measure and the *Flesch-Kincaid Grade Level* measure are based on *Coh-Matrix* output.

Table 6.5: Descriptive statistics of annotation-based measures of reading difficulty (MMAX2)

Variable	N	Mean	Median	StDev	Min	Max	Q1	Q3
Cohesion Density	93	0.323	0.333	0.088	0.000	0.500	0.278	0.389
Cohesive Ties	93	0.353	0.467	0.176	0.073	0.593	0.178	0.515
Given v. New Information	93	0.500	0.712	0.375	0.038	1.120	0.122	0.825

The second approach is based on the output estimates obtained from *Coh-Matrix*, a web-based tool which computes four referential measures of reading difficulty, namely (1) adjacent argument overlap, (2) argument overlap, (3) adjacent stem overlap, and (4) stem overlap. (See descriptive statistics in Table 6.6).

Table 6.6: Descriptive statistics of computer-generated measures of reading difficulty (*Coh-Matrix*)

Variable	N	Mean	Median	StDev	Min	Max	Q1	Q3
Adjacent Argument Overlap	88	0.459	0.461	0.144	0.000	0.809	0.365	0.552
Argument Overlap	88	0.285	0.258	0.099	0.069	0.610	0.217	0.341
Adjacent Stem Overlap	88	0.494	0.503	0.136	0.112	0.882	0.405	0.592
Stem Overlap	88	0.308	0.279	0.110	0.065	0.666	0.242	0.388

6.2.2 Correlation between measures of reading difficulty

Before testing the obfuscation hypothesis using the measures described above as indicators of reading difficulty, the correlation between these various indicators is examined, for two reasons. The first is to determine whether the new measures introduced in this study capture a different aspect of reading difficulty, i.e. lack of cohesion, to the conventional reading difficulty measures which are based on word

⁸³ Interannotator agreement is 75% which suggests that the annotation of textual cohesion is based on objective criteria and does not reflect "the idiosyncratic results of one's rather subjective judgment" (Tinsley and Weiss 1975: 359). See Appendix V for detailed results of the reliability statistics.

and sentence length. The second is to determine whether the cohesion-based measures of reading difficulty that are computer-generated with *Coh-Matrix* are substitutes for the cohesion-based measures of reading difficulty that are calculated based on manual text annotation.

First, the correlation between the two traditional reading difficulty measures (the *Flesch Reading Ease Score* and the *Flesch-Kincaid Grade Level*) and the three annotation-based measures of cohesion introduced in this study (the number of cohesive ties, the cohesion density, and the proportion of given vs. new information) is examined (see Table 6.7). Then, the correlation between two traditional reading difficulty measures and the four *Coh-Matrix* measures (adjacent argument overlap, argument overlap, adjacent stem overlap, and stem overlap) is examined (see Table 6.8).

We would expect a negative correlation between the *Flesch Reading Ease Score* and the *Flesch-Kincaid Grade Level*. This is due to their different scoring approaches. Whereas texts with a low *Flesch Reading Ease Score* are difficult to read, texts with a low *Flesch-Kincaid Grade Level* are easy to read. Table 6.7 shows a strong correlation between the two indices, which is negative as expected (-0.679). The strong correlation is due to the fact that both reading difficulty measures are based on similar metrics involving average sentence length and average number of syllables by word.

As far as the correlation between the three annotation-based cohesion measures is concerned, the proportion of given vs. new information and the number of cohesive ties are highly correlated (0.991) and can thus be used as substitutes for each other. This is not surprising, since they are both based on the number of grammatical and lexical connections in a text. However, cohesion density is neither correlated with the proportion of given vs. new information nor with number of cohesive ties and thus constitutes a separate cohesion measure. This is due to the fact that cohesion density is not concerned with grammatical and lexical interrelationships throughout the text, but with information overlap.

Table 6.7: Correlation between annotation-based cohesion measures and traditional readability scores

	Cohesion Density	Cohesive Ties	Given v. New Information	Flesch Reading Ease Score
Cohesive Ties	0.011 <i>0.917</i>			
Given v. New Information	0.006 <i>0.956</i>	0.991 <i>0.000</i>		
Flesch Reading Ease Score	-0.195 <i>0.069</i>	0.048 <i>0.660</i>	0.071 <i>0.513</i>	
Flesch-Kincaid Grading Level	0.264 <i>0.013</i>	-0.041 <i>0.701</i>	-0.058 <i>0.593</i>	-0.679 <i>0.000</i>
Cell Contents:	Correlation (<i>P-Value</i>)			

The fact that there is no correlation between any of the three cohesion-based measures and both the *Flesch Reading Ease Score* and the *Flesch-Kincaid Grade Level* suggests that the new annotation-based measures constitute different measures of reading difficulty. This is due to the fact that conventional readability formulae are word- and sentence-based measures which act as proxies for memory span and speed of recognition, whereas cohesion measures are text-based and represent the interconnection of ideas in a given text which aids the construction of meaning.

It can therefore be concluded that the three annotation-based measures introduced in this study are distinct from conventional readability scores and can thus be used as alternatives for assessing reading difficulty on a whole-text level.

Table 6.8 gives the estimates of the correlation between two conventional readability measures and *Coh-Matrix's* four referential reading difficulty measures, namely (1) adjacent argument overlap, (2) argument overlap, (3) adjacent stem overlap, and (4) stem overlap. It shows the four *Coh-Matrix* measures to be strongly correlated with each other (ranging from 0.500 to 0.923). This means that they measure more or less the same aspect of cohesion, namely information overlap within and between

paragraphs. However, overall, there is weaker correlation between the four referential measures and the traditional reading difficulty measures. This implies that they measure different textual properties. What is more, we observe a negative correlation between the *Flesch Reading Ease Score* (low scores equal low reading difficulty) and the four *Coh-Matrix* measures (low scores equal high reading difficulty) (p-values = 0.005; 0.000, 0.001; 0.000) and a positive correlation between the *Flesch-Kincaid Grade Level* (low scores equal high reading difficulty) and the four *Coh-Matrix* measures (p-values = 0.000; 0.000; 0.000; 0.000) suggests that chairman's reports which are difficult to read when measured in terms of traditional reading difficulty scores are easy to read when measured in terms of *Coh-Matrix* referential reading difficulty measures.

Table 6.8: Correlation between computer-generated cohesion measures (<i>Coh-Matrix</i>) and traditional readability scores					
	Adjacent Argument Overlap	Argument Overlap	Adjacent Stem Overlap	Stem Overlap	Flesch Reading Ease Score
Argument Overlap	0.686 <i>0.000</i>				
Adjacent Stem Overlap	0.858 <i>0.000</i>	0.781 <i>0.000</i>			
Stem Overlap	0.500 <i>0.000</i>	0.923 <i>0.000</i>	0.741 <i>0.000</i>		
Flesch Reading Ease Score	-0.300 <i>0.005</i>	-0.460 <i>0.000</i>	-0.350 <i>0.001</i>	-0.457 <i>0.000</i>	
Flesch-Kincaid Grade Level	0.421 <i>0.000</i>	0.529 <i>0.000</i>	0.501 <i>0.000</i>	0.534 <i>0.000</i>	-0.679 <i>0.000</i>
Cell Contents:	Correlation (<i>P-Value</i>)				

The weak correlation between traditional readability scores (*Flesch Reading Ease Score* and *Flesch-Kincaid Grade Level*) and the seven new cohesion-based measures of reading difficulty indicates that both the annotation-based (cohesion density, cohesive ties, and proportion of given and new information) and the computer-

generated measures (adjacent argument overlap, argument overlap, adjacent stem overlap, and stem overlap) capture different aspect of reading difficulty, namely textual complexity, i.e. missing links within and between sentences.

It is useful at this stage to illustrate these outcomes with examples from the sampled reports. Across the four *Coh-Matrix* referential cohesion measures, *Tolent's* chairman's report (see Example 22) is either the most difficult or the second most difficult to read from the whole sample. The report contains only very few overlapping nouns, noun phrases or stems between sentences and paragraphs, as can be seen from the extract (the first three paragraphs) in Example 22.

Example 22: Tolent's chairman's report 2002

I am pleased to report another year of record profits. In 2002 there was a substantial reduction in office fit-out work due to the level of financial activity in London.

*However the Tolent Group was able to improve profitability albeit on a lower **turnover** base with a wide range of other construction work at better margins. Once again a high percentage of **turnover** represented repeat business and negotiated work.*

Construction in 2002 included an oriental spa facility at Seaham, a football academy at Sunderland, distribution units in Doncaster and Manchester, a leisure club at Dartford and the commencement of a large office development on Tyneside.

Key: bold words constitute cohesive devices

The chairman's report that emerges as the easiest to read overall across all four *Coh-Matrix* referential cohesion measures is that of *Telecom Plus*. Example 23 provides the first two paragraphs.

Example 23: Telecom Plus' chairman's report 2002

I am pleased to report a year of significant progress in the development of Telecom plus as a multi-service utility company providing a broad range of essential household services.

*Turnover and pre-tax profits for the year exceeded £32.6 million (2001: £28.1m) and £4m (2001: £2.5m) respectively, reflecting a strong performance within our virtual network **business** coupled with a reduced loss within our **distribution business**. **The increase in new customer applications during the Autumn, and in the average number of services taken by each customer** which I reported in November, has been sustained, accompanied by a steady **increase** in the number of both new and active **distributors** promoting our services.*

Key: bold words constitute cohesive devices

A comparison between examples 22 and 23 shows that *Telecom Plus* chairman's report contains considerably more occurrences of shared nouns, noun phrases, and word stems across adjoining sentences and paragraphs than *Tolent's* chairman's report. These provide a red thread for the reader to follow and thus make text comprehension easier.

Table 6.9 gives the estimates of the correlation between the three annotation-based measures of reading difficulty developed in the study (by means of *MMAX2*), namely (1) number of cohesive ties, (2) cohesion density, and (3) proportion of given and new information and the four computer-generated referential cohesion measures (by means of *Coh-Matrix*), namely (1) adjacent argument overlap, (2) argument overlap, (3) adjacent stem overlap, and (4) stem overlap. The reason behind this is to determine whether the four computer-generated measures of reading difficulty can be used as substitutes for the three annotation-based measures of reading difficulty or whether they capture different aspects of textual cohesion.

Table 6.9: Correlation between manual cohesion measures (*MMAX2*) and computer-generated cohesion measures (*Coh-Matrix*)

	Adjacent Argument Overlap	Argument Overlap	Adjacent Stem Overlap	Stem Overlap	Cohesion Density	Cohesive Ties
Argument Overlap	0.686 0.000					
Adjacent Stem Overlap	0.858 0.000	0.781 0.000				
Stem Overlap	0.500 0.000	0.923 0.000	0.741 0.000			
Cohesion Density	0.293 0.006	0.188 0.080	0.268 0.012	0.181 0.092		
Cohesive Ties	0.077 0.476	0.050 0.644	0.034 0.750	0.056 0.602	0.011 0.917	
Given v. New Information	0.049 0.653	0.027 0.801	0.002 0.983	0.029 0.785	0.006 0.956	0.991 0.000
Cell Contents:	Correlation (<i>P-Value</i>)					

Across all variables, there is low correlation between annotation-based and computer-generated measures of cohesion. This means that computer-generated measures of cohesion cannot be used as substitutes for cohesion measures resulting from manual text annotation. Since annotation-based and computer-generated measures of reading difficulty differ in respect to cohesive relationships based on pronominal reference, hyperonyms, synonyms and near synonyms, which are only included in annotation-based but not in computer-generated measures, we conclude that human judgment is essential for interpreting the grammatical and lexical ties within and between sentences. It thus follows that cohesive relationships based on pronominal reference, hyperonyms, synonyms and near synonyms capture additional aspects of textual complexity.

6.2.3 Association between reading difficulty and ‘good/bad news’ and firm size

The association tests carried out in this section assess whether reading difficulty measured by means of (i) *Flesch Reading Ease* and (ii) by the seven new cohesion-

based measures of reading difficulty, including (1) cohesion density, (2) cohesive ties, (3) proportion of given vs. new information on the one hand, and (4) adjacent argument overlap, (5) argument overlap, (6) stem overlap, and (7) adjacent stem overlap on the other hand, is associated with ‘good/bad news’ and firm size. In addition, it is also tested whether industry classification has an impact on results.

If reading difficulty is found to be directly related to ‘bad news’, this supports the obfuscation hypothesis which claims that the management of poorly performing companies obfuscates negative organisational outcomes by means of rendering them difficult to read. Thus, a direct association between reading difficulty and ‘bad news’ can be interpreted as an indication of impression management in the form of reading ease manipulation.

If reading difficulty is found to be inversely related to firm size, this is also interpreted as evidence of impression management in the form of reading ease manipulation. Based on the political cost hypothesis, it is argued that large firms have fewer incentives to engage in impression management since they do not seek to attract press attention or governmental intervention by means of introducing positive bias.

Testing the obfuscation hypotheses in relation to a conventional readability measure (*Flesch Reading Ease*) and the new cohesion-based measures of reading difficulty introduced in this study allows us to assess the findings of previous reading ease manipulation studies in comparison with different reading difficulty measures, in relation to four measures of ‘good/bad news’, and in relation to possible interaction effects between ‘good/bad news’ and firm size.

The statistical methods employed in this section include bivariate and multivariate procedures. The bivariate analysis entails examining the association of impression management in the form of reading ease manipulation (dependent variable) with either (1) firm size or (2) ‘good/bad news’ (independent variables). This is carried out by means of either ordinary least square regression (OLS) or one-way analysis of variance (ANOVA). The multivariate analysis, which involves an investigation of the association between impression management and ‘good/bad news’ and firm size simultaneously, is carried out by means of a general linear model (GLM). GLM

constitutes an extension of ANOVA. The advantage of GLM is that it allows the addition of covariates within a factor structure and also permits the detection of interaction effects between variables, and, therefore, provides the framework within which to test more complex hypotheses.

6.2.3.1 Flesch Reading Ease

The *Flesch Reading Ease* score has been used in the vast majority of reading ease manipulation studies (see Table 2.2 in chapter two). It measures sentence length and syllables per 100 words (see chapter three, section 3.2.1 for calculation). The closer the score is to zero, the more incomprehensible is the text under investigation. It thus constitutes a good basis for replicating the association tests of previous research.

The first step in the analysis is to establish whether reading difficulty, when measured by the *Flesch Reading Ease* score, varies systematically across the firms in the sample⁸⁴ with regard to their size, regardless of the good or bad news conveyed in the financial statements. Table 6.10 indicates that the *Flesch Reading Ease* score increases with firm size, which is significant at the one percent level ($p = 0.003$).⁸⁵ In other words, reading difficulty measured in terms of the *Flesch Reading Ease* score decreases as the extent and volume of company operations become greater. This is consistent with hypothesis H_{1c} which states that the corporate narrative sections of large companies are easier to read than those of small companies.

	Coef	S.E.	t-stat	p-value
Constant	38.395	1.628	23.58	<0.000
SIZE	1.162	0.374	3.11	0.003***

⁸⁴ Since the *Flesch Reading Ease* score was calculated by means of the *Coh-Matrix* computer application, the sample size is 88.

⁸⁵ Throughout this chapter, the significance levels that are highlighted for the estimated main and interaction effects are as follows:

t greater than	Probability p	Significance
1.644	0.100	10% *
1.960	0.050	5% **
2.576	0.010	1% ***

The second step in the analysis concerns the likelihood of differences in reading difficulty measured in terms of the *Flesch Reading Ease* score, when the financial results convey either a positive or a negative message regarding the profitability of the firm (PE, PEI) or its growth relative to its competitors (RSI, RG). Table 6.11 indicates that the *Flesch Reading Ease* score increases with ‘good news’ in the form of positive earnings (PEI = 1). This is significant at the five percent level ($p = 0.025$). This result is consistent with hypothesis H_{1b} which states that the corporate report sections of companies reporting ‘good news’ in the financial statements are easier to read than those of companies reporting ‘bad news’. This thus provides evidence for the obfuscation hypothesis which states that firms reporting ‘bad news’ in the financial statements tend to engage in impression management by means of reading ease manipulation, i.e. their corporate narrative documents are more difficult to read than those of companies reporting ‘good news’. These results confirm findings from previous reading ease manipulation studies.

Table 6.11: ANOVA results for *Flesch Reading Ease* (main effects)
Bad news = 0 Good news = 1

		SS	MS	F	t-stat	p-value	Mean	SD
PE	0	157.100	157.100	2.61	1.61	0.110	40.6300	8.2300
	1						44.3910	7.2080
							<i>3.7610¹</i>	<i>15.4380²</i>
PEI	0	303.200	303.200	5.18	2.28	0.025**	40.6300	8.2300
	1						44.3910	7.2080
							<i>3.7610</i>	<i>15.4380</i>
RSI	0	4.700	4.700	0.08	-0.27	0.784	43.0930	9.0620
	1						42.6220	6.9930
							<i>-0.4710</i>	<i>16.0550</i>
RG	0	0.100	0.100	0.00	0.04	0.972	42.7710	8.1840
	1						42.8330	7.6940
							<i>0.0620</i>	<i>15.8780</i>

Key: Numbers in italics are derived from univariate GLM analysis.
¹ Difference between means.
² Sum of standard error of univariate GLM.

The third step in the analysis is designed to assess - across firms of different sizes - the consistency of any association that may appear to exist between the reading difficulty of the chairman’s report on the one hand, and the good or bad news that is conveyed by the financial statements on the other.

The last two columns in Table 6.12 report a 'mean effect' and a 'size effect'. The mean effects are each given as an average reading difficulty score after controlling for size, first in the case of 'bad news' (PE, PEI, RSI, RG = 0) and then in the case of 'good news' (PE, PEI, RSI, RG = 1).⁸⁶ For example, in the case of the variable PEI, where positive (negative) earnings growth signals good (bad) news, the adjusted mean score for the *Flesch Reading Ease* score is greater ($38.141 + 2.411 = 40.5520$ as opposed to $38.141 - 2.411 = 35.7300$) when there is an earnings increase (PEI = 1) than when there is an earnings decrease (PEI = 0). Although this positive coefficient on the 0,1 PEI factor (2.411.) suggests that a fast-growth firm is likely to produce a more readable report than a slow-growth firm, the p-value of 0.139 in fact indicates that the 'good news/bad news' coefficient is not statistically significant in this case. Thus, the direct association that was observed between the *Flesch Reading Ease* score and 'good news' in the form of positive earnings growth (PEI = 1) no longer remains as a strong result when firm size is interacted with 'good/bad news'.

The size effect is the increase or decrease in the *Flesch Reading Ease* score as a function of firm capitalisation. As with the mean ('good/bad news') effect described above, the 'firm size' x 'good/bad news' interaction term is estimated as an incremental coefficient, and the significance of the difference (2 x the coefficient) can be evaluated with the estimated t-statistic.⁸⁷ For example, in the case of earnings growth, the t-statistic of 0.44 (p-value 0.658) indicates that the difference in size effects when news is good or bad is statistically insignificant. If on the other hand that were not the case, it could be concluded that the expected value of the *Flesch Reading Ease* score would be expected to decrease with firm size when firms report positive earnings growth (the size coefficient is 0.9928 when PEI = 1) and increase with size when they report negative earnings (the size coefficient is 1.3230 when PEI = 0). However, this result is not significant, and the analysis provided above is included only in order to demonstrate how inferences may be drawn from the model output.

⁸⁶ The coefficient is estimated using MINITAB. In the tables reported here, the size-adjusted mean for 'bad news' (0) is obtained by adding the estimated coefficient from the constant, whereas the size-adjusted mean for 'good news' (1) is the result of subtracting the estimate.

**Table 6.12: GLM results for *Flesch Reading Ease* (interactions with firm size)
Bad news = 0 Good news = 1**

Term	Coef	StDev	t-stat	p-value	PE = 0	PE = 1	
Constant	38.655	1.776	21.76	<0.000***	38.1710	39.1390	Mean effect
PE	-0.484	1.776	0.27	0.786			
SIZE	1.077	0.408	2.64	0.010***	1.0690	1.0846	Size effect
SIZE*PE	0.008	0.408	-0.02	0.985			
					PEI = 0	PEI = 1	
Constant	38.141	1.612	23.66	<0.000***	35.7300	40.5520	Mean effect
PEI	2.411	1.612	1.5	0.139			
SIZE	1.158	0.372	3.11	0.003***	1.3230	0.9928	Size effect
SIZE*PEI	-0.165	0.372	0.44	0.658			
					RSI = 0	RSI = 1	
Constant	38.542	1.678	22.96	<0.000***	39.2900	37.7940	Mean effect
RSI	0.748	1.678	-0.45	0.657			
SIZE	1.135	0.384	2.96	0.004***	0.9901	1.2805	Size effect
SIZE*RSI	0.145	0.384	-0.38	0.706			
					RG = 0	RG = 1	
Constant	38.758	1.783	21.74	<0.000***	39.6200	37.8960	Mean effect
RG	0.862	1.783	-0.48	0.630			
SIZE	1.065	0.416	2.56	0.012**	0.8331	1.2961	Size effect
SIZE*RG	0.232	0.416	-0.56	0.580			

To summarise, these results may be interpreted as follows. When only the main effects are considered, the *Flesch Reading Ease* score is shown to average 44.3910 for companies reporting ‘good news’ in the form of positive earnings growth (PEI = 1), and significantly less at 40.6300 for firms reporting ‘bad news’ in the form of negative earnings growth (PEI = 0). However, when size effects are taken into consideration, the adjusted means of the cohesion density scores narrow to 40.5520 and 35.7300 respectively, a difference that is no longer statistically significant. It can be concluded that there is no difference in the *Flesch Reading Ease* score of chairman’s reports of companies reporting ‘good news’ and those of companies reporting ‘bad news’. Thus, results for *Flesch Reading Ease* do not provide any support for hypothesis H_{1b} (obfuscation hypothesis) which states that firms reporting ‘good news’ are less likely to engage in reading ease manipulation by rendering their corporate narrative documents difficult to read than firms reporting ‘bad news’. However, we observe a significant difference between the *Flesch Reading Ease* score of large and small companies, which persists when ‘good/bad news’ is interacted with

⁸⁷ In the tables presented here, subtracting the ‘firm size’ x ‘good/bad news’ interaction term from the firm size coefficient gives the size effect in the case of ‘good news’ (1) and adding the interaction term gives the size effect in the case of ‘bad news’ (0).

firm size. Results suggest that the chairman's reports of large companies are easier to read than those of small companies. This is consistent with hypothesis H_{1c} which states that large companies, due to their public visibility, are less inclined to draw attention to positive financial performance and are thus less likely to obfuscate negative organisational outcomes by means of rendering their corporate narrative sections difficult to read.

The next two sections repeats the association tests between reading difficulty and 'good/bad news' and firm size, but this time using the cohesion-based measures of reading difficulty which have been introduced in this study. We first report the association tests regarding the three manually generated cohesion-based measures of reading difficulty (*MMAX2*) and subsequently regarding the four automatically generated cohesion-based measures of reading difficulty (*Coh-Matrix*).

6.2.3.2 MMAX2 cohesion-based measures of reading difficulty

Cohesion provides grammatical and semantic links within and between sentences. Texts lacking cohesion are thus difficult to read and understand. This section is based on three *MMAX2* cohesion-based measures of reading difficulty, that are computed following text annotation, namely (1) the cohesion density, (2) the number of cohesive ties in a given text, and (3) the proportion of given versus new information in a given text.

(1) Cohesion Density

Cohesion density reflects the fact that overlapping terms make a text more cohesive and thus easier to process and read. Since overlapping terms provide interconnections between ideas, a lack thereof means that the reader needs to infer the association between two pieces of information in a given text. Cohesion density is measured as the percentage of cohesive sets with two or more anaphoric expressions per total number of cohesive sets in a given text.

The first step in the analysis is to establish whether reading difficulty, when measured by cohesion density, varies systematically across the firms in the sample with regard to their size, regardless of the good or bad news conveyed in the financial statements.

As shown in Table 6.13, although the estimated response coefficient is positive (0.000; unrounded value 0.0002), there is no evidence of a significant association between cohesion density and firm size. In other words, reading difficulty measured in terms of cohesion density does not increase or decrease as the extent and volume of company operations become greater.

Predictor	Coef	S.E.	t-stat	p-value
Constant	0.322	0.019	17.04	<0.001
SIZE	0.000	0.004	0.04	0.965

The second step in the analysis concerns the likelihood of differences in reading difficulty measured in terms of cohesion density, when the financial results convey either a positive or a negative message regarding the profitability of the firm (PE, PEI) or its growth relative to its competitors (RSI, RG). Table 6.14 indicates that the cohesion density measure increases with ‘good news’ in the form of relative positive long-term firm growth (RG = 1). This is significant at the one percent level ($p = 0.008$). This result is consistent with hypothesis H_{1b} which states that the corporate report sections of companies reporting ‘good news’ in the financial statements are more cohesive and thus easier to read than those of companies reporting ‘bad news’. This thus provides evidence for the obfuscation hypothesis which states that firms reporting ‘bad news’ in the financial statements tend to engage in impression management by means of reading ease manipulation, i.e. their corporate narrative documents are more difficult to read than those of companies reporting ‘good news’.

Table 6.14: ANOVA results for cohesion density (main effects)
Bad news = 0 Good news = 1

		SS	MS	F	t-stat	p-value	Mean	SD
PE	0	0.008	0.008	1.05	1.03	0.308	0.3120	0.0992
	1						0.3309	0.0782
							<i>0.0189</i>	<i>-0.0184</i>
PEI	0	0.002	0.002	0.19	-0.43	0.667	0.3273	0.0912
	1						0.3193	0.0865
							<i>-0.0081</i>	<i>-0.0187</i>
RSI	0	0.017	0.017	2.27	1.51	0.135	0.3054	0.0884
	1						0.3334	0.0868
							<i>0.0281</i>	<i>-0.0186</i>
RG	0	0.053	0.053	7.25	2.69	0.008***	0.2912	0.0899
	1						0.3406	0.0824
							<i>0.0494</i>	<i>-0.0183</i>

The third step in the analysis is designed to assess - across firms of different sizes - the consistency of any association that may appear to exist between the reading difficulty of the management report on the one hand, and the good or bad news that is conveyed by the financial statements on the other. Table 6.14 indicates that the direct association that was observed between cohesion density and 'good news' in the form of relative positive long-term firm growth (RG = 1) no longer remains significant when firm size is interacted with 'good/bad news'.

Table 6.15: GLM results for cohesion density (interactions with firm size)
Bad news = 0 Good news = 1

Term	Coef	StDev	t-stat	p-value	PE = 0	PE = 1	
Constant	0.324	0.020	15.88	<0.001***			
PE	0.004	0.020	-0.20	0.841	0.3276	0.3194	Mean effect
SIZE	0.001	0.005	0.30	0.765			
SIZE*PE	-0.004	0.005	0.84	0.403	-0.0053	0.0025	Size effect
					PEI = 0	PEI = 1	
Constant	0.325	0.019	16.94	<0.001***			
PEI	0.021	0.019	-1.10	0.273	0.3462	0.3039	Mean effect
SIZE	-0.001	0.004	-0.14	0.892			
SIZE*PEI	-0.005	0.004	1.02	0.309	-0.0051	0.0039	Size effect
					RSI = 0	RSI = 1	
Constant	0.321	0.019	16.65	<0.001***			
RSI	-0.006	0.019	0.29	0.774	0.3151	0.3262	Mean effect
SIZE	-0.000	0.004	-0.07	0.941			
SIZE*RSI	-0.002	0.004	0.50	0.615	-0.0025	0.0019	Size effect
					RG = 0	RG = 1	
Constant	0.319	0.020	15.99	<0.001***			
RG	-0.018	0.020	0.90	0.373	0.3015	0.3373	Mean effect
SIZE	-0.001	0.005	-0.20	0.842			
SIZE*RG	-0.002	0.005	0.39	0.701	-0.0027	0.0009	Size effect

To summarise, these results may be interpreted as follows. When only the main effects are considered, the cohesion density score is shown to average 0.3406 for companies reporting ‘good news’ in the form of relative positive long-term firm growth (RG = 1), and significantly less at 0.2912 for firms reporting ‘bad news’ in the form of relative negative long-term firm growth (RG = 0). However, when size effects are taken into consideration, the adjusted means of the cohesion density scores narrow to 0.3373 and 0.3015 respectively, a difference that is no longer statistically significant. It can be concluded that there is no difference in the cohesion density of chairman’s reports of companies reporting ‘good news’ and those of companies reporting ‘bad news’. Thus, results for cohesion density do not provide any support for hypothesis H_{1b} (obfuscation hypothesis) which states that firms reporting ‘good news’ are less likely to engage in reading ease manipulation by rendering their corporate narrative documents difficult to read than firms reporting ‘bad news’. What is more, we also do not observe any significant difference between the cohesion density of large and small companies. This means, these results also do not support

hypothesis H_{1c} which states that the corporate narrative documents of small firms are more difficult to read than those of large firms.

(2) Cohesive Ties

This measure is based on the amount of cohesive ties in a given text and is expressed as percentage of total number of cohesive noun phrases per total number of potentially cohesive noun phrases.

First, we examine whether reading difficulty when measured by the amount of cohesive ties in a given text varies systematically across the firms in the sample with regard to their size. As shown in Table 6.16, although the estimated response coefficient is positive (0.0134), there is no evidence of a significant association between cohesive ties and firm size. This means that reading difficulty measured in terms of cohesive ties does not increase or decrease as the extent and volume of company operations become greater.

Table 6.16: Regression of cohesive ties on firm size				
Predictor	Coef	S.E.	t-stat	p-value
Constant	0.301	0.037	8.09	<0.001
SIZE	0.013	0.009	1.58	0.118

Secondly, we seek to establish whether the likelihood of differences in the amount of cohesive ties in a chairman’s report is dependent on the positive or negative message conveyed by the financial statements. Table 6.17 indicates that although the association between cohesive ties and ‘good news’ is positive for three out of four measures of ‘good news’, it is not statistically significant. This means that the chairman’s reports of companies reporting ‘good news’ do not contain significantly more cohesive ties - and are thus easier to read - than those of companies reporting ‘bad news’.

Table 6.17: ANOVA results for cohesive ties (main effects)
Bad news = 0 Good news = 1

		SS	MS	F	t-stat	p-value	Mean	SD
PE	0	0.007	0.007	0.21	0.46	0.650	0.3431	0.1795
	1						0.3599	0.1743
							0.0168	-0.3431
PEI	0	0.002	0.002	0.07	0.26	0.797	0.3468	0.1815
	1						0.3564	0.1734
							0.0096	-0.3468
RSI	0	0.000	0.000	0.01	-0.10	0.924	0.3547	0.1784
	1						0.3511	0.1758
							-0.0036	-0.3547
RG	0	0.012	0.012	0.40	0.63	0.529	0.3372	0.1760
	1						0.3612	0.1767
							0.0240	-0.3372

Finally, we assess whether any association that seems to exist between the amount of cohesive ties and ‘good/bad news’ is consistent across firms of different sizes. The interaction between ‘good/bad news’ and firm size is documented in Table 6.18. As noted above, the last two columns in the table report the ‘mean effect’ and the ‘size effect’, both of which are not significant. This means that neither ‘good/bad news’ nor firm size play a significant role in determining the amount of cohesive ties of chairman’s reports.

Table 6.18: GLM results for cohesive ties (interaction with firms size)
Bad news = 0 Good news = 1

Term	Coef	StDev	t-stat	p-value	PE = 0	PE = 1	
Constant	0.299	0.038	7.86	<0.000***			
PE	0.014	0.009	1.58	0.117	0.3130	0.2852	Mean effect
SIZE	-0.014	0.038	-0.36	0.717			
SIZE*PE	0.003	0.009	0.32	0.748	-0.0110	-0.0167	Size effect
					PEI = 0	PEI = 1	
Constant	0.299	0.038	7.86	<0.000***			
PEI	0.014	0.009	1.58	0.117	0.3130	0.2852	Mean effect
SIZE	-0.014	0.038	-0.36	0.717			
SIZE*PEI	0.003	0.009	0.32	0.748	-0.0110	-0.0167	Size effect
					RSI = 0	RSI = 1	
Constant	0.306	0.038	7.98	<0.000***			
RSI	0.012	0.009	1.39	0.169	0.3184	0.2941	Mean effect
SIZE	0.025	0.038	0.65	0.517			
SIZE*RSI	-0.006	0.009	-0.68	0.495	0.0190	0.0310	Size effect
					RG = 0	RG = 1	
Constant	0.308	0.041	7.55	<0.000***			
RG	0.011	0.010	1.13	0.263	0.3186	0.2971	Mean effect
SIZE	0.010	0.041	0.25	0.802			
SIZE*RG	-0.006	0.010	-0.59	0.556	0.0046	0.0159	Size effect

In summary, the amount of cohesive ties as a measure of reading difficulty is not found to be associated to either firm size or 'good/bad news'. This suggests that management does not engage in reading ease manipulation by means of decreasing the cohesive ties in corporate narrative documents in order to render them more difficult to read.

(3) Proportion of given vs. new information

The status of information plays a role in determining textual complexity. The status of information is expressed in a dichotomous association of new vs. given information, the assumption being that the higher the proportion of new information compared to given information in a given text, the more difficult it is to read.

First, we aim to establish whether the proportion of given to new information varies systematically across the firms in the sample with regard to their size. Table 6.19 indicates that the score for the proportion of given vs. new information increases with

firm size, which is significant at the ten percent level ($p = 0.098$). This is consistent with hypothesis H_{1c} which states that the corporate narrative sections of large companies are more cohesive and thus easier to read than those of small companies.

Table 6.19: Regression of given/new info on firm size

Predictor	Coef	S.E.	t-stat	p-value
Constant	0.384	0.079	4.85	<0.001
SIZE	0.030	0.018	1.67	0.098*

Second, we examine the likelihood of differences in the proportion of given to new information when the financial results convey either good or bad news. Table 6.20 indicates that although the association between the proportion of given vs. new information and ‘good news’ is positive for three out of the four measures of ‘good news’, it is not statistically significant. This means that the proportion of given vs. new information is not statistically different between the chairman’s reports of companies reporting ‘good news’ and those reporting ‘bad news’.

Table 6.20: ANOVA results for given/new info (main effects)
Bad news = 0 Good news = 1

		SS	MS	F	t-stat	p-value	Mean	SD
PE	0	0.020	0.020	0.14	0.38	0.708	0.4836	0.3716
	1						0.5132	0.3812
							0.0296	-0.4836
PEI	0	0.006	0.006	0.04	0.21	0.834	0.4903	0.3818
	1						0.5070	0.3741
							0.0167	-0.4903
RSI	0	0.001	0.001	0.01	-0.07	0.942	0.5038	0.3916
	1						0.4979	0.3682
							-0.0059	-0.5038
RG	0	0.078	0.078	0.55	0.74	0.459	0.4620	0.3748
	1						0.5222	0.3770
							0.0602	0.0022

Finally, we interact ‘good/bad news’ with firm size in order to assess whether any association which seems to exist between the proportion of given to new information and ‘good/bad news’ is consistent across firms of different sizes. The interaction between ‘good/bad news’ and firm size is documented in Table 6.21. As noted above,

the last two columns in the table report the ‘mean effect’ and the ‘size effect’. Once again, the mean effects are not significant. This means that the chairman’s reports of companies reporting ‘good news’ do not contain a significantly higher proportion of given vs. new information than those of companies reporting ‘bad news’.

However, with regard to the size effect, there is a significant estimate in the case of ‘good/bad news’ in the form of positive/negative earnings (PE), which is equal to 0.034 and weakly significant at the ten percent level ($t=1.72$, $p=0.090$). This indicates that the expected score for ‘given/new information’ is greater (0.0534 as opposed to 0.0143) when there is a profit ($PE = 1$) than when there is a loss ($PE = 0$). This means that large firms reporting losses produce less cohesive chairman’s reports than large firms reporting profits. However, this result is only weakly significant.

Table 6.21: GLM results for given/new information (interactions with firm size)
Bad news = 0 Good news = 1

Term	Coef	StDev	t-stat	p-value	PE = 0	PE = 1	
Constant	0.356	0.086	4.15	<0.001***	0.4418	0.2710	Mean effect
PE	0.085	0.020	-0.99	0.841			
SIZE	0.034	0.020	1.72	0.090*	0.0143	0.0534	Size effect
SIZE*PE	-0.020	0.005	0.99	0.403			
					PEI = 0	PEI = 1	
Constant	0.381	0.081	4.70	<0.001***	0.3574	0.4041	Mean effect
PEI	-0.023	0.019	0.29	0.273			
SIZE	-0.001	0.004	-0.14	0.892	0.0362	0.0262	Size effect
SIZE*PEI	0.005	0.004	-0.27	0.309			
					RSI = 0	RSI = 1	
Constant	0.393	0.082	4.80	<0.001***	0.4347	0.3511	Mean effect
RSI	0.042	0.019	-0.51	0.774			
SIZE	0.028	0.019	1.51	0.135	0.0182	0.0382	Size effect
SIZE*RSI	-0.010	0.004	0.54	0.615			
					RG = 0	RG = 1	
Constant	0.396	0.087	4.56	<0.001***	0.4086	0.3829	Mean effect
RG	0.013	0.020	-0.15	0.373			
SIZE	0.025	0.020	1.23	0.220	0.0143	0.0360	Size effect
SIZE*RG	-0.011	0.005	0.53	0.701			

In summary, for this measure of reading difficulty, the main effects models provide evidence that appears to be inconsistent with the findings for cohesion density, suggesting a significant association with company size but not with any of the four

aspects of the financial results that have been simplified as signals of good and bad news.⁸⁸

The three-step analysis shows that there is some evidence that the chairman's reports of large companies contain a higher proportion of given vs. new information and thus are easier to read than those of small companies. This is in line with the political cost hypothesis which states that large companies are more reluctant to obfuscate negative organisational outcomes by means of reading ease manipulation, since they do not want to draw too much attention to positive financial performance.

Summarising the results of the three cohesion-based measures of reading difficulty derived from textual annotation (*Coh-Matrix*), namely (1) cohesion density, (2) cohesive ties, and (3) proportion of given vs. new information, we observe the following: The direction of association between reading difficulty and 'good/bad news' is as hypothesized, however, we only obtain significant results in the case of cohesion density and relative long-term firm growth (RG) which are found to be directly related. This suggests that the chairman's reports of firms outperforming their competitors in terms of long-term growth are more cohesive and thus easier to read than those of firms growing more slowly than the sector. However, GLM results indicate that this association is not consistent across firms of different sizes. For this reason, hypothesis H_{1b}, namely that poorly performing firms are more likely to obfuscate organisational outcomes by means of rendering their corporate narrative documents difficult to read than well-performing companies (obfuscation hypothesis), is not supported by our findings.

Further, the direction of association between reading difficulty and firm size is as hypothesized, however, we only obtain significant results in the case of proportion of given versus new information. Nevertheless, this direct – albeit weak - association between reading difficulty in the form of proportion of given versus new information and firm size persists when firm size is interacted with 'good/bad news'. Thus, it may be concluded (albeit cautiously, due to the weak significance of the results of the main

⁸⁸ The results for cohesive ties and proportion of given vs. new information are very similar both in regards to the direction and strength of association observed in the main effects models and in the

effect and the interaction model) that the chairman's reports of large companies are more cohesive and thus easier to read than those of small companies. This is consistent with hypothesis H_{1c} which is based on the political cost hypothesis and states that large companies have fewer incentives to engage in impression management by means of obfuscating negative organisational outcomes in their corporate narrative documents since they want to avoid the political costs associated with drawing public attention to them.

The next section repeats the association tests between reading difficulty and 'good/bad news' and firm size, but this time based on the four cohesion-based measures of reading difficulty which have been automatically generated (*Coh-Matrix*).

6.2.3.3 Coh-Matrix cohesion measures

This section uses the four referential cohesion measures computed by *Coh-Matrix*, a web-based automatic generator of reading difficulty measures, namely (1) adjacent argument overlap, (2) argument overlap, (3) adjacent stem overlap, and (4) stem overlap. Whereas the first two are based on the cohesion between nouns, pronouns, and noun phrases, the latter two are based on cohesion between words sharing common stems, including nouns (*profit(s)*, *profitability*), adjectives (*profitable*), and verbs (*to profit*).

(1) Adjacent argument overlap

Adjacent argument overlap is based on the proportion of adjacent sentences that share one or more arguments (i.e. noun, pronoun, noun-phrase).

First of all, we examine whether reading difficulty, when measured by adjacent argument overlap, varies systematically across the firms in the sample with regard to their size, regardless of the good or bad news conveyed in the financial statements. As shown in Table 6.22, the estimated response coefficient is negative (-0.0040). However, there is no significant association between adjacent argument overlap and firm size. In other words, reading difficulty as measured by adjacent argument overlap

interaction model. This is due to the strong correlation between the two measures of reading difficulty

does not increase or decrease as the extent and volume of company operations become greater.

Table 6.22: Regression of adjacent argument overlap on firm size

Predictor	Coef	S.E.	t-stat	p-value
Constant	0.474	0.032	15.07	<0.001
SIZE	-0.004	0.007	-0.55	0.586

Secondly, we investigate the likelihood of differences in reading difficulty in terms of adjacent argument overlap when the financial results convey either a positive or a negative message. In this case, Table 6.23 indicates that the adjacent argument overlap measure increases with ‘good news’ in the form of relative positive sales growth (RSI = 1) and relative positive long-term firm growth (RG = 1). This is significant at the ten percent ($p = 0.052$) and at the five percent ($p = 0.037$) level. This means that the chairman’s reports of firms reporting ‘good news’ in the form of a relative positive sales growth and a relative positive long-term firm growth tend to be more cohesive and thus less difficult to read than those of firms with ‘bad news’ in the form of relative negative sales growth and relative negative long-term firm growth. This is consistent with hypothesis H_{1b} which states that the corporate narrative sections of companies reporting ‘good news’ are more cohesive and thus easier to read than those of companies reporting ‘bad news’.

(see section 6.2.2, Table 6.6).

Table 6.23: ANOVA results for adjacent argument overlap (main effects)
Bad news= 0 Good news = 1

		SS	MS	F	t-stat	p-value	Mean	SD
PE	0	0.029	0.029	1.43	1.20	0.235	0.4389	0.1349
	1						0.4757	0.1499
PEI	0	0.000	0.000	0.00	0.01	0.991	0.0368	0.4389
	1						0.4592	0.1295
RSI	0	0.078	0.078	3.89	1.97	0.052*	0.4595	0.1547
	1						0.0003	0.4592
RG	0	0.089	0.089	4.48	2.12	0.037**	0.4228	0.1384
	1						0.4836	0.1435
							0.0608	0.4228
							0.4183	0.1350
							0.4840	0.1445
							0.0657	0.4183

Finally, we assess the consistency of any association that may appear between the reading difficulty of chairman's reports and 'good/bad news' in the financial statements across firms of different sizes. Table 6.24 shows that the direct association between adjacent argument overlap and 'good news' in the form of relative positive sales growth (RSI = 1) and relative positive long-term firm growth (RG = 1) does not persist when firm size is interacted with 'good/bad news'. Although the positive coefficient on the 0, 1 RSI factor (0.004) suggests that a firm with above-sector sales growth is likely to produce a more cohesive chairman's report than a below-sector sales growth firm, the p-value of 0.906 indicates that the good/bad news coefficient is not statistically significant in this case. By contrast, the negative coefficient on the 0, 1 RG factor (-0.011) suggests that a firm with above-sector sales growth is likely to produce a less cohesive chairman's report than a below-sector sales growth firm, the p-value of 0.740 indicates that the good news/bad news coefficient is not statistically significant in this case.

**Table 6.24: GLM results for adjacent argument overlap (interactions with size)
Bad news = 0 Good news = 1**

Term	Coef	StDev	t-stat	p-value	PE = 0	PE = 1	
Constant	0.478	0.034	14.16	<0.001***	0.4830	0.4725	Mean effect
PE	0.005	0.034	0.16	0.877			
SIZE	-0.007	0.008	-0.92	0.358			Size effect
SIZE*PE	-0.008	0.008	-1.02	0.313	-0.0150	0.0007	Size effect
					PEI = 0	PEI = 1	
Constant	0.471	0.032	14.73	<0.001***	0.4431	0.4980	Mean effect
PEI	-0.027	0.032	-0.86	0.393			
SIZE	-0.003	0.007	-0.38	0.706			Size effect
SIZE*PEI	0.007	0.007	0.97	0.336	0.0044	-0.0099	Size effect
					RSI = 0	RSI = 1	
Constant	0.474	0.032	15.04	<0.001***	0.4774	0.4699	Mean effect
RSI	0.004	0.032	0.12	0.906			
SIZE	-0.005	0.007	-0.74	0.464			Size effect
SIZE*RSI	-0.009	0.007	-1.24	0.219	-0.0142	0.0036	Size effect
					RG = 0	RG = 1	
Constant	0.476	0.034	14.18	<0.001***	0.4645	0.4868	Mean effect
RG	-0.011	0.034	-0.33	0.740			
SIZE	-0.007	0.008	-0.83	0.412			Size effect
SIZE*RG	-0.006	0.008	-0.73	0.466	-0.0122	-0.0007	Size effect

In summary, when only the main effects are considered, the adjacent argument overlap score is shown to average 0.4836 for companies reporting 'good news' in the form of relative positive sales growth (RSI = 1) and 0.4840 for firms reporting 'good news' in the form of relative positive long-term firm growth, and significantly less at 0.4228 and 0.4183 for firms reporting 'bad news' in the form of relative negative sales growth (RSI = 0) and relative negative long-term firm growth (RG = 0). However, when size effects are taken into consideration, the adjusted means of the adjacent argument overlap scores narrow significantly to 0.4699 and 0.4774 for relative sales growth and 0.4868 and 0.4645 for relative long-term growth, a difference which is no longer statistically significant. Thus, results suggest that there is no significant difference in the amount of adjacent argument overlap in the chairman's reports of companies reporting 'good news' and those reporting 'bad news'. Thus, hypothesis H_{1b} (obfuscation hypothesis), which states that firms reporting 'bad news' are more likely to engage in reading ease manipulation by means of rendering their corporate narrative documents less cohesive than firms reporting 'good news', is not supported. What is more, results suggest that firm size also has no significant effect on the amount of adjacent argument overlap of chairman's reports.

Thus, hypothesis H_{1c} which states that there the chairman's reports of large firms are more cohesive and thus contain more adjacent argument overlap, is also not supported.

(2) Argument overlap

Argument overlap is based on the proportion of all sentence pairs in a paragraph that share one or more arguments (i.e. noun, pronoun, noun phrase).

Again, the first step of the analysis is to examine whether reading difficulty, when measured by argument overlap, varies systematically across the firms in the sample with regard to their size, regardless of the good or bad news conveyed in the financial statements. As shown in Table 6.25, the estimated response coefficient is negative (-0.015) and there is a strongly significant association between argument overlap and firm size ($t = -3.12$ and $p = 0.002$). This means that reading difficulty in the form of argument overlap is inversely related to firm size. In other words, the chairman's reports of larger companies are more likely to be less cohesive and thus more difficult to read than those of smaller companies. This is contrary to Hypothesis H_{1c} which states that large firms are less likely to engage in impression management (in the form of reading ease manipulation) since they do not want to attract public and governmental attention by means of showing firm performance and prospects in a positive light.

Table 6.25: Regression of argument overlap on firm size				
Predictor	Coef	S.E.	t-stat	p-value
Constant	0.341	0.021	16.57	<0.001
SIZE	-0.015	0.005	-3.12	0.002***

The second step of the analysis is to investigate whether the reading difficulty in the form of argument overlap of chairman's reports varies, depending on whether firms report good or bad news in their financial statements. Table 6.26 indicates that argument overlap is directly associated with 'good news' in the form of relative positive sales growth (RSI = 1) and relative positive long-term firm growth (RG = 1) which is significant at the five percent ($t = 0.56$ and $p = 0.020$) and at the ten percent

level ($t = 1.88$ and $p = 0.064$). This means that the chairman's reports of firms reporting 'good news' in the form of relative positive sales growth and relative positive long-term firm growth are more likely to be more cohesive and thus easier to read than those of firms reporting 'bad news' in the form of relative negative sales growth and relative negative long-term firm growth. This is consistent with hypothesis H_{1b} which states that the corporate narrative sections of companies reporting 'good news' are more cohesive and thus easier to read than those of companies reporting 'bad news'.

Table 6.26: ANOVA results for argument overlap (main effects)
Bad news = 0 Good news = 1

		SS	MS	F	t-stat	p-value	Mean	SD
PE	0	0.000	0.000	0.00	0.02	0.981	0.2848	0.0929
	1						0.2853	0.1046
PEI	0	0.003	0.003	0.31	0.56	0.578	0.0005	0.0214
	1						0.2781	0.0835
RSI	0	0.052	0.052	5.59	2.36	0.020**	0.2901	0.1095
	1						0.0120	0.0215
RG	0	0.034	0.034	3.53	1.88	0.064*	0.2551	0.0982
	1						0.3049	0.0954
							0.0497	0.0210
							0.2599	0.0867
							0.3002	0.1036
							0.0404	0.0215

The third step of the analysis assesses the consistency of association that may appear between reading difficulty and 'good/bad news' across firms of different sizes. Table 6.27 shows that the association between 'good/bad news' and argument overlap is no longer significant when 'good/bad news' is interacted with firm size. In fact, the negative coefficient on the 0, 1 RG factor (-0.042) suggests that a slow growth firm is likely to produce a more cohesive chairman's report than a fast-growth firm, which is the opposite direction of the main effect model. However, the size effect shows that in all four measures of 'good/bad news' argument overlap decreases as firm capitalisation increases. The t-statistics of -3.33 (p-value = 0.001), -2.95 (p-value = 0.004), -3.07 (p-value = 0.003), and -2.41 (p-value = 0.018) indicate that the difference in size effects when the news is good or bad is statistically significant at the one percent (PE, PEI, RSI) and at the five percent level (RG). This means that the expected value of the argument overlap score decreases with firm size when firms

make profits, increase their profits, when their sales grow faster than those of the sector and when firms' long-term growth is greater than that of the industry.

Table 6.27: GLM results for argument overlap (interactions with firm size)
Bad news = 0 Good news = 1

Term	Coef	StDev	t-stat	p-value	PE = 0	PE = 1	
Constant	0.349	0.022	15.64	<0.001***	0.3332	0.3641	Mean effect
PE	-0.015	0.022	-0.69	0.491			
SIZE	-0.017	0.005	-3.33	0.001***			Size effect
SIZE*PE	0.001	0.005	0.11	0.915	-0.0165	-0.0176	
					PEI = 0	PEI = 1	
Constant	0.338	0.021	16.21	<0.001***	0.3169	0.3598	Mean effect
PEI	-0.022	0.021	-1.03	0.307			
SIZE	-0.014	0.005	-2.95	0.004***			Size effect
SIZE*PEI	0.004	0.005	0.78	0.435	-0.0105	-0.0180	
					RSI = 0	RSI = 1	
Constant	0.335	0.021	16.3	<0.001***	0.3072	0.3623	Mean effect
RSI	-0.028	0.021	-1.34	0.183			
SIZE	-0.014	0.005	-3.07	0.003***			Size effect
SIZE*RSI	0.001	0.005	0.18	0.857	-0.0135	-0.0152	
					RG = 0	RG = 1	
Constant	0.327	0.022	14.93	<0.001***	0.2846	0.3693	Mean effect
RG	-0.042	0.022	-1.93	0.056*			
SIZE	-0.012	0.005	-2.41	0.018**			Size effect
SIZE*RG	0.006	0.005	1.13	0.260	-0.0065	-0.0181	

In summary, the results can be interpreted in the following way. Although the main effects model seems to suggest that the chairman's reports of companies reporting 'good news' about fundamentals, i.e. relative positive sales growth and relative positive long-term firm growth, have more argument overlap and are thus easier to read than those of firms reporting 'bad news' about fundamentals, i.e. relative negative sales growth and relative negative long-term firm growth, this association is not consistent when 'good/bad news' is interacted with firm size. In fact, we observe that the chairman's reports of large firms have less argument overlap and are thus less cohesive than those of small firms. This is in contrast to hypothesis H_{1c} which states that large firms are less likely to engage in impression management (in the form of reading ease manipulation) since they do not want to attract public and governmental attention by means of showing firm performance and prospects in a positive light.

(3) Adjacent stem overlap

Adjacent stem overlap is based on the proportion of adjacent sentences that share one or more word stems.

First, we evaluate whether reading difficulty in the form of adjacent stem overlap varies systematically across the sample firms in respect to firm size. Table 6.28 indicates that the estimated response coefficient is negative (-0.0058). However, there is no significant association between adjacent stem overlap and firm size. This means that reading difficulty measured in terms of adjacent stem overlap does not increase or decrease with firm market capitalisation.

Table 6.28: Regression of adjacent stem overlap on firm size

Predictor	Coef	S.E.	t-stat	p-value
Constant	0.516	0.030	17.40	<0.001
SIZE	-0.006	0.007	-0.85	0.398

Secondly, the likelihood of differences in reading difficulty measured in terms of adjacent stem overlap is investigated, depending on whether firms reporting good or bad news. Table 6.29 indicates that adjacent stem overlap is directly associated with 'good news' in the form of profits, relative sales increases, and relative positive long-term firm growth which is significant at the ten percent level ($t = 1.69$ and $p = 0.095$), at the five percent level ($t = 2.56$ and $p = 0.012$), and at the five percent level ($t = 2.50$ and $p = 0.014$). This means that the chairman's reports of firms reporting profits, relative sales increases and relative positive long-term firm growth are more cohesive and thus easier to read than those reporting losses, relative negative sales growth and relative negative long-term firm growth. This is consistent with hypothesis H_{1b} which states that the corporate narrative sections of companies reporting 'good news' are more cohesive and thus easier to read than those of companies reporting 'bad news'.

Table 6.29: ANOVA results for adjacent stem overlap (main effects)
Bad news = 0 Good news = 1

		SS	MS	F	t-stat	p-value	Mean	SD
PE	0	0.051	0.051	2.85	1.69	0.095*	0.4666	0.1349
	1						0.5153	0.1339
							0.0487	0.0288
PEI	0	0.002	0.002	0.08	0.29	0.774	0.4888	0.1344
	1						0.4973	0.138
							0.0085	0.0295
RSI	0	0.114	0.114	6.55	2.56	0.012**	0.4495	0.1462
	1						0.5229	0.1211
							0.0734	0.0287
RG	0	0.109	0.109	6.26	2.50	0.014**	0.4484	0.1374
	1						0.5210	0.1284
							0.0726	0.0290

Finally, the consistency of any association that may appear between reading difficulty and ‘good/bad news’ is assessed across firms of different sizes. Table 6.30 shows that the direct associations that were observed between adjacent stem overlap and ‘good news’ in the form of profits (PE = 1), relative positive sales growth (RSI = 1) and relative positive long-term firm growth (RG = 1) is no longer statistically significant when firm size is interacted with ‘good/bad news’ (the respective p-values are 0.627, 0.854, and 0.764). This means that the average adjacent stem overlap score (after controlling for firm size) is not significantly different for firms reporting good and bad news. What is more, there is also no significant difference in the amount of adjacent stem overlap between large and small firms.

Table 6.30: GLM results for adjacent stem overlap (interactions with firm size)
Bad news = 0 Good news = 1

Term	Coef	StDev	t-stat	p-value	PE = 0	PE = 1	
Constant	0.527	0.032	16.76	<0.001***			
PE	-0.015	0.032	-0.49	0.627	0.5120	0.5427	Mean effect
SIZE	-0.011	0.007	-1.49	0.139			
SIZE*PE	-0.005	0.007	-0.65	0.520	-0.0154	-0.0061	Size effect
					PEI = 0	PEI = 1	
Constant	0.514	0.030	17.01	<0.001***			
PEI	-0.016	0.030	-0.54	0.589	0.4972	0.5300	Mean effect
SIZE	-0.005	0.007	-0.77	0.445			
SIZE*PEI	0.003	0.007	0.44	0.659	-0.0023	-0.0084	Size effect
					RSI = 0	RSI = 1	
Constant	0.513	0.029	17.55	<0.001***			
RSI	-0.005	0.029	-0.18	0.854	0.5075	0.5183	Mean effect
SIZE	-0.007	0.007	-1.04	0.303			
SIZE*RSI	-0.008	0.007	-1.22	0.226	-0.0151	0.0012	Size effect
					RG = 0	RG = 1	
Constant	0.518	0.031	16.61	<0.001***			
RG	-0.009	0.031	-0.30	0.764	0.5089	0.5277	Mean effect
SIZE	-0.009	0.007	-1.22	0.226			
SIZE*RG	-0.007	0.007	-0.98	0.331	-0.0160	-0.0018	Size effect

In summary, when only the main effects are considered, the adjacent stem overlap score is shown to average 0.5229 for companies reporting ‘good news’ in the form of relative positive sales growth (RSI = 1) and 0.5210 for firms reporting ‘good news’ in the form of relative positive long-term firm growth, and significantly less at 0.4495 and 0.4484 for firms reporting ‘bad news’ in the form of relative negative sales growth (RSI = 0) and relative negative long-term firm growth (RG = 0). However, when size effects are taken into consideration, the adjusted means of the adjacent stem overlap scores narrow significantly to 0.5075 and 0.5183 for relative sales growth and 0.5089 and 0.5277 for relative long-term firm growth, a difference which is no longer statistically significant. Thus, it may be concluded that there is no significant difference in the amount of adjacent stem overlap in the chairman’s reports of companies reporting ‘good news’ and those reporting ‘bad news’. This means that hypothesis H_{1b} (obfuscation hypothesis) which states that firms reporting ‘bad news’ are more likely to engage in reading ease manipulation by means of rendering their corporate narrative sections less cohesive than firms reporting ‘good news’, has to be rejected. What is more, results suggest that the chairman’s reports of large companies do not contain significantly more adjacent stem overlap than those of small

companies. For this reason, hypothesis H_{1c} , which states that the chairman's reports of large firms are more cohesive and thus contain more adjacent stem overlap, is also not supported.

(4) Stem overlap

Stem overlap is based on the proportion of all sentence pairs in a paragraph that share one or more word stems.

Again, our first step is to establish whether reading difficulty, when measured in terms of stem overlap, varies systematically across firms in the sample with regard to their size. Table 6.31 indicates that the estimated response coefficient is negative (-0.016). This means that stem overlap is inversely associated with firm size. This is significant at a one percent level ($t = -3.06$ and $p = 0.003$). Thus, the chairman's reports of large companies are less likely to contain stem overlap and are thus more difficult to read than those of small companies. As we observed in the case of argument overlap, the direction of association is contrary to Hypothesis H_{1c} which states that large firms are less likely to engage in impression management (in the form of reading ease manipulation) since they do not want to attract public and governmental attention by means of showing firm performance and prospects in a positive light.

Table 6.31: Regression of stem overlap on firm size

Predictor	Coef	S.E.	t-stat	p-value
Constant	0.369	0.023	16.14	<0.001
SIZE	-0.016	0.005	-3.06	0.003***

Our second step is to investigate the likelihood of differences in reading difficulty in the form of stem overlap when the financial results contain either good or bad news. Table 6.32 indicates that stem overlap is directly related to 'good news' in the form of relative positive sales growth ($RSI = 1$) and relative positive long-term firm growth ($RG = 0.088$). This is significant at the five percent ($t = 2.37$ and $p = 0.020$) and at the ten percent level ($t = 1.73$ and $p = 0.088$). This suggests that the chairman's reports of firms reporting 'good news' about fundamentals contain more stem overlap and are thus easier to read than those of firms reporting 'bad news' about fundamentals. This

is consistent with hypothesis H_{1b} which states that the corporate narrative sections of companies reporting ‘good news’ are more cohesive and thus easier to read than those of companies reporting ‘bad news’.

Table 6.32: ANOVA results for stem overlap (main effects)
Bad news = 0 Good news = 1

		SS	MS	F	t-stat	p-value	Mean	SD
PE	0	0.000	0.000	0.01	0.21	0.914	0.3095	0.1002
	1						0.3070	0.1180
PEI	0	0.001	0.001	0.04	0.21	0.836	-0.0025	0.0239
	1						0.3052	0.0938
RSI	0	0.065	0.065	5.63	2.37	0.020**	0.2748	0.1041
	1						0.3301	0.109
RG	0	0.035	0.035	2.99	1.73	0.088*	0.0553	0.0233
	1						0.2823	0.0902
							0.3236	0.1182
							0.0413	0.0239

Our third step is to examine the consistency of any association that might appear between reading difficulty and ‘good/bad news’ across firms of different sizes. Table 6.33 shows that the association between ‘good/bad news’ and argument overlap is no longer significant when ‘good/bad news’ is interacted with firm size. In fact, the negative coefficients on the 0, 1 RSI (-0.028) and RG (-0.044) factors suggest that a firm whose sales are growing more slowly than the sector and whose overall long-term growth is slower than the sector is likely to produce a more cohesive chairman’s report than a firm whose sales are growing faster than the sector and whose overall long-term growth is faster than the sector, which is the opposite direction of the main effect model. However, the size effect shows that in all four measures of ‘good/bad news’ argument overlap decreases as firm capitalisation increases. The t-statistics of -3.22 (p-value = 0.002), -2.94 (p-value = 0.004), -3.03 (p-value = 0.003), and -2.38 (p-value = 0.019) indicate that the difference in size effects when the news is good or bad is statistically significant at the one percent (PE, PEI, RSI) and at the five percent level (RG). This means that the expected value of the argument overlap score decreases with firm size when firms make profits, increase their profits, when their sales grow faster than those of the sector and when firms’ long-term growth is greater than that of the industry.

Table 6.33: GLM results for stem overlap (interactions with size)
Bad news = 0 Good news = 1

Term	Coef	StDev	t-stat	p-value	PE = 0	PE = 1	
Constant	0.377	0.025	15.19	<0.001***			
PE	-0.017	0.025	-0.69	0.492	0.3601	0.3944	Mean effect
SIZE	-0.018	0.006	-3.22	0.002***			
SIZE*PE	0.001	0.006	0.2	0.841	-0.0172	-0.0195	Size effect
					PEI = 0	PEI = 1	
Constant	0.368	0.023	15.77	<0.001***	0.3562	0.3792	Mean
PEI	-0.012	0.023	-0.49	0.624			Effect
SIZE	-0.016	0.005	-2.94	0.004***	-0.0138	-0.0178	Size
SIZE*PEI	0.002	0.005	0.38	0.706			Effect
					RSI = 0	RSI = 1	
Constant	0.363	0.023	15.89	<0.001***	0.3349	0.3905	Mean effect
RSI	-0.028	0.023	-1.22	0.226			
SIZE	-0.016	0.005	-3.03	0.003***	-0.0156	-0.0160	Size effect
SIZE*RSI	0.000	0.005	0.04	0.971			
					RG = 0	RG = 1	
Constant	0.355	0.025	14.51	<0.001***	0.3112	0.3982	Mean effect
RG	-0.044	0.025	-1.78	0.079			
SIZE	-0.014	0.006	-2.38	0.019**	-0.0076	-0.0196	Size effect
SIZE*RG	0.006	0.006	1.05	0.299			

In summary, the results can be interpreted in the following way. Although the main effects model seems to suggest that the chairman's reports of companies reporting 'bad news' about fundamentals, i.e. relative negative sales growth and relative negative long-term firm growth, have more argument overlap and are thus easier to read than those of firms reporting 'good news' about fundamentals, i.e. relative positive sales growth and relative positive long-term firm growth, this association is not consistent when 'good/bad news' is interacted with firm size. In fact, we observe that the chairman's reports of large firms have less argument overlap and are thus less cohesive than those of small firms. This is in contrast to hypothesis H_{1c} which states that large firms are less likely to engage in impression management (in the form of reading ease manipulation) since they do not want to attract public and governmental attention by means of showing firm performance and prospects in a positive light.

Overall, the results of our three-step analysis involving the association between all four cohesion-based *Coh-Matrix* reading difficulty measures namely (1) adjacent

argument overlap, (2) argument overlap, (3) stem overlap, and (4) adjacent stem overlap, and ‘good/bad news’ and firm size, show a discernable pattern.

First of all, all four measures of cohesion-based reading difficulty are inversely related to firm size; however, this association is only statistically significant in the case of argument overlap and stem overlap. This inverse association is contrary to expectations. Hypothesis H_{1c} predicts cohesion-based measures of reading difficulty to be directly related to firm size, since large firms are under more public scrutiny and thus face higher political costs if they engage in impression management.

Secondly, all four cohesion-based measures of reading difficulty are inversely related to good news about fundamentals, i.e. relative sales increase and relative positive long-term sales growth. This suggests that the chairman’s reports of companies reporting ‘good news’ about fundamentals are more cohesive and thus easier to read than those of companies reporting ‘bad news’ about fundamentals. This result is in line with hypothesis H_{1b} (obfuscation hypothesis) which states that managers of companies with negative organisational outcomes engage in impression management in the form of reading manipulation. Thus, based on the results of the main effect model alone, the chairman’s reports of companies reporting ‘bad news’ in the form of negative relative sales growth and negative relative long-term firm growth are rendered difficult to read by means of reducing cohesion. This means the chairman’s reports of badly performing companies contain fewer grammatical and lexical ties within and between sentences and thus less of a ‘red thread’ to guide the reader through the text than those of better-performing companies.

However, this direct association between reading difficulty and ‘bad news’ is not consistent when ‘good/bad news’ is interacted with firm size. However, what we do find is that in those cases where the association between reading difficulty and firm size is significant (i.e. in the case of argument overlap and stem overlap), firm size emerges as the determining factor in the GLM model. This means that firm size and not ‘good/bad news’ is the determining factor in differences in the reading difficulty of chairman’s reports. We find that the chairman’s reports of large companies are less cohesive and thus more difficult to read than those of small companies. This inverse association is contrary to hypothesis H_{1c} which, based on the political cost hypothesis,

predicts cohesion-based measures of reading difficulty to be directly related to firm size, since large firms are under more public scrutiny and thus face higher political costs if they engage in impression management.

However, the observed direction of association between reading difficulty and firm size is consistent with ‘the public eye argument’ (Courtis 1998) and ‘the complexity of operations’ argument (Jones 1988; Rutherford 2003). ‘The public eye argument’ states that the corporate narrative documents of large firms are more difficult to read than those of small firms since they try to deflect the public’s attention away from them by means of obfuscation. ‘The complexity of operations’ argument states that large companies have more complex operations to report on than small companies which renders their corporate narrative documents more difficult to read than those of small companies. Whereas ‘the public eye argument’ interprets textual complexity as an indication of impression management, the ‘complexity of operations’ argument regards textual complexity as a reflection of the complexity of content of the corporate narrative documents of large organisations.

The explanation of managerial behaviour inherent in ‘the public eye argument’ runs contrary to agency theory explanations of managerial behaviour, on which the majority of impression management studies are based. The political cost hypothesis claims that firms in the public eye, such as large firms, do not want to attract attention by high profitability since this can result in new taxes or regulations. Consequently, large firms have no incentives to engage in impression management by obfuscating negative organisational outcomes, since they do not want to portray their financial performance in the best possible light. However, our findings do not support agency theory explanations of impression management, but suggest that large firms are more likely to engage in impression management in the form of reading ease manipulation than small firms. For this reason, it seems more likely that the inverse association between cohesion and firm size can be attributed to the fact that large firms have more complex operations to report and thus produce more complex corporate narratives. For this reason, we interpret the inverse association between cohesion and firm size not a sign of impression management, but as a function of the complexity of the content of chairman’s reports

6.2.3.4 Industry specific results

The results of association tests between reading difficulty and ‘good/bad news’ and firm size for consumer cyclical, industrial, and technical companies, show that each industry sector behaves very similarly to the whole sample, with consumer cyclical and industrial companies most closely mirroring whole sample results (see Tables A1-A4 in Appendix II).

This is consistent with hypothesis H_{1d} which states that there is no difference in the strength and direction of association between the reading difficulty of corporate report documents and accounting ‘good/bad news’ and firm size in the consumer cyclical, industrial and technical sectors.

6.2.3.5 Summary

Section 6.1 shows conventional readability measures (*Flesch Reading Ease*), annotation-based measures of reading difficulty (*MMAX2*) and cohesion-based measures reading difficulty (*Coh-Matrix*) as uncorrelated and thus capturing different aspects of reading difficulty. Thus, it is not surprising that they yield different results.

These differences between conventional, annotation-based, and automatically generated measures of reading difficulty are also reflected in different results when their association is tested with regard to ‘good/bad news’ and firm size. Whereas the *Flesch Reading Ease* score and the *MMAX2* cohesion-based measures of reading difficulty are related directly to firm size (strongly significant in the case of *Flesch Reading Ease* and only weakly significant in the case of proportion of given and new information), the *Coh-Matrix* measures are inversely related to firm size (strongly significant in the case of argument overlap and stem overlap).

However, the direction of association between reading difficulty and ‘good/bad news’ is consistent across the *Flesch Reading Ease* score, *MMAX2* and *Coh-Matrix* measures of reading difficulty. We observe that firms reporting negative earnings growth have significantly (five percent level) lower *Flesch Reading Ease* scores than firms reporting positive earnings growth. This confirms the findings of previous reading ease manipulation studies which find a direct association between reading difficulty in the form of *Flesch Reading Ease* and a decrease in earnings

(Subramanian et al. 1993; Curtis 2004a). This result supports the obfuscation hypothesis which states that the narrative sections of firms reporting negative organisational outcomes are more difficult to read than those reporting positive organisational outcomes.

However, this association does not persist when ‘good/bad news’ is interacted with firm size. This means that results are driven by firm size which is inversely associated with reading difficulty in the form of *Flesch Reading Ease*. This means that the chairman’s reports of small companies contain longer words and sentences and are thus more difficult to read than those of large companies. Since previous reading ease manipulation studies do not test for interaction effects, this result means that the findings of previous studies might not be indicative of an association between reading difficulty and negative firm performance, but rather between reading difficulty and firm size.

However, in the case of cohesion-based measures of reading difficulty, we observe that firms reporting ‘bad news’ in the form of fundamentals (i.e. relative negative sales growth and relative negative long-term firms growth) have less cohesive and thus more difficult chairman’s reports than those reporting ‘good news’ in fundamentals (i.e. relative positive sales growth and relative positive long-term firm growth). This association is observed across all four *Coh-Matrix* measures of reading difficulty. However, this association is only significant in the case of cohesion density, i.e. one out of three *MMAX2* measures of reading difficulty, and then only in relation to relative long-term firm growth (RG). We thus conclude that the *Coh-Matrix* measures constitute more powerful cohesion-based measures of reading difficulty.

Results indicate that reading difficulty measured in terms of textual complexity by means of the four *Coh-Matrix* based measures is directly associated with ‘bad news’ in the form of losses, sales growth below industry sector, and long-term firm growth below industry sector. However, this association does not persist when ‘good/bad news’ is interacted with firm size. This means that results are driven by firm size which is directly associated with textual complexity in the form of cohesion. As a

result, the chairman's reports of large companies are less cohesive and thus more difficult to read than those of small companies.

These findings do not support hypothesis H_{1b} (obfuscation hypothesis) which claims that firms reporting 'bad news' obfuscate negative organisational outcomes by means of rendering their corporate narrative documents difficult to read. However, results suggest an association between reading difficulty and firm size, albeit in opposite directions on the case of conventional and cohesion-based measures of reading difficulty. We observe a direct association between the *Flesch Reading Ease* score and firm size and an inverse association between the four *Coh-Matrix* scores and firm size. Results regarding *Flesch Reading Ease* confirm hypothesis H_{1c} which states that large firms are less likely to engage in reading ease manipulation than small firms, whereas results regarding *Coh-Matrix* measures are in contradiction to hypothesis H_{1c}. We argued that due to associated political costs large firms have fewer incentives to obfuscate negative organisational outcomes by means of rendering their corporate narrative documents difficult to read than small firms. For this reason, we interpreted this direct association between reading difficulty and firm size in the case of *Coh-Matrix* measures not as a sign of impression management in line with the 'public eye' argument, but in line with 'the complexity of operations' argument as an indicator of the complexity of content inherent in the content of the chairman's reports of large companies.

However, in the light of research in psychology on text processing (see chapter three, section 3.3.1) the contradictory results regarding the association of conventional measures of reading difficulty (*Flesch Reading Ease* score) and cohesion-based measures of reading difficulty (*Coh-Matrix*) and firm size can be interpreted as an indication that firms do not obfuscate negative organisational outcomes by means of rendering their corporate narrative documents difficult to read, but actually do the opposite, namely they tailor their corporate narrative documents to the specific reading strategies of their target readership groups.

McNamara (2001), who examines the interrelationship between cohesion and world knowledge on text processing, finds that low-knowledge readers benefit from high cohesion, whereas high-knowledge readers benefit from low-cohesion. The reason for

this phenomenon is that cohesion gaps require the reader to make inferences either from world knowledge or from previous textual information. In the context of the present study, this means that expert users of narrative corporate report sections, such as fund managers and investment analysts, should find highly cohesive texts difficult to read, whereas the opposite should be true for 'naïve' users, such as individual shareholders.

Our results show that large firms produce chairman's reports which contain shorter words and sentences (and thus easier to read for specific groups of readers), but which are less cohesive (and thus more difficult to read for specific groups of readers) than those of small firms. This might be an indication that large and small firms target their texts at different readerships. Results suggest that large firms cater more to professional investors by leaving more cohesion gaps in their corporate narrative documents, whereas small firms cater more to naïve investors by rendering their corporate narrative documents more cohesive. What is more, the information contained in the chairman's reports of large companies is more likely to be public knowledge by the time the annual report is published than that of small companies. This provides an alternative explanation of the finding that large firms are more likely to provide low-cohesion texts which suit the reading strategies of high-knowledge readers than small firms.

Further, results also indicate that there are no major differences in results regarding the association between reading difficulty and 'good/bad news' and firm size when the companies of the three industrial sectors are looked at separately. This is in line with hypothesis H_{1d} which states that there is no difference in strength and direction of association between the reading difficulty of corporate narrative documents and 'good/bad news' and firm size of firms in the consumer cyclical, industrial, and technological sectors.

6.3 Self-presentational dissimulation

6.3.1 Descriptive statistics of linguistic markers

Impression management in the form of self-presentational dissimulation is measured by means of five linguistic markers, which consist of (1) low word count (WC), (2) low use of self-reference (Self), (3) low use of reference to others (Other), (4) high use of emotion words (Affect), especially negative emotion words (Negemo), and (5) low use of cognitive complexity (CogComp).

Table 6.34 outlines the distribution of values for the five linguistic markers of dissimulation across the sample, namely (1) word count (WC), (2) self-reference (Self), (3) reference to others (Other), (4) use of emotion words (Affect), and (5) cognitive complexity (CogComp). Use of emotion words is further subdivided into two subcategories, namely positive emotion words (PosEmotion) and negative emotion words (Negemotion).

Table 6.34: Descriptive statistics of linguistic markers of dissimulation

Variable	N	Mean	Median	TrMean	StDev	SE Mean	Minimum	Maximum	Q1	Q3
LogWC	93	6.713	6.692	6.715	0.629	0.065	5.081	8.243	6.273	7.153
Self (1)	93	3.692	3.800	3.683	1.460	0.151	0.600	7.770	2.785	4.775
Other (2)	93	0.240	0.190	0.215	0.256	0.027	0.000	1.460	0.000	0.355
Affect (3)	93	4.137	4.010	4.084	1.135	0.118	2.190	8.640	3.380	4.810
PosEmotion (31)	93	3.314	3.340	3.280	1.117	0.116	1.060	7.720	2.480	3.985
NegEmotion(32)	93	0.857	0.730	0.810	0.572	0.059	0.000	3.180	0.460	1.125
CogCompl (4)	93	5.051	5.070	5.068	0.974	0.101	2.480	7.200	4.375	5.560

Key: LogWC = log of total number of words; all others % of total word count in text

Table 6.34 shows marked differences in mean values (1) between references to self (3.692%) and references to others (0.240%) and (2) between positive emotion words (3.314%) and negative emotion words (0.857%). This means that, on average, chairman's reports tend to contain fifteen times as many references to self than references to others and four times as many positive emotion words (e.g. *exciting, win*) than negative emotion words (e.g. *difficult, disappointing, loss*).

Differences in mean values between references to self and references to others are in line with previous research on performance explanations in narrative corporate report sections. Short and Palmer (2003) find that 85.4 percent of references in shareholder letters involve internal referents (comparison with past performance), whereas only 14.6 percent involve external referents (comparison with industry performance). What is more, 52.9 percent of all shareholders letters exclusively use internal referents. This is an indication that managers have the tendency not to compare company performance with that of competitors.

The fact that chairmen's reports contain more positive emotion words than negative emotion words can be interpreted as a result of the managerial tendency of 'gilding the lily' (Guardian, April 17, 2004, p. 27) in narrative sections. The phenomenon that "*positive, affirmative words are used more often than negative words*" (Hildebrandt and Snyder 1981: 6) has also been referred to as the 'Pollyanna effect'. This is in line with Rutherford (2005: 371) who observes the majority of what he refers to as 'charged words' carrying a positive charge. What is more, behavioural finance theories suggest that managers may have the tendency to introduce both cognitive and affective bias into narrative corporate report sections in order to influence external parties' perceptions of firm performance (see chapter two section 2.6.3).

Table 6.35 compares the use of emotion words in chairman's reports compared to four non-corporate genres, namely (1) emotion writing, (2) control writing, (3) books, and (4) talking.⁸⁹ It is interesting to note that chairman's reports show a high overall use of emotion words, particularly positive emotion words, compared to other genres.

⁸⁹ A comparison of the other three markers of dissimulation across genres is not possible since they were defined through custom dictionaries.

considering that the chairman's report belongs to a genre of technical or professional writing which are characterised by information rather than persuasion. This means that chairman's reports are highly emotive documents.

Table 6.35: Comparison of mean frequency of emotion words across genres

Dimensions	Examples	Emotion writing	Control writing	Books	Talking	Chairman's reports
Affective or emotional processes	<i>Exciting, win, difficult</i>	5.3	2.3	3.9	4.0	4.0
Positive emotions	<i>Exciting, win</i>	2.7	1.7	2.2	2.7	3.2
Negative emotions	<i>Difficult, loss, disappointing</i>	2.6	0.6	1.6	1.3	0.8

Emotion writing = writing about emotions and thoughts about personally relevant topics.
Control writing = writing about non-emotional topics, such as plans for the day or descriptions of ordinary objects or events.
Books = a semi-random sample of pages from the 30 best-selling fiction books of 1995.
Talking = transcripts collected from individuals who are talking in non-experimental settings.

What is particularly striking is that chairman's reports score the highest in the use of positive emotion words across all five genres, particularly in the category optimism and energy, one of the sub-dimensions of positive emotion words. This is a particularly striking result, considering that one of the genres explicitly deals with writing about emotions in relation to personally relevant topics, such as abortion. What is more, chairman's reports score the second lowest on the use of negative emotion words. The predominance of positive emotion words compared to negative emotion words suggests that the primary purpose of chairman's reports is to adopt an 'up-beat' message about the company.

6.3.2 Association between linguistic markers and 'good/bad news' and firm size

The association tests carried out in this section test whether impression management in the form of self-presentational dissimulation measured by means of five linguistic markers, namely (1) word count, (2) self-reference, (3) references to others, (4) use of emotion words, and (5) cognitive complexity is associated with 'good/bad news' and firm size. It is also tested whether industry classification has an impact on results.

If impression management in the form of self-presentational dissimulation is found to be directly related to ‘bad news’, this supports the obfuscation hypothesis which claims that the management of poorly performing companies tends to obfuscate negative organisational outcomes. In the case of self-presentational dissimulation this manifests itself in the subconscious use of linguistic markers which “*are the result of anxiety, negative emotional states, and cognitive demand*” (Carlson et al. 2004: 7) occurring during self-presentational dissimulation. If the five linguistic markers are found to be associated with ‘good/bad news’ in the directions hypothesized in chapter four, section 4.2.1, this suggests that managers may use corporate narrative documents for impression management purposes.

If the linguistic markers are found to be inversely related to firm size, this is also interpreted as evidence of impression management in the form of self-presentational dissimulation. Based on the political cost hypothesis, it is argued that large firms have fewer incentives to engage in impression management since they do not seek to attract press attention or governmental intervention by means of introducing positive bias.

The statistical methods employed in this section are the same as in section 6.2.

6.3.2.1 Word Count

Word Count proxies text length. Dissimulation tends to contain less detail, resulting in shorter texts (DePaulo et al. 2003; Burgoon et al. 2003; and Vrij 2000).

The first step of the analysis is to establish whether self-presentational dissimulation, when measured by Word Count, varies systematically across the firms in the sample with regard to their size, regardless of the good or bad news conveyed in the financial statements. As shown in 6.36, although the estimated response coefficient is positive (0.0189), there is no evidence of a significant association between Word Count and firm size. Put differently, Word Count does not increase or decrease as the extent and volume of company operations become greater.

Table 6.36: Regression of Word Count on firm size

Predictor	Coef	S.E.	t-stat	p-value
Constant	6.641	0.135	49.34	<0.000
SIZE	0.019	0.031	0.62	0.5390

The second step of the analysis is concerned with the likelihood of differences in self-presentational dissimulation in the form of Word Count when the financial results convey either a positive or a negative message. In this case, Table 6.37 indicates that Word Count increases with ‘good news’ in the form of profits (PE = 1), relative positive sales growth (RSI = 1), and relative positive long-term firm growth (RG = 1). This is significant at the ten percent ($p = 0.067$), at the one percent ($p = 0.002$), and at the five percent level ($p = 0.031$). This is consistent with hypothesis H_{2b} which states that the corporate narrative sections of companies reporting ‘good news’ contain a higher Word Count than those of companies reporting ‘bad news’.

Analysed in more detail, results indicate that chairman’s reports are longer when positive earnings (PE = 1) are reported, than otherwise. However, this effect is only weakly significant ($p = 0.067$). The analysis of variance shows that the mean for companies reporting positive earnings (PE = 1) is 6.8194 and for companies reporting negative earnings (PE = 0) is 6.5788. Thus, the difference in means is 0.2406. This means that, if a firm makes a profit, the estimated association is that (log) Word Count will be greater by 0.2406. The predicted increase in report length is therefore equal to $e^{0.2406}$, i.e. 27.1 percent longer, when positive earnings are reported.

The average chairman’s report length is 823 words ($\log WC = 6.71$). Since the mean $\log WC$ for companies reporting positive earnings is 6.8194 and for companies reporting negative earnings is 6.5788, the average chairman’s report length is $e^{6.8194}$ (916 words) when a profit is reported and $e^{6.5788}$ (720 words) otherwise.

There is a more marked association between Word Count and ‘good/bad news’ when relative sales growth (RSI) and relative long-term firm growth (RG) are considered as main effects, the estimates being significant at the one percent level ($p = 0.002$) and at the five percent level ($p = 0.031$). If sales increase relative to the sector, Word Count

is predicted to be 49.9 percent ($e^{0.4045} - 1$) higher. Thus, the average Word Count in case of a positive relative sales growth is 962 words ($e^{6.8699}$) and 642 words ($e^{6.4654}$) otherwise. Similarly, if the firm is growing at a faster rate than the sector, Word Count is predicted to be 33.7 percent ($e^{0.290} - 1$) higher. This means that average Word Count in case of positive relative long-term firm growth is 916 words ($e^{6.8196}$) and 685 ($e^{6.5290}$) otherwise.

Table 6.37: ANOVA results for Word Count (main effects)
Bad news = 0 Good news = 1

		SS	MS	F	t-stat	p-value	Mean	SD
PE	0	1.328	1.328	3.450	1.86	0.067*	6.5788	0.6180
	1						6.8194	0.6226
PEI	0	0.426	0.426	1.080	1.04	0.302	6.6319	0.5957
	1						6.7696	0.6501
RSI	0	3.611	3.611	10.030	3.17	0.002***	6.4654	0.6308
	1						6.8699	0.5800
RG	0	1.821	1.821	4.800	2.19	0.031**	6.5290	0.5776
	1						6.8196	0.6371
							0.2906	0.1327

The third step of the analysis is designed to assess the consistency of any association across firms of different size that may appear to exist between Word Count in the chairman's report and the good or bad news conveyed by the financial statements. As 6.38 shows, the direct association which was observed between Word Count and 'good news' in the form of profits (PE = 1), relative positive sales growth (RSI = 1), and relative positive long-term firm growth (RG = 1), no longer remains a strong result when firm size is interacted with 'good/bad news'.

Table 6.38 shows that although chairman report length also seems to increase with firm size, this is not to a significant extent when estimated as a main effect. However, Table 6.38 indicates that when an earnings increase (PEI = 1) is reported by larger firms, the change in Word Count is positive and significant at the five percent level ($p = 0.034$). The PEI – SIZE slope differentiator is -0.066. This implies that Word Count increases less (-0.0624 as opposed to 0.0701) with firm size when there is an earnings

decrease (PEI = 0), than when there is an earnings increase (PEI = 1).⁹⁰ This means that large firms reporting earnings decreases (PEI = 0) publish significantly shorter chairman's reports than large firms reporting earnings increases (PEI = 1).

Table 6.38: GLM results for Word Count (interactions with firm size)
Bad news = 0 Good news = 1

Term	Coef	StDev	t-stat	p-value	PE = 0	PE = 1	
Constant	6.668	0.143	46.55	0.000***			
PE	0.018	0.143	0.13	0.898	6.6863	6.6495	Mean effect
SIZE	0.000	0.033	0.01	0.993			
SIZE*PE	-0.037	0.033	-1.13	0.262	-0.0368	0.0375	Size effect
					PEI = 0	PEI = 1	
Constant	6.678	0.134	50.02	0.000***			
PEI	0.184	0.134	1.37	0.173	6.8611	6.4941	Mean effect
SIZE	0.004	0.031	0.13	0.900			
SIZE*PEI	-0.066	0.031	-2.15	0.034**	-0.0624	0.0701	Size effect
					RSI = 0	RSI = 1	
Constant	6.609	0.132	50.12	0.000***			
RSI	-0.150	0.132	-1.14	0.259	6.4590	6.7586	Mean effect
SIZE	0.015	0.030	0.51	0.612			
SIZE*RSI	-0.014	0.030	-0.45	0.652	0.0017	0.0290	Size effect
					RG = 0	RG = 1	
Constant	6.671	0.143	46.56	0.000***			
RG	0.000	0.143	0.00	0.999	6.6711	6.6715	Mean effect
SIZE	0.000	0.034	0.00	0.997			
SIZE*RG	-0.038	0.034	-1.13	0.259	-0.0380	0.0383	Size effect

In summary, chairman's reports are significantly longer when firms report positive earnings (PE = 1), when firm sales grow faster than the sector (RSI = 1), and when firms grow faster than the sector (RG = 1). However, this effect does not persist when 'good bad news' is interacted with firm size. However, large firms reporting earnings

⁹⁰ Note that the average size of the firms in the sample is £45.8m (LnSIZEm = 3.8), with an interquartile range between £11.3m and £223.6m (lnSIZEm 2.42-5.41) (see Table 6.2). The estimated association is that an increase of one unit of (log) Size results in a (log) Word Count that is 0.132 (i.e. -0.066 x -2) greater. To interpret this coefficient, take a situation where one firm is double the size of another. In this case, lnSIZEm is greater by ln(2), or 0.6931. It follows that for profit-increasing firms that are double the size of others, the Word Count is higher by $e^{0.1325 \times 0.6931 - 1}$, i.e. reports are 9.6% longer.

decreases (PEI = 0) publish significantly shorter chairman’s reports than large firms reporting earnings increases (PEI = 1).

6.3.2.2 Self-reference

Self-reference is a “*subtle proclamation of one’s ownership of a statement*” (Newman et al. 2003: 666). For this reason, individuals engaged in impression management in the form of self-presentational dissimulation tend to avoid the use of self-references as a way of distancing themselves from their stories and of avoiding responsibility for their behaviour.

First of all, we aim to establish whether self-presentational dissimulation, when measured in the form of self-reference, varies systematically across sample firms with regard to firm size, regardless of the good or bad news conveyed by the financial statements. Table 6.39 shows that self-reference increases significantly with firm size ($p = 0.013$). This suggests that the chairman’s reports of large firms contain more self-reference than those of small firms.

Predictor	Coef	S.E.	t-stat	p-value
Constant	3.022	0.304	9.990	<0.000
SIZE	0.175	0.069	2.530	0.013**

Secondly, we investigate the likelihood of differences in self-reference as a marker of self-presentational dissimulation when the financial results convey either good or bad news. Table 6.40 shows the direction of association between self-reference and all four measures of ‘good/bad news’ to be consistent, i.e. self-reference is directly associated with all four measures of ‘good news’. However, this association is only significant in the case of relative positive sales growth (RSI = 1) and relative positive long-term firm growth (RG = 1), at a ten percent ($p = 0.071$) and at a five percent ($p = 0.048$) level. This means that the chairman’s reports of firms whose sales increase faster compared to the sector and whose long-term growth is faster than that of the sector contain more self-references.

The estimated increment in the self-reference score is 0.5602, which is significant at the 10 percent level ($p = 0.071$). The average score when there is no sales increase relative to the sector is 3.349, compared to 3.902 when there is a sales increase relative to the sector. Thus, on average, self-reference is 16.7 percent higher for firms whose sales grow faster than the sector than otherwise. What is more, there is also more self-reference, when a firm is growing faster than the sector ($RG = 1$), the difference between the two groups now being 0.6201 ($p = 0.048$), an increment of 18.8 percent.

Table 6.40: ANOVA results for self-reference (main effects)
Bad news = 0 Good news = 1

		SS	MS	F	t-stat	p-value	Mean	SD
PE	0	2.910	2.910	1.37	1.17	0.245	3.493	1.537
	1						3.849	1.391
							<i>0.3560</i>	<i>0.304</i>
PEI	0	4.620	4.620	2.2	1.48	0.142	3.424	1.568
	1						3.877	1.364
							<i>0.4530</i>	<i>0.306</i>
RSI	0	6.920	6.920	3.33	1.83	0.071*	3.349	1.513
	1						3.909	1.395
							<i>0.5600</i>	<i>0.307</i>
RG	0	8.290	8.290	4.02	2.00	0.048**	3.299	1.510
	1						3.919	1.393
							<i>0.6200</i>	<i>0.309</i>

Finally, we interact ‘good/bad news’ with firm size in order to assess whether the association that seems to exist between self-reference and ‘good/bad news’ is indeed consistent across firms of different sizes. Table 6.41 shows that although self-reference is greater when there is ‘good news’, it also increases significantly with firm size. For example, when the estimates account for an interaction between ‘good news’ and size, self-reference increases by 60 percent when a firm reports an earnings increase (i.e. without taking size into account, there is an incremental change of 0.13608 in average scores from 2.2455 to 3.6063). The estimated association is that an increase of one unit of (log) size results in a self-reference score that is 0.3205 greater, but this is all but cancelled out ($-0.252 = 0.126 \times -2$) when there is an earnings increase. In other words, larger firms make more self-references regardless of whether they report ‘good news’ or ‘bad news’, whereas smaller firms’ self reference is driven by the ‘good news’ being reported. The same pattern emerges in the combination of

firm size and 'bad news' in the form of relative sales decrease (RSI = 0) and relative negative long-term firm growth (RG = 0).

Table 6.41: GLM results for self-reference (interactions with firm size)
Bad news = 0 Good news = 1

Term	Coef	StDev	t-stat	p-value	PE = 0	PE = 1	
Constant	3.060	0.330	9.28	0.000***			
PE	-0.092	0.330	-0.28	0.780	2.9680	3.1524	Mean effect
SIZE	0.167	0.076	2.20	0.030**			
SIZE*PE	0.013	0.076	0.17	0.863	0.1797	0.1535	Size effect
					PEI = 0	PEI = 1	
Constant	2.926	0.301	9.72	0.000***			
PEI	-0.680	0.301	-2.26	0.026**	2.2455	3.6063	Mean effect
SIZE	0.195	0.069	2.80	0.006***			
SIZE*PEI	0.126	0.069	1.81	0.074*	0.3205	0.0690	Size effect
					RSI = 0	RSI = 1	
Constant	2.891	0.304	9.51	0.000***			
RSI	-0.631	0.304	-2.08	0.041**	2.2597	3.5219	Mean effect
SIZE	0.194	0.069	2.79	0.007***			
SIZE*RSI	0.093	0.069	1.34	0.185	0.2863	0.1008	Size effect
					RG = 0	RG = 1	
Constant	2.758	0.321	8.59	0.000***			
RG	-0.763	0.321	-2.38	0.020**	1.9950	3.5208	Mean effect
SIZE	0.226	0.075	3.00	0.004***			
SIZE*RG	0.123	0.075	1.63	0.106	0.3483	0.1027	Size effect

In summary, chairman's reports of large firms contain more self-references in the form of *we*, *the Group*, and the company name than those of small firms. What is more, chairman's reports of firms reporting 'good news' about fundamentals, i.e. with sales growing faster than the sector and with firms growing faster than the sector, also contain more self-references. This is in line with hypotheses H_{2b} and H_{2c} that firms reporting 'bad news' and small firms are more likely to use self-referential dissimulation (marked by less self-references) in order to obfuscate negative organisational outcomes than large firms and firms reporting 'good news'. These results support hypotheses H_{2b} and H_{2c} and thus confirm findings from social psychology that individuals engaged in dissimulation avoid the use of self-references as a way of distancing themselves from their stories and of avoiding responsibility for their behaviour (Newman et al. 2003).

What is more, the chairman's reports of large firms show less evidence of dissimulation (in the form of more self-reference) than those of small firms, regardless of whether they report 'good news' or 'bad news'. However, the chairman's reports of small firms show more evidence of dissimulation (marked by less-self-references), when they have 'bad news' to report. These findings support hypothesis H_{2c} (the political cost hypothesis) which states that large firms are less likely to engage in impression management, since they want to avoid the political costs associated with portraying firm performance in the best possible light.

6.3.2.3 References to others

The third marker of self-presentational dissimulation is references to others, which in a financial reporting context entails references to competitors.

First, we examine whether references to others varies systematically across the sample with respect to size, regardless of the good or bad news reported in the financial statements. As Table 6.42 indicates, there is an inverse association between references to others and firm size, however it is not statistically significant.

Table 6.42: Regression of reference to others on firm size				
Predictor	Coef	S.E.	t-stat	p-value
Constant	0.286	0.055	5.24	<0.000
SIZE	-0.012	0.013	-0.95	0.343

Secondly, we analyse the likelihood of differences to references to others depending on the good or bad news conveyed by the financial statements. As Table 6.43 indicates, apart from relative sales growth (RSI), there is a direct association between references to others and 'bad news'. This is the opposite direction as stated by hypothesis H_{2a}, however, findings in social psychology research regarding reference to others are contradictory. Whereas Newman et al. (2003) find individuals engaged in dissimulation to use fewer references to others, DePaulo et al. (2003) and Zhou et al. (2004) find the opposite.

However, this is only weakly significant ($p = 0.089$) in the case of ‘bad news’ in the form of earnings decreases ($PEI = 0$). This means that chairman’s reports of companies reporting ‘bad news’ in the form of negative earnings growth contain more references to others than those of companies reporting ‘good news’ in the form of positive earnings growth.

		SS	MS	F	t-stat	p-value	Mean	SD
PE	0	0.159	0.159	2.48	-1.57	0.119	0.2868	0.3052
	1						0.2035	0.204
PEI	0	0.189	0.189	2.96	-1.72	0.089*	-0.0833	0.2868
	1						0.2945	0.305
							0.2027	0.2098
RSI	0	0.011	0.011	0.17	0.41	0.681	-0.0918	0.2945
	1						0.2264	0.227
							0.2489	0.2737
RG	0	0.056	0.056	0.86	-0.93	0.356	0.0225	0.2490
	1						0.2726	0.2506
							0.2215	0.2586
							-0.0511	0.2735

Finally, we assess the consistency of any association that may exist between references to others as a marker of self-presentational dissimulation and ‘good/bad news’ across firms of different sizes. Table 6.44 shows that the direct association between references to others and ‘bad news’ in the form of earnings decreases ($PEI = 0$) does not persist when firm size is interacted with ‘good/bad news’. This means that the average score for reference to others (after controlling for firm size) does not significantly differ between companies reporting ‘good news’ and those reporting ‘bad news’.

**Table 6.44: GLM results for references to others (interactions with firm size)
Bad news = 0 Good news = 1**

Term	Coef	StDev	t-stat	p-value	PE = 0	PE = 1	
Constant	0.252	0.059	4.3	0.000***			
PE	0.082	0.059	1.39	0.168	0.3335	0.1704	Mean effect
SIZE	-0.004	0.014	-0.32	0.748			
SIZE*PE	-0.012	0.014	-0.86	0.390	-0.0160	0.0073	Size effect
					PEI = 0	PEI = 1	
Constant	0.284	0.055	5.18	0.000***			
PEI	0.014	0.055	0.25	0.803	0.2977	0.2702	Mean effect
SIZE	-0.009	0.013	-0.71	0.477			
SIZE*PEI	0.008	0.013	0.64	0.521	-0.0009	-0.0172	Size effect
					RSI = 0	RSI = 1	
Constant	0.273	0.056	4.88	0.000***			
RSI	-0.061	0.056	-1.09	0.279	0.2121	0.3340	Mean effect
SIZE	-0.009	0.013	-0.72	0.475			
SIZE*RSI	0.013	0.013	1.01	0.314	0.0038	-0.0222	Size effect
					RG = 0	RG = 1	
Constant	0.315	0.059	5.31	0.000***			
RG	0.081	0.059	1.37	0.174	0.3967	0.2339	Mean effect
SIZE	-0.018	0.014	-1.31	0.195			
SIZE*RG	-0.015	0.014	-1.08	0.285	-0.0331	-0.0032	Size effect

Overall, there is no strong indication of any association between dissimulation in the form of references to others and firm size and ‘good/bad news’. This can be either attributed to (1) the computerised content analysis adopted for the analysis of chairman’s reports not adequately capturing references to competitors by means of the specified keywords (*the industry, the sector, competitors*) or (2) references to others not being a linguistic marker in chairman’s reports.

The second explanation is in line with Newman et al.’s (2003: 666) original methodology regarding the linguistic indicators of dissimulation which includes self-reference, but not references to others.

6.3.2.4 *Emotion words*

The fourth marker of self-presentational dissimulation is the use of emotion words which are interpreted as a sign of the discomfort experienced by individuals engaged in self-presentational dissimulation (Newman et al. 2003).

The use of emotion words as a linguistic marker of self-presentational dissimulation is tested on two levels of decomposition, namely (1) use of all emotion words and (2) a decomposition of emotion words into (i) positive emotion words and (ii) negative emotion words. The aim is to determine whether self-presentational dissimulation in chairman's reports is driven by the use of emotion words in general as found by Burgoon et al. (2003) and Zhou et al. (2004) or specifically by negative emotion words as predicted by Newman et al. (2003) and Vrij (2000). If the latter is the case, we want to determine whether negative emotion words in general or a specific type of emotion words is used in dissimulative chairman's reports.

First, we investigate whether the use of emotion words varies systematically across the firms in the sample as far as firm size is concerned. As Table 6.45 indicates, there is no statistically significant association between the use of emotion words and firm size.

Predictor	Coef	S.E.	t-stat	p-value
Constant	3.866	0.241	16.02	<0.000
SIZE	0.071	0.055	1.28	0.202

Secondly, we test for the likelihood of differences in the use of emotion words, dependent on the good or bad news being reported in the financial statements. Table 6.46 shows that the direction of association between the use of emotion words and 'good/bad news' is not consistent across all four measures. There is weak ($p = 0.07$) direct association between the use of emotion words and 'bad news' in the form of relative negative long-term firm growth ($RG = 0$) which suggests that the chairman's reports of firms reporting 'bad news' in the form of relative negative long-term firm growth ($RG = 0$) contain more emotion words than those of firms reporting 'good news' in the form of relative positive long-term firm growth ($RG = 1$). However, due to the inconsistency of the direction of association across all four measures of 'good/bad news' and a statistical significance at the ten percent level, the result is weak.

Table 6.46: ANOVA results for emotion words (main effects)
Bad news = 0 Good news = 1

		SS	MS	F	t-stat	p-value	Mean	SD
PE	0	2.950	2.950	2.32	1.52	0.131	3.937	1.037
	1						4.295	1.193
							0.3580	3.9366
PEI	0	2.720	2.720	2.14	1.46	0.147	3.931	0.995
	1						4.279	1.211
							0.3480	3.9313
RSI	0	0.530	0.530	0.41	-0.64	0.522	4.233	1.061
	1						4.077	1.185
							-0.1560	4.2325
RG	0	4.210	4.210	3.35	-1.83	0.07*	4.417	1.164
	1						3.976	1.096
							-0.4410	4.4174

Finally, we assess whether the association that seems to exist between emotion words and ‘good/bad news’ is consistent across firms of different sizes. Table 6.47 shows that the direct association between use of emotion words and ‘bad news’ in the form of relative negative long-term firm growth (RG = 0) does not persist when firm size is interacted with ‘good/bad news’. However, when firm size is interacted with ‘good/bad news’, the use of emotion words is directly associated with ‘good news’ in the form of positive earnings (PE = 1). This effect is only significant at the ten percent level ($p = 0.055$).

Table 6.47: GLM results for emotion words (interactions with firm size)
Bad news = 0 Good news = 1

Term	Coef	StDev	t-stat	p-value	PE = 0	PE = 1	
Constant	4.050	0.258	15.73	0.000***			
PE	-0.502	0.258	-1.95	0.055*	3.5486	4.5520	Mean effect
SIZE	0.038	0.059	0.65	0.520			
SIZE*PE	0.095	0.059	1.60	0.113	0.1329	-0.0566	Size effect
					PEI = 0	PEI = 1	
Constant	3.828	0.244	15.72	0.000***			
PEI	-0.313	0.244	-1.29	0.202	3.5153	4.1415	Mean effect
SIZE	0.0741	0.056	1.32	0.191			
SIZE*PEI	0.039	0.056	0.69	0.489	0.1132	0.0351	Size effect
					RSI = 0	RSI = 1	
Constant	3.881	0.249	15.6	0.000***			
RSI	0.071	0.249	0.28	0.777	3.9519	3.8107	Mean effect
SIZE	0.072	0.057	1.26	0.212			
SIZE*RSI	0.002	0.057	0.04	0.969	0.0738	0.0693	Size effect
					RG = 0	RG = 1	
Constant	3.907	0.260	15.01	0.000***			
RG	0.206	0.260	0.79	0.431	4.1132	3.7010	Mean effect
SIZE	0.076	0.061	1.25	0.216			
SIZE*RG	0.005	0.061	0.08	0.933	0.0812	0.0709	Size effect

Since the direct association between use of emotion words and ‘bad news’ in the form of relative negative long-term firm growth (RG = 0) is weak ($p = 0.07$) and does not persist when firm size is interacted with ‘good/bad news’ and the direct association between the use of emotion words and ‘good news’ in the form of positive earnings (PE = 1) is only weakly significant when firm size is interacted with ‘good/bad news’, it can be concluded that the use of emotion words in general is not a linguistic marker of self-presentational dissimulation in chairman’s reports. Therefore, the next step is to decompose emotion words into positive and negative emotion words and to test separately for the association between positive and negative emotion words and ‘good/bad news’ and firm size.

Positive emotion words

Positive emotion words in the context of chairman’s reports include words such as *exciting* and *win*. First, we test the association between the use of positive emotion words and firm size. Table 6.48 shows that the use of positive emotion words increases with firm size. This effect is significant at the five percent level ($p = 0.040$).

Table 6.48: Regression of positive emotion words on firm size

Predictor	Coef	S.E.	t-stat	p-value
Constant	2.887	0.234	12.340	<0.000
SIZE	0.112	0.053	2.090	0.040**

Secondly, we test whether the use of positive emotion words differs in regard to good and bad news. Table 6.49 indicates that the use of positive emotion words is directly associated with ‘good news’. However, this is only statistically significant in the case of ‘good news’ about financials, i.e. positive earnings (PE = 1) and positive earnings increases (PEI = 1), the estimates being significant at the one percent level ($p = 0.000$ and $p = 0.002$). This means that the chairman’s reports of firms reporting profits and earnings increases contain more positive emotion words than those of firms reporting losses and earnings decreases.

Table 6.49: ANOVA results for positive emotion words (main effects)
Bad news = 0 Good news = 1

		SS	MS	F	t-stat	p-value	Mean	SD
PE	0	14.980	14.980	13.67	3.70	0.000***	2.862	0.939
	1						3.670	1.124
PEI	0	11.780	11.780	10.41	3.23	0.002***	0.808	0.219
	1						3.609	1.170
RSI	0	2.010	2.010	1.62	1.27	0.206	0.723	0.224
	1						3.129	1.059
RG	0	0.390	0.390	0.31	0.56	0.577	0.302	0.237
	1						3.431	1.145
							3.228	1.110
							3.363	1.127
							0.135	0.241

Finally, we interact ‘good/bad news’ with firm size in order to test whether the association that seems to exist between the use of positive emotion words and ‘good/bad news’ is consistent across firms of different sizes. Table 6.50 indicates that the use of positive emotion words increases significantly with both ‘good news’ and firm size. For example, when the estimates account for an interaction between ‘good news’ and size, the use of positive emotion words increases by 75 percent, when a firm reports an earnings increase (i.e. without taking size into account, there is an

incremental change of 0.8218 in average scores from 2.4378 to 3.2596). The estimated association is that an increase of one unit of (log) size results in a positive emotion score that is 0.1218 greater.

Thus, the direct association between the use of positive emotion words and 'good news' in the form of positive earnings (PE = 1) and positive earnings increases (PEI = 1), which is observed when estimated as a main effect (see Table 6.49), persists when 'good/bad news' is interacted with firm size (see Table 6.50), the estimates being significant at the five percent ($p = 0.037$) and at the ten percent level ($p = 0.074$).

What is more, the direct association between the use of positive emotion words and firm size which is observed as a main effect in table 6.49, also persists with firms reporting earnings increases (PEI = 1), relative sales increases (RSI = 1), and relative positive long-term firm growth (RG = 1), when 'good/bad news' is interacted with firm size (see Table 6.50). This effect is significant at the five percent level ($p = 0.047$; $p = 0.045$; $p = 0.047$) and indicates that large firms use more positive emotion words than small firms.

**Table 6.50: GLM results for positive emotion words (interactions with firm size)
Bad news = 0 Good news = 1**

Term	Coef	StDev	t-stat	p-value	PE = 0	PE = 1	
Constant	3.133	0.242	12.96	0.000***	2.6215	3.6439	Mean effect
PE	-0.511	0.242	-2.11	0.037**			
SIZE	0.044	0.056	0.79	0.430	0.0823	0.0058	Size effect
SIZE*PE	0.038	0.056	0.69	0.493			
					PEI = 0	PEI = 1	
Constant	2.849	0.227	12.55	0.000***	2.4378	3.2596	Mean effect
PEI	-0.411	0.227	-1.81	0.074*			
SIZE	0.105	0.052	2.01	0.047**	0.1218	0.0890	Size effect
SIZE*PEI	0.016	0.052	0.31	0.755			
					RSI = 0	RSI = 1	
Constant	2.855	0.240	11.91	0.000***	2.7017	3.0073	Mean effect
RSI	-0.153	0.240	-0.64	0.525			
SIZE	0.111	0.055	2.03	0.045**	0.1122	0.1103	Size effect
SIZE*RSI	0.001	0.055	0.02	0.986			
					RG = 0	RG = 1	
Constant	2.835	0.257	11.04	0.000***	2.6849	2.9853	Mean effect
RG	-0.150	0.257	-0.59	0.560			
SIZE	0.121	0.060	2.02	0.047**	0.1451	0.0975	Size effect
SIZE*RG	0.024	0.060	0.40	0.694			

In summary, chairman's reports of large firms contain more positive emotion words than those of small firms. What is more, chairman's reports of firms reporting 'good news' about financials, i.e. firms reporting profits and profit increases, also contain more positive emotion words than those of firms reporting 'bad news' about financials, i.e. firms reporting losses and profit decreases. This is in contradiction to the hypotheses that large firms and firms reporting 'good news' use less dissimulation (in the form of less positive emotion words) since they have less incentives to engage in impression management than small firms and firms reporting 'bad news'.

Negative emotion words

Negative emotion words in the context of chairman's reports include words such as *disappointing* and *loss*. First, we test the association between the use of negative emotion words and firm size. Table 6.51 indicates that negative emotion words and firm size are inversely related, however this is not statistically significant.

Table 6.51: Regression of negative emotion words on firm size				
Predictor	Coef	S.E.	t-stat	p-value
Constant	0.961	0.122	7.88	<0.000
SIZE	-0.027	0.028	-0.98	0.331

Secondly, we examine the likelihood of differences in the use of negative emotion words in the chairman's report, depending on the good or bad news conveyed by the financial statements. Table 6.52 shows a consistent positive association between negative emotion words and all four measures of 'bad news', which is significant at the one percent level ($p = 0.000$). This means that firms reporting 'bad news' about both financials and fundamentals use more negative emotion words than firms reporting 'good news'.

Table 6.52: ANOVA results for negative emotion words (main effects)
Bad news = 0 good news = 1

		SS	MS	F	t	p	Mean	SD
PE	0	4.404	4.404	15.620	-3.95	0.000***	1.102	0.632
	1						0.664	0.436
							0.438	0.111
PEI	0	3.275	3.275	11.120	-3.33	0.001***	1.083	0.644
	1						0.701	0.460
							0.382	0.114
RSI	0	4.041	4.041	14.130	-3.76	0.000***	1.119	0.644
	1						0.691	0.454
							0.428	0.114
RG	0	6.528	6.528	25.230	-5.02	0.000***	1.206	0.685
	1						0.656	0.373
							0.550	0.110

Finally, we assess the consistency of association that may appear between the use of negative emotion words and ‘good/bad news’ across firms of different sizes by means of interacting ‘good/bad news’ with firm size. Table 6.53 shows that the direct association between the use of negative emotion words and ‘bad news’ which was observed as a main effect (see Table 6.52), only persists in the case of negative relative long-term firm growth (RG = 0).

Although the use of negative emotion words in chairman’s reports also seems to decrease with firm size, this is not to a significant extent when estimated as a main effect (see Table 6.51). However, when a loss (PE = 0) is reported by larger firms, the change in negative emotion words is positive and significant (see Table 6.53). The PE – SIZE slope differentiator is 0.066. This implies that the use of negative emotion words increases more (0.0724 as opposed to -0.0580) with firm size when there is a loss (PE = 0), than when there is a profit (PE = 1). This effect is significant at the five percent level ($p = 0.018$). This means that large firms reporting losses publish chairman’s reports containing significantly more negative emotion words than large firms reporting profits.

Table 6.53: GLM results for negative emotion words (interactions with firm size)
Bad news = 0 Good news = 1

Term	Coef	StDev	t-stat	P-value	PE = 0	PE = 1	
Constant	0.906	0.120	7.59	0.000***			
PE	-0.021	0.120	-0.17	0.862	0.8854	0.9270	Mean effect
SIZE	0.008	0.027	0.29	0.770			
SIZE*PE	0.066	0.027	2.41	0.018**	0.0742	-0.0580	Size effect
					PEI = 0	PEI = 1	
Constant	0.954	0.117	8.16	0.000***	1.0113	0.8965	Mean effect
PEI	0.057	0.117	0.49	0.625			
SIZE	-0.015	0.027	-0.56	0.575			
SIZE*PEI	0.035	0.027	1.28	0.203	0.0194	-0.0498	Size effect
					RSI = 0	RSI = 1	
Constant	0.992	0.117	8.48	0.000***	1.1375	0.8469	Mean effect
RSI	0.145	0.117	1.24	0.217			
SIZE	-0.023	0.027	-0.85	0.399			
SIZE*RSI	0.018	0.027	0.67	0.506	-0.0048	-0.0405	Size effect
					RG = 0	RG = 1	
Constant	1.014	0.119	8.54	0.000***	1.2708	0.7564	Mean effect
RG	0.257	0.119	2.17	0.033**			
SIZE	-0.022	0.028	-0.78	0.438			
SIZE*RG	0.004	0.028	0.16	0.877	-0.0173	-0.0260	Size effect

In summary, as predicted by hypothesis H_{2b} (obfuscation hypothesis), the chairman's reports of companies reporting 'bad news' contain more negative emotion words than those of companies reporting 'good news'. What is more, the chairman's reports of large firms reporting losses use more negative emotion words than those of large firms reporting profits. We can thus state that self-presentational dissimulation in chairman's reports is driven by the use of negative emotion words and not by the use of emotion words in general. This confirms Newman et al.'s (2003) and Vrij's (2000) findings.

A comparison of results regarding the use of positive emotion words and negative emotion words shows that their direction of association with 'good/bad news' is diametrically opposed. Whereas the use of positive emotion words is inversely associated with 'bad news', the use of negative emotion words is directly associated with 'bad news'. This means that the chairman's reports of companies reporting 'bad news' in their financial statements are more likely to contain less positive emotion

words and more negative emotion words than those of companies reporting 'good news'. This pattern of association is not as hypothesized (H_{2b}) and thus suggests that positive and negative emotion words are not linguistic markers of self-presentational dissimulation.

However, the observed pattern of word use pattern also does not fit with the Pollyanna principle, which provides an alternative explanation regarding the use of words with positive and negative connotations. It describes an impression management strategy based on the attempt of firms to present themselves in the best possible light which manifests itself in the predominant use of positive words, regardless of their financial performance. However, results regarding the Pollyanna principle are mixed. Hildebrandt and Snyder (1981) find no difference between the use of words with positive connotations between profitable and unprofitable companies. Rutherford (2005) finds no difference between the use of 'charged words', i.e. words carrying positive or negative connotations, between profitable and unprofitable companies. However, he finds that loss-making firms use more negatively charged words. By contrast, Clatworthy and Jones (2003) find that both profitable and unprofitable companies emphasize 'good news' by means of words with positive connotations.

The assumptions underlying the Pollyanna principle are in contrast with impression management research by means of thematic manipulation. Abrahamson and Park (1994) and Abrahamson and Amir (1996) find words with negative connotations to be associated with poor performance. Smith and Taffler (2000) find positive keywords to be associated with 'good news' and negative keywords to be associated with 'bad news'. The observed direct association between the use of positive emotion words and 'good news' and negative emotion words and 'bad news' in this study thus confirm insights from thematic manipulation studies that "*the unaudited managerial disclosures provided in the chairman's statement contain important information associated with the firm's future financial state*" (Smith and Taffler 2000: 639). The observed pattern of associations thus confirms Abrahamson and Amir's (1996: 1159) conclusion that management does not use narrative corporate report sections "*to reduce the effect of bad news or to smooth the effect of good news*" (1159). In other words, results indicate that the chairman's report is used by management 'to tell it as it is'.

6.3.2.5 Cognitive Complexity

The final marker of self-presentational dissimulation is cognitive complexity. Newman et al. (2003: 666) point out that “*the process of creating a false story should consume cognitive resources* [which should result in individuals engaged in self-presentational dissimulation] *to tell less complex stories.*”

First, we investigate whether cognitive complexity varies systematically across firms in the sample regarding their size, irrespective of whether they are reporting good or bad news. Table 6.54 indicates that there is a direct association between cognitive complexity and firm size; however this is not statistically significant.

Predictor	Coef	S.E.	t-stat	p-value
Constant	4.963	0.209	23.78	<0.000
SIZE	0.023	0.048	0.48	0.631

Secondly, we investigate the likeliness of differences in cognitive complexity, depending on the financial statements containing good or bad news about the financial performance of the company. Table 6.55 indicates that (apart from ‘good/bad news in the form of profits/losses’) cognitive complexity is inversely related to ‘bad news’. However, this is only statistically significant (five percent level, $p = 0.041$) in the case of ‘bad news’ in the form of sales decreases relative to the sector ($RSI = 0$). This means that the chairman’s reports of companies reporting ‘bad news’ in the form of relative negative sales growth are less cognitively complex than those of companies reporting ‘good news’ in the form of relative positive sales growth. This is in line with hypothesis H_{2b} .

Table 6.55: ANOVA results for Cognitive Complexity (main effects)
Bad news = 0 Good news = 1

		SS	MS	F	t-stat	p-value	Mean	SD
PE	0	0.092	0.092	0.10	-0.31	0.758	5.0866	1.0670
	1						5.0233	1.9041
							<i>0.0633</i>	<i>0.2044</i>
PEI	0	0.057	0.057	0.06	0.24	0.807	5.0213	0.9865
	1						5.0718	0.9742
							<i>0.0505</i>	<i>0.2066</i>
RSI	0	3.922	3.922	4.28	2.07	0.041**	4.7928	1.1178
	1						5.2144	0.8415
							<i>0.4216</i>	<i>0.2038</i>
RG	0	0.254	0.254	0.27	0.52	0.608	4.9824	0.975
	1						5.0908	0.9799
							<i>0.1084</i>	<i>0.2106</i>

Finally, we interact ‘good/bad news’ with firm size in order to assess whether the association that seems to exist between cognitive complexity and ‘good/bad news’ is consistent across firms of different sizes. Although the cognitive complexity of chairman’s reports seems to increase with firm size, this is not to a significant extent when estimated as a main effect (see Table 6.54). However, when a relative sales increase (RSI = 1) is reported by larger firms, the change in cognitive complexity is negative and highly significant (see Table 6.56). The RSI – SIZE slope differentiator is 0.122. This implies that cognitive complexity decreases less (0.1696 as opposed to -0.0740) with firm size when there is a relative sales decrease (RSI = 0), than when there is a relative sales increase (RSI = 1). This means that large firms reporting relative sales increases publish significantly more cognitively complex chairman’s reports than large firms reporting relative sales decreases. What is more, the same pattern is also observed regardless of firm size, i.e. firms reporting relative sales increases publish more cognitively complex chairman’s reports than firms reporting relative sales decreases.

Table 6.56: GLM results for cognitive complexity (interactions with firm size)
Bad news = 0 Good news = 1

Term	Coef	StDev	t-stat	p-value	PE = 0	PE = 1	
Constant	4.926	0.227	21.69	0.000***	5.0018	4.8492	Mean effect
PE	0.076	0.227	0.34	0.738			
SIZE	0.034	0.052	0.65	0.520			
SIZE*PE	-0.005	0.052	-0.09	0.929	0.0291	0.0384	Size effect
					PEI = 0	PEI = 1	
Constant	4.956	0.213	23.22	0.000***	4.8982	5.0130	Mean effect
PEI	-0.057	0.213	-0.27	0.789			
SIZE	0.024	0.049	0.49	0.624			
SIZE*PEI	0.009	0.049	0.19	0.851	0.0335	0.0150	Size effect
					RSI = 0	RSI = 1	
Constant	4.823	0.203	23.75	0.000***	4.1479	5.4987	Mean effect
RSI	-0.675	0.203	-3.33	0.001***			
SIZE	0.048	0.046	1.03	0.306			
SIZE*RSI	0.122	0.046	2.62	0.010***	0.1696	-0.0740	Size effect
					RG = 0	RG = 1	
Constant	4.847	0.227	21.32	0.000***	4.5484	5.1446	Mean effect
RG	-0.298	0.227	-1.31	0.193			
SIZE	0.051	0.053	0.96	0.341			
SIZE*RG	0.065	0.053	1.22	0.226	0.1159	-0.0139	Size effect

In summary, the chairman's reports of firms with sales growing more quickly than the sector (RSI = 1) contain more cognitive complexity than those with sales growing more slowly than the sector (RSI = 0). This is in line with the hypothesis that dissimulation in the form of less cognitively complex sentence structure, indicated by the use of conjunctions, such as *although*, *since*, *despite*, and *because*, is associated with 'bad news'

However, the chairman's reports of large firms with sales growing faster than the sector contain less cognitive complexity. This is in contradiction to the hypothesis that large firms use less dissimulation (in the form of high cognitive complexity) due to increased political costs.

6.3.2.6 Industry-specific results

Results for association tests between linguistic markers of self-presentational dissimulation and 'good/bad news' and firm size for consumer cyclical, technical and industrial companies indicate that the individual industry sectors behave very similarly to the full sample, with results from consumer cyclical and industrial

companies mirroring full sample results most closely (see Tables A5 to A8 in Appendix I). This is consistent with hypothesis H_{2d} which states that there is no difference in the strength and direction of association between the linguistic markers of self-presentational dissimulation in corporate report documents and accounting 'good/bad news' and firm size in the consumer cyclical, industrial and technical sectors.

6.3.2.7 Summary

One branch of impression management research is based on the assumption that firms reporting 'bad news' are more likely to engage in the obfuscation of negative organisational outcomes than firms reporting 'good news'. We examine the obfuscation of negative organisational outcomes in the form of self-presentational dissimulation which manifests itself in unconscious verbal cues identified by psychology research as differentiating true from false stories (see chapter three, section 3.4.1). We hypothesized (H_{2a}) that impression management in the form of self-presentational dissimulation is characterised by the following linguistic markers, namely (1) a low word count, (2) few self-references, (3) few references to others, (4) a high number of emotion words, especially negative emotion words, and (5) low cognitive complexity. This means that the chairman's reports of companies reporting 'bad news' in the financial statements would contain (1) a lower word count, (2) fewer self-references, (3) fewer references to others, (4) more emotion words, especially negative emotion words, and (5) less cognitive complexity than those of companies reporting 'good news' in the financial statements (hypothesis H_{2b}). We further hypothesized (H_{2c}) that the chairman's reports of small companies contain (1) a lower word count, (2) fewer self-references, (3) fewer references to others, (4) more emotion words, especially negative emotion words, and (5) less cognitive complexity than those of large companies. Finally, we hypothesised (H_{2d}) that there is no difference in the strength and direction of association between the linguistic markers and 'good/bad news' and firm size of companies belonging to different industry classification.

We find a significant association between three out of the five linguistic markers of self-presentational dissimulation and 'bad news'. More specifically, we find self-reference, positive emotion words, and cognitive complexity to be inversely

associated with 'bad news' and negative emotion words to be directly associated with 'bad news'. This is the case across firms of different sizes. Whereas self-reference, negative emotion words, cognitive complexity are associated with 'good/bad news' as predicted by hypothesis H_{2b} (obfuscation hypothesis) and thus suggest that firms engage in impression management in the form of self-presentational dissimulation, the direction of association between positive emotion words and 'good/bad news' is opposite to hypothesis H_{2b}.

A comparison of results regarding the use of positive emotion words and negative emotion words shows that their direction of association with 'good/bad news' is diametrically opposed. Whereas the use of positive emotion words is inversely associated with 'bad news', the use of negative emotion words is directly associated with 'bad news'. This means that the chairman's reports of companies reporting 'bad news' in their financial statements are more likely to contain less positive emotion words and more negative emotion words than those of companies reporting 'good news'. This pattern of association is not as hypothesized (H_{2b}) and thus suggests that positive and negative emotion words are not linguistic markers of self-presentational dissimulation.

The fact that the use of positive emotion words is directly associated with 'good news' and the use of negative emotion words is directly associated with 'bad news' suggests that these two linguistic markers are not indicative of impression management in the form of self-presentational dissimulation, but constitute a different phenomenon observed in the impression management literature, namely that "*the unaudited managerial disclosures provided in the chairman's statement contain important information associated with the firm's future financial state*" (Smith and Taffler 2000: 639). The observed direct association of positive emotion words with 'good news' and of negative emotion words with 'bad news' confirms Abrahamson and Park's (1994), Abrahamson and Amir's (1996), and Smith and Taffler's (2000) findings that words with positive connotations are associated with good performance and words with negative connotations with poor performance.

This pattern of word use suggests that firms do not use their corporate narrative documents for impression management purposes, but to 'tell it as it is'. For this

reason, despite their association with ‘good/bad news’ in the expected direction, self-reference and cognitive complexity are not interpreted as linguistic markers of self-presentational dissimulation, but as markers of different psychological processes. In fact, psychology research based on word use has found word categories, such as pronouns, emotion words, and cognitive words to be indicative of a variety of psychological processes and types of behaviour. For example, studies on word use as an indicator of gender differences finds that first-person singular self-references can either be an expression of power or a sign of increased self-awareness and reflective ability (Gleser et al. 1959; Mulac et al. 2001; Mehl and Pennebaker 2003).⁹¹ This means that self-reference and cognitive complexity in chairman’s reports do not necessarily have to be interpreted as linguistic markers of self-presentational dissimulation, but can be regarded as indicative of other psychological phenomena.

Thus, the increased use of self-references in the case of ‘good news’ (about fundamentals) can be interpreted as a sign of the self-confidence experienced by companies reporting ‘good news’. This interpretation also fits with our findings that self-reference is directly associated with firm size. Large companies report on their organisational outcomes from a position of power and self-confidence which manifests itself in a more frequent use of self-references in the chairman’s statements than is the case with small companies. What is more, since the majority of self-references are expressed in the first-person plural (*we, us, our, ours, ourselves*) which has been identified as a marker of institutional identity which is associated with the achievements of the company by linguistics research (Van De Mierop 2006), it is not surprising that companies reporting ‘good news’ focus on their achievements and thus use more self-references than companies reporting ‘bad news’.

⁹¹ Incidentally, in her discussion of qualitative content analysis Macnamara (2003: 17) lists eight commonly used key textual elements including (1) pronoun use, (2) adjectives used in descriptions (positive and negative) which give strong indications of a speaker’s/writer’s attitude (e.g. it was a ‘disgusting’ thing to do), (3) active or passive voice, (4) viewpoint of the narrator (i.e. first person, second person, third person, etc), (5) tonal qualities such as aggressiveness, sarcasm, flippancy, emotional language, etc, (6) visual imagery in text, (7) use of metaphors and similes used, (8) context factors such as the position and credibility of spokespersons or sources quoted which affects meaning taken from the text (e.g. if one message is presented by a high profile expert it will generally outweigh a non-expert opinion). This is an indication that features, such as pronoun use and words with positive and negative connotations are used in a variety of different studies, in a variety of contexts, for the analysis of a variety of different phenomena.

We also find cognitive complexity to be directly associated with 'good news' in the form of relative positive sales increase. This can be attributed to the fact that management (a) primarily focuses on good news and (b) that some types of good news requires more complex explanation than others. Since good news about fundamentals (i.e. relative positive sales increase and relative positive long-term firm growth) is not immediately obvious from the financial statements, it requires more complex explanation than news about financials (i.e. profits and earnings increases). This, in turn, requires more complex language to explain, manifesting itself in more complex sentence structures requiring conjunctions, such as *and*, *but*, *if*, *although*, etc. This might be the reason why 'good news' concerning sales growing faster than those of the sector and not 'good news' regarding profits or earnings increases is directly associated with cognitive complexity.

Further, we find self-reference and positive emotion words to be directly associated with firm size. This is the case even if firm size is interacted with 'good/bad news'. As discussed above, this association can be interpreted as an indication of their greater market dominance and associated greater self-confidence. This results in the use of more self-references and positive emotion words in the chairman's reports of large compared to those of small companies.

Finally, results indicate that the association between self-referential dissimulation and 'good/bad news' and firm size of consumer cyclical, industrial and technical companies mirror those of the whole sample. This is in line with hypothesis H_{2d} which states that there is no difference in the strength and direction of association between the linguistic markers and 'good/bad news' and firm size between the three sectors.

6.4 Discussion of chapter results and conclusion

This chapter has reported the findings of two manifestations of impression management, namely (1) reading ease manipulation and (2) self-presentational dissimulation. Results suggest that companies neither engage in impression management in the form of reading ease manipulation, i.e. rendering their corporate

narrative documents difficult to read, nor in the form of self-presentational dissimulation, i.e. presenting a public image of firm performance and prospects which is inconsistent with the way management may see firm performance and prospects. In fact, results suggest that the opposite might be the case, i.e. firms use their corporate narrative documents (1) to cater for the specific reading strategies of their target readers and (2) to provide an unbiased report of their financial performance and prospects.

In our investigation of impression management by means of reading ease manipulation, we find direct associations between reading difficulty both in the form of long sentences and long words (*Flesch Reading Ease*) and in the form of lack of cohesion (*MMA2* and *Coh-Matrix*) and 'bad news'. However, when 'good/bad news' is interacted with firm size, this association disappears both in the case of conventional and cohesion-based measures of reading difficulty. We thus conclude that firm size is the major driver of reading difficulty. What is more, we find reading difficulty to be inversely associated with firm size in the case of the *Flesch Reading Ease* score and directly associated with firm size in the case of the four *Coh-Matrix* reading difficulty measures. Based on research in psychology regarding the different text processing strategies of high-knowledge and low-knowledge readers, we interpret this as a sign that large and small firms target their corporate narrative documents to different groups of readers. Large firms seem to cater more to professional investors who prefer cohesion gaps which help them process information by means of making inferences either from their previous knowledge or from previous textual information, whereas small firms seem to cater more to individual investors who prefer highly cohesive texts which aid comprehension by providing links between different parts of the text.

In our investigation of impression management by means of self-presentational dissimulation, the observed associations between the linguistic markers and 'good/bad news' and firm size suggest an alternative explanation to impression management. We find positive emotion words to be directly associated with 'good news' and negative emotion words to be directly associated with 'bad news'. This suggests that chairman's reports 'tell it as it is', or, as Abramamson and Amir (1996: 1159) put it, management does not seem to use narrative corporate report sections "to reduce the

effect of bad news or to smooth the effect of good news” (1159), i.e. for impression management purposes.

This pattern of associations suggests that the linguistic markers are not indications of self-presentational dissimulation, but of other psychological processes. The finding that self-reference is both directly associated with ‘good news’ and firm size leads us to conclude that it can be interpreted as a sign of power and self-confidence. Thus, large firms and firms reporting ‘good news’ (in the form of profits and earnings increases) are more self-confident about their results than small firms and firms reporting ‘bad news’ (in the form of losses and earnings decreases). This self-confidence manifests itself in the increased use of self-references. Further, we find cognitive complexity to be directly related to ‘good news’ (in the form of relative positive sales increases). In the light of previous explanations regarding observed associations, we interpret this association as a sign of the nature of the ‘good news’ being reported, i.e. more complex ‘good news’ (i.e. good news which is not immediately apparent from the financial statements) requires more complex sentence structures manifesting itself in an increased use of conjunctions, such as *and*, *but*, *if*, *although*, etc.

Chapter 7: SUMMARY, CONCLUSIONS, AND IMPLICATIONS OF RESEARCH

This chapter summarizes the contributions of the current study to the understanding of impression management, presenting the objectives and findings of the research study in the context of previous research and suggesting appropriate avenues for future research.

7.1 Objectives and summary of research

This study constitutes an exploration of impression management in narrative corporate report sections. The aims are (i) to establish what constitutes impression management behaviour in a financial reporting context, (ii) to determine which circumstances are conducive to managerial impression management behaviour, and (iii) to examine chairman's reports for evidence of impression management.

Impression management may be regarded as the introduction of cognitive and emotional bias into publicly issued statements in order to influence perceptions of firm performance and prospects. Impression management in corporate narrative documents thus entails bias and selectivity in the disclosure and presentation of information, and can be differentiated from executive hyperbole, ego-centrism and self-deception (i.e. managerial optimism, or hubris).⁹²

In the context of this thesis, impression management is studied in the form of the obfuscation of negative organisational outcomes, specifically in the form of (1) reading ease manipulation, i.e. rendering narrative corporate report sections more difficult to read when the news is bad and (2) self-presentational dissimulation, i.e.

⁹² In behavioural finance, impression management is viewed as the attempt by rational managers to exploit irrational investor behaviour, which involves deliberate manipulation of investor perceptions of firm performance. This thesis does not include an assessment of investor behaviour, and is concerned with the nature of the evidence for impression management within corporate report narratives.

portraying a public image that is inconsistent with the way in which insiders may see the firm.

For this purpose, three new measurement techniques based on research in linguistics and psychology are employed, namely the exploration of reading ease manipulation by means of both annotation-based (cohesive ties, cohesion density and proportion of given vs. new information) and computer-generated (adjacent argument overlap, argument overlap, adjacent stem overlap, and stem overlap) cohesion-based measures of reading difficulty and the investigation of self-presentational dissimulation by means of five linguistic markers (word count, self-reference, reference to others, use of emotion words, and cognitive complexity).

With regard to the new cohesion-based methods to measuring reading difficulty introduced in this study, these have not been employed previously in accounting research, and they address the validity concerns inherent in conventional approaches. The measurement of self-presentational dissimulation by means of linguistic markers also constitutes a new approach to measuring impression management. It is based on the linguistic characteristics individuals display when they attempt to present themselves in a way which is inconsistent with their self-image. In a corporate reporting context, such self-presentational dissimulation would entail presenting an image of the firm to outsiders that is inconsistent with the way management may see the firm and its performance.

The investigation of impression management both by means of reading ease manipulation and by means of self-presentational dissimulation involves testing the obfuscation hypothesis which states that firms reporting negative organisational outcomes ('bad news') are more likely to engage in impression management than those reporting positive organisational outcomes ('good news'). Thus, the use of impression management is hypothesised to be directly related to 'bad news'. Further, it is hypothesized that firm size also plays a role in the use of impression management. Due to the political costs associated with positive reporting bias, large firms are hypothesized to be less likely to engage in impression management than small firms. Industry membership is hypothesized to have no bearing on the use of impression management.

The study confirms that the chairman's reports of UK listed companies are in general difficult to read, which is consistent with prior research. However, there is little evidence for reading ease manipulation. None of the state-of-the-art indices considered here differs significantly between 'bad news' and 'good news' firms. Using both annotation-based and computer-generated measures to capture different aspects of reading difficulty, the invariable outcome is that, as a general rule, companies do not appear to obfuscate negative organisational outcomes by rendering their chairman's report more difficult to read.

Although reading difficulty initially seems to be directly related to 'bad news', this association is not consistent when 'good/bad news' is interacted with firm size. This pattern is observed both with conventional readability scores and cohesion-based reading difficulty measures.

On the other hand, firm size is found to have an impact on reading difficulty. This association persists in the case of conventional (*Flesch Reading Ease* score) and cohesion-based (*Coh-Matrix*) measures of reading difficulty when firm size is interacted with 'good/bad news'. However, the association is in opposite directions. The *Flesch Reading Ease* score is found to be directly associated with firm size, whereas cohesion-based measures are inversely related to firm size. We interpret these contradictory results as an indication that firms do not obfuscate negative organisational outcomes by means of rendering their corporate narrative sections difficult to read. In fact, results seem to suggest that the opposite is the case, namely firms seem to tailor their corporate narrative documents to the reading strategies of their target readership groups. Large firms seem to cater more to the needs of high-knowledge readers, i.e. professional investors or readers who are already familiar with the information contained in the chairman's statement, who prefer low cohesion texts, whereas small firms seem to cater more to the needs of low-knowledge readers, i.e. individual investors or readers who are largely unfamiliar with the information contained in the chairman's statement, who prefer high cohesion texts.

With regard to self-presentational dissimulation, the evidence suggests significant associations between firm performance, firm size and linguistic markers, notably self-reference and cognitive complexity. Self-reference is significantly higher when profitability increases, and both self-reference and cognitive complexity are greater to a significant extent when there is good news about the sales and growth drivers of profitability. Whilst the use of emotion words appears to be unconnected in general with performance outcomes, when we discriminate between positive and negative emotion words, these are significantly associated with good and bad news respectively, as may be expected. These mixed results lead us to conclude not that linguistic markers are indicative of impression management by means of self-presentational dissimulation, but that other processes relating to the nature of firm operations may be attributable. These results and inferences are discussed in greater detail below.

7.2 Summary of results and comparison with previous research findings

7.2.1 Reading ease manipulation

We examine whether companies engage in reading ease manipulation, i.e. whether management uses corporate narrative documents to obfuscate negative organisational outcomes by means of rendering them difficult to read. For this purpose, we test the association of seven new cohesion-based measures of reading difficulty - three of which are annotation-based (cohesion density, amount of cohesive ties, and proportion of given vs. new information) and four of which computer-generated (adjacent argument overlap, argument overlap, adjacent stem overlap, and stem overlap) - and 'good/bad news' and firm size. We further test whether there is any difference in the strength and direction of association according to industry classification.

7.2.1.1 Reading difficulty measures

Both annotation-based (*MMAX2*) and computer-generated (*Coh-Matrix*) measures of reading difficulty are found to be distinct from conventional reading difficulty

measures, such as the *Flesch Reading Ease* score and the *Flesch-Kincaid Grade Level*. This means that they measure different concepts of reading difficulty and can thus be used as alternative research tools in future reading ease manipulation studies. What is more, annotation-based and computer-generated measures of reading difficulty are also found to constitute separate measures of reading difficulty, which suggests that they measure different aspects of reading difficulty and cannot be used as substitutes for one another.

7.2.1.2 Association between reading difficulty and 'good/bad news', firm size, and industry classification

Although we find reading difficulty measured by means of conventional readability scores (*Flesch Reading Ease*) and by means of five out of the seven cohesion-based measures to be directly associated with 'bad news', this association is not consistent across firms of different sizes. For this reason, results do not provide evidence that firms obfuscate negative organisational outcomes by means of reading ease manipulation. This result confirms the findings of Curtis (1986, 1995, 1998), Jones (1988); Subramanian et al. (1993), Clatworthy and Jones (2001), Sydserff and Weetman (2002), and Rutherford (2003) who find no association between reading difficulty and firm performance. This is in contrast to Adelberg (1979), Baker and Kare (1992), Smith and Taffler (1992a, 1992b), and Curtis (2004a) who observe a direct association between reading difficulty and negative firm performance. However, none of these studies test for interaction effects between firm performance and firm size. This means that the association they observe might be driven by firm size.

However, we observe a significant inverse association between the *Flesch Reading Ease* score and firm size and a significant direct association between two measures of reading difficulty (argument overlap and stem overlap) and firm size which both persist when firm size is interacted with 'good/bad news'. The direct association between the cohesion-based measures and firm size is in the opposite direction than hypothesised. It suggests that the chairman's reports of large companies are less cohesive (and thus more difficult to read) than those of small companies. This is in line with Jones (1988) and in contrast to Baker and Kare (1992) who find an inverse

association between reading difficulty and firm size and Curtis (1995, 2004a) and Rutherford (2003) who find no association.

In isolation, this direct association between the cohesion-based measures of reading difficulty and firm size could be interpreted in line with (Jones 1988; Rutherford 2003) as a function of the complexity of operations of large companies resulting in more complex narratives. However, in combination with the findings regarding the inverse association between reading difficulty measured in terms of the *Flesch Reading Ease* score and firm size, we interpret the results in the context of research in psychology on the different reading strategies of high-knowledge and low-knowledge readers. Whereas the former find low cohesion texts easier to read than high cohesion text, the opposite is true for low-knowledge readers. In the context of corporate reporting this can be interpreted as an indication that firms might tailor their corporate narrative documents to their target readers, i.e. large firms seem to cater to the needs of high-knowledge readers, such as professional investors, whereas small firms seem to cater to the needs of low-knowledge readers, such as individual investors. What is more, there is more information publicly available for large companies than for small companies prior to the publication of the annual report. This means that the readership of the chairman's reports of large firms is more familiar with the information content of the chairman's report and thus finds low-cohesion texts easier to read, whereas the opposite is the case for the readership of the chairman's reports of small firms who thus find high-cohesion texts easier to read.

Findings thus suggest that firms do not obfuscate negative organisational outcomes by rendering corporate narrative documents difficult to read, but seem to indicate that the opposite might be the case, i.e. firms seem to tailor their corporate narrative sections to the specific needs of their target readerships.

We also find that both annotation-based (*MMAX2*) and computer-generated (*Coh-Matrix*) measures of reading difficulty of consumer cyclical, technology, and industrial companies show very similar associations with 'good/bad news' and firm size to the whole sample. This indicates that industry classification does not make a difference to the impression management behaviour of companies. This is in line with Curtis (1995) who finds no association between reading difficulty and industry.

The mixed results of previous studies regarding the obfuscation of negative organisational outcomes by means of reading ease manipulation can be attributed to various factors, namely (1) the different measures of reading difficulty and the predominantly short-term and firm-specific measures of positive and negative firm performance used by researchers, (2) the different corporate narratives examined for evidence of reading difficulty, (3) the different countries of origin of the companies studied, and (4) a mixture of these factors. However, an alternative explanation for the contradictory findings of previous studies might be that none of the studies which find a significant association between reading difficulty and ‘good/bad news’ or firm size check whether these associations remain constant across firms across various sizes by means of interacting ‘good/bad news’ and firm size.

The conclusion we come to after examining the association between reading difficulty and ‘good/bad news’ and firm size using seven measures of reading difficulty and four measures of ‘good/bad news’ and subsequently testing whether any observed associations between variables remain after interacting ‘good/bad news’ and firm size is that the results do not support the obfuscation hypothesis. What is more, these results are consistent across three industry sectors. This suggests that companies do not obfuscate negative organisational outcomes by means of rendering their corporate narrative documents difficult to read. In fact, results suggest that the opposite might be the case, i.e. firms seem to tailor their corporate narrative documents to the particular reading strategies of their target readerships.

7.2.2 Self-presentational dissimulation

We examine whether companies engage in self-presentational dissimulation, i.e. whether they use their corporate narrative documents to create a public image of firm performance and prospects which is inconsistent with how management may see firm performance and prospects. For this purpose, we test the association between five linguistic markers (word count, self-reference, reference to others, emotion words, and cognitive complexity) and ‘good/bad news’ and firm size. We further test whether there is any difference in the strength and direction of association according to industry classification.

7.2.2.1 Linguistic markers

The analysis of linguistic markers shows chairman's reports to be characterised by a comparatively high use of self-references as compared with references to others (competitors). In fact, they contain, on average, fifteen times as many references to themselves than to competitors, which can be interpreted as a sign that firms do not tend to use competitors for benchmarking performance in their narrative corporate reports.⁹³

Chairman's reports also contain, on average, four times as many positive emotion words compared with negative emotion words. This indicates that firms have a tendency to introduce positive bias into narrative reporting. What is more, compared with non-business genres, chairman's reports show the highest use of positive emotion words and the second lowest on the use of negative emotion words. This suggests that the primary purpose of chairman's reports is to adopt an 'up-beat' message about the company.

7.2.2.2 Association between linguistic markers and 'good/bad news', firm size, and industry classification

We find self-reference, positive emotion words, and cognitive complexity to be inversely associated with 'bad news' and negative emotion words to be directly associated with 'bad news'. We further find self-reference and positive emotion words to be directly associated with firm size. These associations are consistent when 'good/bad news' is interacted with firm size. Apart from the association between positive emotion words and 'bad news', all associations are in the expected directions. What is more, we find the strength and direction of associations not to vary considerably between industry sectors.

Results for impression management in the form of self-presentational dissimulation are more difficult to compare with those of previous studies because impression management has not been studied in this form before in a corporate reporting context.

⁹³ In this context, it is interesting to note that the use of impression management is found to be directly related with 'bad news' measures based on the firm performance of competitors (see section 7.2.2), i.e. negative relative sales growth (RSI = 0) and long-term negative relative firm growth (RG = 0). This suggests that firms obfuscate negative organisational outcomes since they do not want to draw attention to the fact that they are performing worse than their competitors.

However, the five individual linguistic markers have been investigated in different impression management contexts before, albeit with slightly different assumptions. As indicated in chapter six, section 6.3.2.4, the use of words with positive and negative connotations has been studied in the context of the Pollyanna principle (Hildebrandt and Snyder 1981; Clatworthy and Jones 2003; Rutherford 2005) which states that firms predominantly use positive emotion words, regardless of their financial performance and in the context of thematic manipulation (Abrahamson and Park 1994; Abrahamson and Amir 1996; Smith and Taffler 2000). However, results regarding the Pollyanna principle are mixed. Hildebrandt and Snyder (1981) find no difference between the use of words with positive connotations between profitable and unprofitable companies. Rutherford (2005) finds no difference between the use of ‘charged words’, i.e. words carrying positive or negative connotations, between profitable and unprofitable companies. However, he finds that loss-making firms use more negatively charged words. By contrast, Clatworthy and Jones (2003) find that both profitable and unprofitable companies emphasize ‘good news’ by means of words with positive connotations.

The results of the current study regarding the use of positive and negative emotion words are in line with the findings from studies focusing on thematic manipulation. Abrahamson and Park (1994) and Abrahamson and Amir (1996) find words with negative connotations to be associated with poor performance. Smith and Taffler (2000) find positive keywords to be associated with ‘good news’ and negative keywords to be associated with ‘bad news’. The observed direct association between the use of positive emotion words and ‘good news’ and negative emotion words and ‘bad news’ in this study thus confirm insights from thematic manipulation studies that *“the unaudited managerial disclosures provided in the chairman’s statement contain important information associated with the firm’s future financial state”* (Smith and Taffler 2000: 639). This suggests that management does not use narrative corporate report sections *“to reduce the effect of bad news or to smooth the effect of good news”* (Abrahamson and Amir 1996: 1159), i.e. for impression management purposes.

Rutherford (2005) examines self-reference, but only in the form of the word *company* and not in the form of first-person pronouns. He finds no association between self-reference and 'good/bad news'. In contrast, we find self-reference to be directly related to 'good news' which is in the hypothesized direction. However, taken in context with the pattern of association observed between positive and negative emotion words and 'good/bad news' we do not interpret this as a sign of self-presentational dissimulation (individuals portraying an image inconsistent with their self-image tend to distance themselves from what they are saying by means of using less self-reference), but as a sign of the greater sense of power and self-confidence of companies reporting 'good news' rather than 'bad news'. This explanation fits also with the direct association observed between self-reference and firm size in the sense that large companies have more clout and thus signal their power and self-confidence by means of more self-references than small companies.

Last, but not least, cognitive complexity has been studied in the context of reading ease manipulation (in the sense that reading difficulty is a function of cognitive complexity). The more cognitively complex a text is, the more difficult it is to read and understand. However, the assumptions underlying reading difficulty and cognitive complexity are diametrically opposed. Whereas the obfuscation hypothesis predicts reading difficulty to be directly related to 'bad news', self-presentational dissimulation by means of cognitive complexity predicts an association in the opposite direction. Self-presentational dissimulation is assumed to take up a substantial amount of cognitive resources resulting in less cognitive complexity in texts. The results of the current study support this assumption in that we find cognitive complexity to be directly related to 'good news' in the form of relative positive sales growth.

However, this association is interpreted as an indication of the tendency of firms to talk more about 'good news' than 'bad news', in particular 'good news' regarding fundamentals (i.e. relative positive sales growth and relative positive long-term firm growth). This is due to the fact that 'good news' about fundamentals is not immediately apparent from looking at the financial statements, but requires more complex explanations. This, in turn, manifests itself in more complex sentence structures characterised by conjunctions, such as *and*, *but*, *if*, *although*, etc. Thus, the

direct association between cognitive complexity and ‘good news’ in the form of relative positive sales growth can be interpreted as a function of the nature of the ‘good news’.

Industry classification is not found to make a difference in terms of the association between the linguistic markers of self-presentational dissimulation and ‘good/bad news’ and firm size.

Results thus suggest that firms do not obfuscate negative organisational outcomes by means of self-presentational dissimulation, i.e. they do not portray an image of the firm and its performance which is incongruent with the way insiders might see the firm and its performance. In fact, results suggest that firms use their corporate narrative documents to provide an unbiased account of firm performance and prospects.

7.3 Implications of research findings

The results of the current study do not support the obfuscation hypothesis, i.e. firms do not seem to obfuscate negative organisational outcomes by means of rendering corporate narrative documents difficult to read or by portraying a public image of the firm and its performance which is incongruent with the way insiders may see the firm and its performance. In fact, results suggest that the opposite might be the case. Firms seem to tailor their corporate narratives to the reading strategies of their target readerships. Firms also seem to portray an unbiased view of their financial performance and prospects.

These findings do not imply that companies do not engage in impression management in their corporate narrative documents; it simply means that the obfuscation of negative organisational outcomes by means of reading ease manipulation and self-presentational dissimulation do not seem to be preferred impression management mechanisms.

The lack of evidence found supporting the obfuscation hypothesis might be attributed to the limited psychological validity of the obfuscation hypothesis in general or of obfuscation by means of reading ease manipulation and self-presentational dissimulation in particular. The obfuscation hypothesis, which forms the basis of our investigation, is derived from an agency theory concept of impression management which is based on (a) assumptions of efficient markets and rationality assumptions of managerial and investor behaviour and (b) strictly economics-based assumptions of managerial motivations and strategies. However, as discussed in chapter two (sections 2.6 and 2.7), alternative concepts of impression management which are derived from theories in behavioural finance and social psychology, indicate that traditional finance explanations of impression management might have limited explanatory power. What is more, the concept of reading difficulty originates in education research, however, economics-based theories of reading difficulty do not exist.

Thus, accounting research focusing on impression management could benefit from insights from behavioural finance and social psychology. Behavioural finance provides a better understanding of impression management in a corporate reporting context by means of incorporating notions of irrationality and affect into managerial and investor behaviour. Social psychology not only provides alternative explanations for the incentives of managers to engage in impression management (see chapter two, section 2.7.2), but also suggests alternative ways of how impressions are constructed which entails “*choosing the kind of impression to create*” and “*deciding how [to] go about doing so*” (Leary and Kowalski 1990: 35-36). Accounting research has already adopted one impression management strategy identified by social psychology research, namely performance attributions (see chapter two, sections 2.3.4 and 2.4.4). However, as indicated in chapter two, section 2.7.2, there are numerous possibilities for applying insights from social psychology research in a corporate reporting context. Suggestions for further research regarding the tactics and strategies employed to create a desired impression are discussed in section 7.5.2.1 of this chapter.

Comparing the results of the current study with previous findings suggests that there are several critical factors which have an impact on results, namely (1) the way in which impression management is measured, (2) the way financial performance is measured, and (3) the way association tests are carried out. It would be interesting to

apply the cohesion-based reading difficulty measures introduced in the current study to different corporate narratives (e.g. press releases, management forecasts, takeover documents, etc.) and to corporate narratives from non-UK companies in order to test these measures in different corporate reporting contexts. Due to the ease and speed of application of the computer-generated cohesion-based measures of reading difficulty (*Coh-Metrix*), this would provide an interesting research opportunity.

What is more, since the main effects model provides evidence for significant associations between reading difficulty measures/linguistic markers and 'good/bad news' in the form of relative sales growth (RSI) and relative long-term growth (RG), this suggests that future research needs to include not only firm performance measures focusing on financials, but also on fundamentals. This means that measures of firm performance need to encompass both short-term firm-specific measures of firm performance (such as earnings and earnings growth), industry comparators (such as relative sales growth and long-term relative firm growth) and long-term measures of performance (such as long-term relative firm growth).

Finally, results from the current study suggest that the association that appears to exist between reading difficulty and 'bad news' is not consistent across firms of different sizes. This suggests that it is important to test for interaction effects between 'good/bad news' and firm size.

7.4 Limitations of research

Due to the time-consuming aspect of data preparation (i.e. converting texts into computer-readable format) and the labour-intensity of the annotation-based approach to measuring reading difficulty (*MMA2*) the investigation of impression management by means of three different methodologies is restricted to one type of corporate narrative document (i.e. the chairman's report) and a relatively small sample size (i.e. 93 companies). For this reason, caution needs to be applied in generalising results.

Since the analysis of impression management is restricted to the supply-side, it is impossible to say whether impression management – if evidence of it is found - is effective. What is more, without establishing managerial intentions, e.g. by means of analysing the subsequent selling of shares by management as pioneered by Abrahamson and Park (1994), evidence of impression management could equally be attributed to managerial optimism (hubris).

7.5 Suggestions for further research

The majority of prior impression management research in a corporate reporting context focuses solely on managerial behaviour and does not address subsequent investor responses. In particular, considerable effort is expended in finding evidence of impression management, especially in annual reports. Two broad questions are paramount: (1) Why do managers engage in impression management? and (2) Are investors influenced by impression management? These have received relatively less attention by comparison with efforts to measure impression management. Increasing availability of technology is making measurement of impression management easier. This will allow researchers to apply more focus to these two questions.

7.5.1 Theoretical perspectives

Four manifestations of impression management have been identified in this study (see chapter two, section 2.2). They are either explicitly (obfuscation of negative organisational outcomes, performance comparisons, choice of earnings number) or implicitly (attribution of performance) based on agency theory assumptions of managerial behaviour, i.e. managers are assumed to opportunistically engage in impression management to maximise their own benefit. Agency theory is not without its limitations and drawbacks (see, e.g. Roberts et al. 2005). There are many other theoretical perspectives which explain managerial behaviour. Only two others (in addition to agency theory) have been applied in impression management research: signalling theory which is used in conjunction with agency theory, and legitimacy theory. Accordingly, alternative perspectives might be invoked in moving research paradigms forward.

In connection with corporate annual reports research, Stanton and Stanton (2002) identify additional perspectives including those from marketing (which would be very appropriate for impression management research), political economy and accountability. As pointed out in chapter two, section 2.1, previous research has almost exclusively focused on one aspect of impression management in a corporate context, namely the manipulation of perceptions of firm performance and prospects. The application of alternative perspectives allows the analysis of the manipulation of impressions of corporate events, such as demutualization, mergers or acquisitions, factory closures, etc. (legitimacy and political economy), ideas, such as capitalism (political economy). Impression management also features in political research, which may offer new insights to financial reporting researchers.

7.5.2 Impression management and the firm

Impression management is a function of managerial incentives, organisational influences, environmental forces and regulatory responses. This begs further questions. This section considers future research opportunities from a firm and management perspective.

What are the tactics and strategies for creating desired impressions?

The whole area of impression construction requires further research. In particular, what is it in annual reports that fosters desired impressions? What are the tactics and strategies for reducing the effect of negative impressions?

Two types of impression management behaviours have been identified – ingraty and other-enhancement behaviour and self-enhancement behaviour. What influences these two behaviour patterns? Aerts' (2005) call for more research into differing attributional profiles depending on whether the information item is a revenue, cost or profit, constitutes another avenue for future impression management research.

Impression management has tended to concentrate on disclosures in annual reports, with more recent research including disclosures in press releases. Voluntary disclosures through another disclosure media such as websites and conference calls.

presents an opportunity to expand impression management research to these electronic means of communication with investors.

What are the motivations for impression management?

What are the critical motives for impression management behaviour? Do managers attempt to misrepresent, or do they try and communicate truthfully? Is impression management a harmless ritual or does it have results? Is impression management marketing-based or communications-based? What do management expect to achieve when they engage in impression management?

Prior literature fails to address whether the application of the linguistic techniques required to manipulate the reading difficulty of texts are executed consciously or unconsciously. It is possible that impression management takes place both on a conscious and on an unconscious level, depending on the level of awareness of these techniques on part of the writer. Corporate communication professionals may use the linguistic techniques aimed at impression management more consciously than management. This suggests differences in the use of impression management by management and corporate communication professionals.

What are the opportunities and risks of engaging in impression management?

Perceived opportunity is an important element in the impression management process. What are the perceived opportunities to manage impressions effectively? More research around managers' perceptions around this issue is needed. Perceived opportunity moderates the influence of impression motivation on impression management behaviours. It is likely that motivations for impression management and opportunities are related although research has provided little evidence on this point. Also relevant are the probable costs and benefits of impression management behaviour. The benefits are related to the perceived probability of impression management behaviour being successful. The costs relate to the perceived risks of engaging in impression management. Thus, management's perceived ability to accurately assess the appropriateness or acceptability of impression management, judgement of the likelihood of success of managing impressions and willingness to incur the perceived risks of doing so will to a large extent determine perception of opportunity.

All of these questions involve management assessing whether a situation is favourable when determining whether to engage in impression management. In this context, recent corporate scandals provide an opportunity to test situational favourableness (more favourable before the scandals) and the extent to which impression management is engaged in. Impression management in a sample of company annual reports before the scandals could be compared with the same annual reports after the scandals.

Who exercises impression management?

How are impression management choices made within organisations? By whom are the choices made - managers, public relations advisors, the board (executive or non-executives)? In this context, Schaffer's (2002) analysis of the differences in evaluation of managerial performance by inside and outside directors provides some insights into boardroom dynamics in regards to managerial impression management behaviour. He argues that inside and outside directors face different cognitive and social constraints which inhibit their ability to effectively evaluate managerial performance during times of negative organisational outcomes. For inside directors these constraints consist of (a) loyalty to the CEO and members of top management and (b) fear of retaliation. Outside directors face (a) informational constraints, (b) time constraints, and have (c) lower levels of commitment to the company. These constraints "*may cause board members to use either incomplete or distorted information to make assessments*" (Schaffer 2002: 98). Thus, it would be interesting to investigate the potential effects of these different constraints on the impression management behaviour/susceptibility of inside and outside directors.

What is more, it is not clear who prepares corporate reports. Abramhanson and Park (2004) find some evidence that influence groups such as accountants, some types of shareholders and outside directors prompt impression management. This avenue of inquiry is worth re-visiting. Should impression management research be based at the level of the firm, senior management, professional writers, or public relations companies? We need to better understand the process of assembling annual reports narrative sections. Work of the style of Gibbins, Richardson and Waterhouse (1990) would be useful in this respect. This necessitates directly engaging with firms in the

form of interviews and questionnaires. Milner (2007), who adopts this approach, finds the compilation of annual reports to be a very complex process, involving a variety of inside and outside parties, including management and public relations firms.

What is more, is the firm and management one and the same thing? Are there differences in the way in which managers portray themselves versus their portrayal of the firm? How do the personal characteristics of managers influence impression management? Are there any links between impression management and managerial dominance, especially CEO dominance? Insights from the takeover literature might provide more insights on the links between managerial characteristics and firm behaviour (Jensen and Zajac 2004; Brown and Sarma 2006).

What are management's perceptions of users' impressions?

Levantis and Weetman (2004) suggest that management providing second language annual reports offers insights into managerial perceptions of readership as a significant explanation of management voluntary disclosure and impression management practices. So and Smith (2002) point to the importance of matching methods of presentation of information to the characteristics of the decision maker, and to the interactions thereof. As well as understanding more about managers' perceptions of the effects of impression management, we also need to know more about managers' perceptions of the impressions of users. While the effects of impression management and perceptions of how users' impressions are formed are related, useful additional nuanced insights can be gained by considering them separately.

Is impression management influenced by the disclosure vehicle?

The majority of studies analyse narrative disclosures from annual reports or parts thereof. Courtis (2004a) extends to interim reports and prospectuses. Are there variations in impression management between periodic reports such as annual reports and interim reports, and prospectuses and takeover documents? Claims in takeover documents could be compared with those in the immediately preceding and following annual reports. It has been well-established that defending against a takeover bid is significantly more likely to result in a price increase (Brennan 1999). The persuasiveness of the takeover defence document may influence the outcome (failure of the bid; increase in bid price) of the bid, especially any resulting price increase.

Takeover presents an opportunity to research the effects of impression management where the market reaction might be easier to measure. The association between impression management and takeover premiums could also be tested.

What other factors influence impression management?

Future research should examine individual and contextual influences in a variety of situations. The impression management literature is replete with studies that demonstrate the effect of isolated factors on impression management. What is the association between situational influences and impression management? How do these factors act in combination, and interact? Are there variations in impression management arising from differing cultural influences? In relation to attributional behaviour, and the tendency towards defensive explanations, Aerts (2005) acknowledges variations in behaviour internationally, with more evidence of attributional defensiveness in US compared with UK annual reports. Cultural issues may influence impression construction strategies and self-presentation behaviours. Replication of studies in different cultural settings is worthy of future research.

Are earnings management and impression management related?

As was stated earlier in this study (Chapter two, section 2.1.3), earnings management and impression management are cognate research streams. Are companies that engage in earnings management also likely to engage in impression management? Courtis (2004a) asks whether impression management is a consequence of rhetorical polishing or spin, or whether it reflects more serious misrepresentation whose intention is to mislead and disguise the true state of affairs. If an association is found between earnings management and impression management, this would point to deliberately misleading behaviour by management rather than spin. Godfrey et al. (2003) investigate earnings management and impression management in graphs around CEO changes. Examining earnings and impression management together provides an opportunity for distinguishing between alternative explanations of these practices. However, their results are mixed. Continuing this combination of earnings and impression management using alternative impression management measures might add insights to our understanding of the interrelation and interactions between these two practices.

7.5.3 Reactions to impression management

The previous section has considered impression management from a firm/manager perspective. This leaves the whole question of what happens in response to impression management. According to Ogden and Clarke (2005: 340) there are limits to what impression management can achieve in terms of persuading users as to the sentiments being expressed in annual reports.

How are users' impressions formed?

We need to more fully understand how impressions are formed. How are specific impressions (e.g. management credibility, organisational effectiveness) created? How are impressions developed or formed? Once formed, how can impressions be managed thereafter? What creates positive and negative impressions of credibility? What is the relation between impression management tactics and positive and negative impressions of credibility?

Mercer (2005) finds that managerial reporting credibility differs in the long- and in the short-term. In the short-term credibility is a function of cognitive processes, whereas in the long-term, it is a function of affective processes. This results in short-term credibility depending on managerial forthcomingness (i.e. the accuracy, completeness, and timeliness of disclosures), especially in the case of negative news disclosure decisions and long-term credibility depending on the valence of the news disclosed, regardless of the managerial forthcomingness of the news. This means that managers who report good news are deemed more credible than those reporting bad news.

These findings suggest that impression management (entailing a manipulation of either the accuracy or the completeness of information) is not likely to be successful in the short term, especially if it entails the obfuscation of negative organisational outcomes. This is due to the fact that attribution theory predicts disclosures which are at odds with management's personal incentives to be more likely to be attributed to personal characteristics, such as honesty and trustworthiness than disclosures which are consistent with management's incentives (Mercer 2005: 727). However, impression management has a much greater chance of succeeding in the long-term, since the deciding factor of managerial reporting credibility in this case is not

forthcomingness, but the valence of news disclosed. Since good news disclosures are more credible in the long-term than bad news disclosures, this means that the obfuscation of negative organisational outcomes should not affect managerial reporting credibility in the long-term.

How do users' personal characteristics influence impressions formation?

It is possible that different personal characteristics influence impression management receptiveness. There are a whole variety of factors that could influence differences in users' receptiveness to impression management, including users' cognitive style, their level of work experience, cultural background, personality and tolerance for ambiguity. In the context of reading difficulty, the results of this study suggest that reading difficulty is a function of the level of financial expertise. Firms appear to cater to the reading strategies of their perceived target readership, i.e. large firms catering to the needs of high-knowledge readers, such as institutional investors and financial analysts, and small firms catering to the needs of low-knowledge readers, such as individual investors. This suggests that impression management might have different impacts on expert users of corporate documents, such as financial analysts, than 'naïve' users, such as individual shareholders.

However, there might be more differences between different types of user and impression management, e.g., individual users, institutional investors, analysts, males versus females, etc. Users of corporate reporting documents might be asked to rate examples of different impression management tactics on a Likert scale. A number of studies have attempted to examine through experiment the influence of impression management on perceptions of users (Taylor and Anderson 1986; Beattie and Jones 2002; So and Smith 2002; Stanton et al. 2004). These studies use impression management in graphs. Future research might extend to textual material.

What is the likelihood of success of impression management?

There is little evidence on whether impression management influences impressions and on the effectiveness of different impression management behaviours and techniques. Is impression management self-deception/hubris or genuinely misleading behaviour? Insights from the takeover literature might provide important insights on managerial overconfidence, especially CEO overconfidence (Hayward and Hambrick

1997; Malmendier and Tate 2004; Brown and Sarma 2006). If managers score highly in terms of managerial overconfidence, reporting bias in corporate documents can be interpreted as self-deception/hubris, rather than impression management, i.e. manipulation of reader perceptions.

What is more, we do not know whether impression management has intrinsic as well as symbolic substance. We do not know whether readers of corporate reports detect or see through impression management, including obfuscation. Following from this, there is little evidence on whether impression management makes any difference to investors' perceptions of companies and to their decision making. We do not know whether impression management has economic consequences.

Huang (2005: 113) argues that 'puffery', i.e. statements issued by companies which are "vague, promotional, or hyperbolic", has the ability to "*engender or generate implied meanings, not only cognitively, but also emotionally*" (115). This suggests that impression management can influence (i) mood formations, (ii) investor perception formation, (iii) investor judgments. How does verbal communication help investor comprehension, pinpoint attention, help shape impressions about corporate health or determine investment decision making? Does impression management backfire when perceived as lacking credibility by users? Research in social psychology shows that information must be credible to avoid unintended negative reactions (Burgoon and Miller 1985).

7.5.4 Implications for policy makers

Impression management may also be a function of regulatory responses. This begs a number of questions: Is it possible to regulate impression management? Do regulators pay enough attention to the more subtle aspects of financial reporting such as impression management? Huang (2005) distinguishes between two types of impression management, namely (1) impression management entailing vague statements, such as "*we are bullish on this company's future prospects*" (115), and impression management which induces "*false implied meanings that are thus deceptive, misleading, and can be disproved*" (115). He argues that only the second type should be legally actionable, since the first type "*is unlikely to induce any false*

implied meanings that directly affect investors' beliefs concerning that company's securities."

In this vein, Clatworthy and Jones (2003) question whether auditors' work should extend beyond the financial statements to include narrative disclosures in annual reports. This line of inquiry around the role of auditors, and of regulators, around impression management could be developed. Is it practical to expect auditors and regulators to take action in relation to such a subtle activity?

7.6 Discussion and conclusions

Impression management constitutes an important factor in the impairment of financial reporting quality which has been - at least compared with earnings management - a relatively neglected area of accounting research. This thesis has filled a gap by means of providing a comprehensive account of impression management in a financial reporting context, including its theoretical background, manifestations, mechanisms, and measurement and by means of subsequently applying the insights gained from it to the analysis of a set of chairman's reports of UK listed companies.

Thus, this thesis answers the call in prior literature for theoretical, methodological and empirical advances in impression management research (Courtis 1998, 2004; Rutherford 2003; Smith et al. 2005). It contributes to the literature (1) introducing insights from various disciplines, including behavioural finance, social psychology, and linguistics, (2) by developing two new approaches to measuring reading difficulty, (3) by presenting a new methodology for analysing self-presentational dissimulation in narrative corporate reports, (4) by introducing four measures of 'good/bad news' for testing the obfuscation hypothesis, and (5) by testing for interaction effects between independent variables and thus showing that the association between reading difficulty and 'bad news' is not consistent across firms of different sizes, and (6) by providing statistically significant results refuting the obfuscation hypothesis.

First of all, insights from behavioural finance, social psychology, and linguistics have been introduced to assist researchers in examining impression management in a corporate reporting context.

Secondly, the two automated approaches to measuring impression management introduced in this study are particularly attractive to researchers, since they not only satisfy validity, reliability, and objectivity concerns, but are also neither labour-intensive nor time-consuming in their application. They also have the advantage of being both generic in their application while allowing specific adaptation to a particular genre.

Coh-Matrix combines the speed and ease of use of conventional readability measures with linguistic and psychological validity. Measuring self-presentational dissimulation by means of linguistic markers with the help of *LIWC* constitutes a new approach to measuring impression management in a corporate reporting context.

Furthermore, the introduction of four measures of ‘good/bad news’ which are based on both financial and fundamental aspects of financial performance allow researchers to test the obfuscation hypothesis in context with ‘good/bad news’ measures incorporating both industry-comparators and long-term aspects of financial performance.

Empirical results suggest that it is important to test for interaction effects between independent variables in order to determine whether any association that may appear to exist between impression management and ‘good/bad news’ is consistent across firms of different sizes.

Finally, the empirical results indicate that companies do not engage in impression management in the form of reading ease manipulation and self-presentational dissimulation. Although we observe a significant association between reading difficulty and ‘bad news’, this association does not persist when ‘good/bad news’ is interacted with firm size. Thus, we find no evidence to support the obfuscation hypothesis which claims that firms obfuscate negative organisational outcomes by rendering their corporate narrative documents difficult to read.

However, reading difficulty is found to be associated with firm size, albeit in opposite directions for conventional and cohesion-based measures of reading difficulty. We interpret these contradictory results as an indication that firms may not use their corporate narrative sections to obfuscate negative organisational outcomes, but to cater for the specific reading strategies of their target readers. Large firms seem to tailor their corporate narratives to the reading strategies of high-knowledge readers, such as professional investors or readers largely familiar with the information content of corporate narrative report sections, who find low-cohesion texts easier to read, whereas small firms adopt the opposite approach to cater for the reading strategies of low-knowledge readers, such as individual investors or readers largely unfamiliar with the information content of corporate narrative report sections, who find high-cohesion texts easier to read.

In the case of impression management by means of self-presentational dissimulation, the observed associations between the linguistic markers and 'good/bad news' and firm size suggest an alternative explanation to impression management. The finding that self-reference is both directly associated with 'good news' and firm size suggests that the linguistic markers are not indications of self-presentational dissimulation, but as a sign of power and self-confidence. Thus, large firms and firms reporting 'good news' (in the form of profits and earnings increases) are more self-confident about their results than small firms and firms reporting 'bad news' (in the form of losses and earnings decreases). Thus, results suggest that firms do not obfuscate negative organisational outcomes by portraying a public image of the firm and its performance inconsistent with the way insiders might see the firm and its performance. In fact, the observed direct associations between positive emotion words and 'good news' and negative emotion words and 'bad news' suggest that firms provide an unbiased view of firm performance and prospects.

Research into impression management is at an embryonic stage of development. Because of its subtle, more qualitative nature it may not attract as many researchers as (say) earnings management. However, so many questions remain unanswered that it represents a fertile opportunity for a wealth of researchers looking for an under-researched field with rich potential.

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Appendix I: List of sample companies

The following table lists the 93 sample companies. They have been taken from a population of all UK companies listed at the London Stock Exchange in June 2004. It provides information about their industry classification according to the Dow Jones Market Sector (*Worldscope*) and year end market capitalization in 2002 (£ thousand).

List of sample companies			
Company name	Dow Jones Market Sector	YrEnd Market Cap2002 (£ thousand)	
1	Future Internet PLC	TEC	356,252
2	Alibi Communications PLC	CYC	651,450
3	Toye & Company PLC	CYC	989,120
4	Mercury Recycling Group PLC	IDU	1,632,670
5	Netcall PLC	TEC	1,814,513
6	Media Square PLC	IDU	2,149,684
7	Network Technology PLC	TEC	2,369,999
8	Sheffield United PLC	CYC	2,481,660
9	Surface Technology Systems PLC	TEC	2,983,077
10	Albion PLC	CYC	3,000,000
11	Bailey (CH) PLC	IDU	3,448,202
12	Know Technology Solutions PLC	TEC	3,876,300
13	Springhealth Leisure PLC	CYC	4,566,776
14	ID Data PLC	TEC	4,935,083
15	Advanced Technology PLC	IDU	4,979,526
16	Radamec Group PLC	TEC	5,046,223
17	Spring Grove Prop PLC	IDU	5,061,450
18	Slimma PLC	CYC	5,473,091
19	Atlantic Global PLC	TEC	6,255,432
20	EQ Group PLC	CYC	6,386,879
21	Jourdan PLC	IDU	6,424,074
22	Tolent PLC	IDU	6,737,129
23	Heart Of Midlothian PLC	CYC	7,896,022
24	Manpower Software PLC	TEC	7,964,115
25	Universe Group RFD PLC	TEC	8,015,200
26	Bizspace PLC	IDU	9,067,788
27	Advanced Power Companion PLC	IDU	9,075,547
28	4Imprint Group PLC	CYC	9,618,773
29	Superscape VR PLC	TEC	9,813,825
30	Clarity Commerce Solutions PLC	TEC	10,445,551
31	Christie Group PLC	IDU	10,663,225
32	Sopheon PLC	TEC	10,781,330
33	Jasmin PLC	TEC	10,991,554
34	Sherwood Group PLC	CYC	11,094,118
35	Tanfield Group PLC	IDU	12,241,683
36	Easyscreen PLC	TEC	13,469,646
37	Blooms Of Bressingham Holdings PLC	CYC	13,750,922

List of sample companies (continued)

	Company name	Dow Jones Market Sector	YrEnd Market Cap2002 (£ thousand)
38	Vega Group PLC	TEC	14,343,609
39	Medical Solutions PLC	TEC	15,483,632
40	Datamonitor PLC	IDU	15,834,699
41	SDL PLC	TEC	16,233,766
42	Whittard Of Chelsea PLC	CYC	16,400,927
43	Stylo PLC	CYC	19,364,615
44	Northamber PLC	TEC	20,614,640
45	Caffe Nero Group PLC	CYC	20,954,690
46	Artisan (United Kingdom) PLC	IDU	21,165,957
47	Corporate Services Group PLC	IDU	22,614,695
48	NSB Retail Systems PLC	TEC	23,485,717
49	Urbium PLC	CYC	24,582,658
50	Montpellier Group PLC	IDU	26,060,066
51	Tadpole Technology PLC	TEC	28,510,832
52	IFX Group PLC	CYC	30,946,325
53	Staffware PLC	TEC	34,461,725
54	Cosalt PLC	IDU	34,496,140
55	Austin Reed Group PLC	CYC	40,085,260
56	Alumasc Group PLC	IDU	40,909,726
57	Linx Printing Technology PLC	TEC	42,772,101
58	Home Entertainment PLC	CYC	45,490,337
59	PSD Group PLC	IDU	46,488,028
60	Telecom Plus PLC	TEC	53,235,211
61	Volex Group PLC	IDU	60,065,538
62	Wireless Group PLC	CYC	62,932,160
63	Bell Group PLC	TEC	65,525,903
64	Chemring Group PLC	IDU	68,041,211
65	Royalblue Group PLC	TEC	73,838,692
66	Fisher (James) & Sons PLC	IDU	79,623,312
67	Brown & Jackson PLC	CYC	84,579,782
68	Robert Wiseman Dairies PLC	TEC	90,602,401
69	Fenner PLC	IDU	99,248,317
70	Bloomsbury Publishing PLC	CYC	110,333,874
71	Surfcontrol PLC	TEC	120,616,704
72	Autologic Holdings PLC	IDU	124,117,751
73	Countryside Properties PLC	CYC	137,429,119
74	Spirent PLC	TEC	158,577,139
75	Reliance Security Group PLC	IDU	180,393,991
76	House Of Fraser PLC	CYC	198,076,464
77	Enodis PLC	IDU	202,235,121
78	Crest Nicholson PLC	CYC	221,842,012
79	AEA Technology PLC	TEC	234,320,169
80	Rotork PLC	IDU	252,756,759
81	Isoft Group PLC	TEC	339,635,987
82	Westbury PLC	CYC	350,255,543
83	Cookson Group PLC	IDU	383,059,574
84	Mytravel Group PLC	CYC	404,568,989
85	Meggitt PLC	IDU	509,099,540

List of sample companies (continued)

	Company name	Dow Jones Market Sector	YrEnd Market Cap2002 (£ thousand)
86	Wetherspoon (JD) PLC	CYC	608,438,347
87	Premier Farnell PLC	IDU	743,226,925
88	Barratt Developments PLC	CYC	989,571,721
89	Cobham PLC	IDU	1,035,204,977
90	Matalan PLC	CYC	1,612,392,715
91	Exel PLC	IDU	2,033,850,000
92	Hilton Group PLC	CYC	2,607,380,599
93	GUS PLC	CYC	7,066,767,710

Appendix II: Results of association tests by industry

1. Results for reading difficulty by industry classification

Bivariate variable	Reading difficulty measure	0 Mean	1 Mean	t-stat	p-value
PE	Cohesion Density	0.3326	0.0318	-0.43	0.671
	Cohesive Ties	0.3061	0.3775	1.01	0.320
	Proportion of given vs. new info	0.4163	0.5540	0.91	0.372
	Adjacent argument overlap	0.4401	0.4823	1.07	0.296
	Argument overlap	0.2728	0.2745	0.05	0.961
	Adjacent stem overlap	0.4649	0.5175	1.30	0.204
	Stem overlap	0.3161	0.2979	-0.50	0.620
PEI	Cohesion Density	0.3240	0.3223	-0.05	0.959
	Cohesive Ties	0.3410	0.3630	0.32	0.752
	Proportion of given vs. new info	0.4845	0.5254	0.28	0.784
	Adjacent argument overlap	0.4789	0.4621	-0.44	0.666
	Argument overlap	0.2906	0.2632	-0.84	0.410
	Adjacent stem overlap	0.5161	0.4906	-0.65	0.524
	Stem overlap	0.3370	0.2833	-1.65	0.111
RSI	Cohesion Density	0.2644	0.3509	2.99	0.006***
	Cohesive Ties	0.3224	0.3697	0.66	0.332
	Proportion of given vs. new info	0.4319	0.5466	0.75	0.458
	Adjacent argument overlap	0.4226	0.4943	1.95	0.062*
	Argument overlap	0.2556	0.2841	0.86	0.400
	Adjacent stem overlap	0.4481	0.5298	2.19	0.038**
	Stem overlap	0.2836	0.3149	0.89	0.379
RG	Cohesion Density	0.2592	0.0613	3.71	0.001***
	Cohesive Ties	0.3106	0.3786	0.99	0.332
	Proportion of given vs. new info	0.4042	0.5675	1.11	0.277
	Adjacent argument overlap	0.4310	0.4931	1.70	0.102
	Argument overlap	0.2563	0.2854	0.89	0.381
	Adjacent stem overlap	0.4569	0.5289	1.93	0.064*
	Stem overlap	0.2869	0.3147	0.80	0.428

Key: Shaded areas indicate matching results with whole sample.

Table A2: ANOVA results for technology companies

Bivariate variable	Reading difficulty measure	0	1	t-stat	p-value
		Mean	Mean		
PE	Cohesion Density	0.3047	0.3325	0.83	0.414
	Cohesive Ties	0.3744	0.3591	-0.25	0.807
	Proportion of given vs. new info	0.5439	0.4964	-0.37	0.718
	Adjacent argument overlap	0.4632	0.4522	-0.16	0.874
	Argument overlap	0.3150	0.2811	-0.90	0.377
	Adjacent stem overlap	0.4865	0.4900	0.06	0.949
	Stem overlap	0.3362	0.3040	-0.68	0.499
PEI	Cohesion Density	0.2987	0.3292	0.91	0.370
	Cohesive Ties	0.3784	0.3604	-0.29	0.774
	Proportion of given vs. new info	0.5583	0.4992	-0.46	0.652
	Adjacent argument overlap	0.4485	0.4661	0.26	0.798
	Argument overlap	0.2878	0.3098	0.58	0.569
	Adjacent stem overlap	0.4680	0.5034	0.66	0.513
	Stem overlap	0.3012	0.3384	0.79	0.434
RSI	Cohesion Density	0.3187	0.3147	-0.12	0.907
	Cohesive Ties	0.4182	0.3317	-1.44	0.161
	Proportion of given vs. new info	0.6231	0.4525	-1.35	0.188
	Adjacent argument overlap	0.4473	0.4658	0.27	0.790
	Argument overlap	0.2795	0.3142	0.91	0.372
	Adjacent stem overlap	0.4563	0.5092	0.99	0.331
	Stem overlap	0.2894	0.3441	1.17	0.252
RG	Cohesion Density	0.2972	0.3322	1.06	0.297
	Cohesive Ties	0.3824	0.3561	-0.43	0.672
	Proportion of given vs. new info	0.5613	0.4933	-0.53	0.601
	Adjacent argument overlap	0.4249	0.4841	0.88	0.387
	Argument overlap	0.2754	0.3194	1.17	0.250
	Adjacent stem overlap	0.4443	0.5215	1.49	0.147
	Stem overlap	0.2895	0.3473	1.25	0.220

Key: Shaded areas indicate matching results with whole sample.

Table A3: ANOVA results for industrial companies

Bivariate variable	Reading difficulty measure	0	1	t-stat	p-value
		Mean	Mean		
PE	Cohesion Density	0.3063	0.3443	1.16	0.254
	Cohesive Ties	0.3282	0.3398	0.18	0.862
	Proportion of given vs. new info	0.4520	0.4778	0.18	0.858
	Adjacent argument overlap	0.4389	0.4757	1.20	0.235
	Argument overlap	0.2848	0.2853	0.02	0.981
	Adjacent stem overlap	0.4666	0.5153	1.69	0.095*
	Stem overlap	0.3095	0.3070	-0.11	0.914
PEI	Cohesion Density	0.3591	0.3062	-1.66	0.108
	Cohesive Ties	0.3204	0.3454	0.38	0.709
	Proportion of given vs. new info	0.4275	0.4954	0.47	0.639
	Adjacent argument overlap	0.4592	0.4595	1.20	0.991
	Argument overlap	0.2781	0.2901	0.56	0.578
	Adjacent stem overlap	0.4888	0.4973	0.29	0.774
	Stem overlap	0.3052	0.3102	0.21	0.836
RSI	Cohesion Density	0.3236	0.3319	0.25	0.806
	Cohesive Ties	0.3160	0.3486	0.49	0.627
	Proportion of given vs. new info	0.4398	0.4866	0.33	0.747
	Adjacent argument overlap	0.4228	0.4836	1.97	0.052*
	Argument overlap	0.2551	0.3049	2.36	0.020**
	Adjacent stem overlap	0.4495	0.5229	2.56	0.012**
	Stem overlap	0.2748	0.3301	2.37	0.020**
RG	Cohesion Density	0.3212	0.3323	0.28	0.782
	Cohesive Ties	0.2996	0.3494	0.69	0.493
	Proportion of given vs. new info	0.3782	0.5033	0.81	0.425
	Adjacent argument overlap	0.4183	0.4840	2.12	0.037**
	Argument overlap	0.2599	0.3002	1.88	0.064*
	Adjacent stem overlap	0.4484	0.5210	2.50	0.014**
	Stem overlap	0.2823	0.3236	2.37	0.088*

Key: Shaded areas indicate matching results with whole sample.

Table A4: Regression results for firm size

		Coef	StDev	t-stat	p-value
CYC	Cohesion Density	-0.0086	0.0071	-1.20	0.238
	Cohesive Ties	0.0286	0.0150	1.91	0.066*
	Proportion of given vs. new info	0.0609	0.0321	1.90	0.068*
	Adjacent argument overlap	0.0034	0.0086	0.40	0.693
	Argument overlap	-0.0152	0.0067	-2.26	0.032**
	Adjacent stem overlap	-0.0021	0.0089	-0.24	0.813
	Stem overlap	-0.0189	0.0068	-2.76	0.010***
TEC	Cohesion Density	-0.0010	0.0080	-0.11	0.916
	Cohesive Ties	0.0020	0.0165	0.12	0.905
	Proportion of given vs. new info	0.0101	0.0345	0.29	0.772
	Adjacent argument overlap	-0.0096	0.0178	-0.54	0.592
	Argument overlap	-0.0125	0.0098	-1.28	0.212
	Adjacent stem overlap	-0.0118	0.0139	-0.85	0.405
	Stem overlap	-0.0172	0.0120	-1.43	0.163
IDU	Cohesion Density	0.0087	0.0080	1.09	0.283
	Cohesive Ties	0.0167	0.0159	1.05	0.303
	Proportion of given vs. new info	0.0328	0.0345	0.95	0.350
	Adjacent argument overlap	-0.0040	0.0072	-0.55	0.586
	Argument overlap	-0.0147	0.0047	-3.12	0.002***
	Adjacent stem overlap	-0.0058	0.0068	-0.85	0.398
	Stem overlap	-0.0161	0.0053	-3.06	0.003***

Key: Shaded areas indicate matching significance with whole sample.

2. Results for self-presentational dissimulation by industry classification

Table A5: ANOVA results for consumer cyclical companies

Bivariate variable	Linguistic marker	0	1	t-stat	p-value
		Mean	Mean		
PE	Word count	6.7145	6.8051	0.38	0.710
	Self-reference	3.2500	3.6440	0.65	0.521
	Reference to others	0.2390	0.1971	-0.48	0.638
	Emotion words	4.3180	4.3450	0.05	0.959
	Positive emotion	3.3120	3.7870	1.01	0.322
	Negative emotion	1.1020	0.6637	-3.95	0.000***
	Cognitive complexity	5.0866	5.0233	-0.31	0.758
	PEI	Word count	6.8015	6.7597	-0.18
	Self-reference	3.2040	3.7140	0.88	0.385
	Reference to others	0.2492	0.1863	-0.75	0.460
	Emotion words	4.2730	4.3760	0.20	0.839
	Positive emotion	3.3650	3.8030	0.97	0.341
	Negative emotion	1.0826	0.7009	-3.33	0.001***
	Cognitive complexity	5.0213	5.0718	0.24	0.807
RSI	Word count	6.4350	6.9409	2.30	0.029**
	Self-reference	3.1560	3.6890	0.88	0.384
	Reference to others	0.2100	0.110	0.01	0.991
	Emotion words	4.680	4.173	-0.98	0.334
	Positive emotion	3.7210	3.5920	-0.27	0.789
	Negative emotion	1.1192	0.6912	-3.76	0.000***
	Cognitive complexity	4.9824	5.0908	2.07	0.041**
	RG	Word count	6.4350	6.9633	2.46
Self-reference		3.1450	3.7220	0.98	0.334
Reference to others		0.2182	0.2065	-0.14	0.893
Emotion words		4.7780	4.093	-1.38	0.178
Positive emotion		3.755	3.5670	-0.40	0.691
Negative emotion		1.2059	0.6558	-5.02	0.000***
Cognitive complexity		4.9824	5.0908	0.52	0.608

Key: Shaded areas indicate matching results with whole sample.

Table A6: ANOVA results for technology companies

Bivariate variable	Linguistic marker	0 Mean	1 Mean	t-stat	p-value
PE	Word count	6.5853	6.8500	1.19	0.242
	Self-reference	3.5340	4.6220	1.86	0.073*
	Reference to others	0.3617	0.1992	-1.31	0.200
	Emotion words	3.8130	4.4720	1.74	0.92*
	Positive emotion	2.8539	3.6831	2.39	0.024**
	Negative emotion	1.1000	0.8254	-1.18	0.246
	Cognitive complexity	4.8961	4.9654	0.20	0.841
PEI	Word count	6.5928	6.7710	0.79	0.434
	Self-reference	3.4650	4.3690	1.52	0.139
	Reference to others	0.4131	0.2072	-1.69	0.101
	Emotion words	3.7540	4.3320	1.51	0.142
	Positive emotion	2.7369	3.5372	2.29	0.030**
	Negative emotion	1.1838	0.8411	-1.50	0.145
	Cognitive complexity	4.9546	4.9039	-0.15	0.883
RSI	Word count	6.6652	6.7187	0.24	0.815
	Self-reference	3.2380	4.5340	2.28	0.030**
	Reference to others	0.2346	0.3361	0.81	0.427
	Emotion words	3.9980	4.1550	0.39	0.696
	Positive emotion	2.8790	3.4340	1.52	0.140
	Negative emotion	1.2523	0.7917	-2.08	0.046**
	Cognitive complexity	4.7362	5.0617	0.97	0.341
RG	Word count	6.6818	6.7082	0.12	0.907
	Self-reference	3.3260	4.5370	2.12	0.042**
	Reference to others	0.3164	0.2747	-0.33	0.743
	Emotion words	4.1940	4.0040	-0.48	0.632
	Positive emotion	3.0940	3.2900	0.52	0.606
	Negative emotion	1.2443	0.7712	-2.17	0.039**
	Cognitive complexity	4.9436	4.9100	-0.10	0.992

Key: Shaded areas indicate matching results with whole sample.

Table A7: ANOVA results for industrial companies

Bivariate variable	Linguistic marker	0	1	t-stat	p-value
		Mean	Mean		
PE	Word count	6.4654	6.8141	1.46	0.155
	Self-reference	3.6220	3.5310	-0.23	0.821
	Reference to others	0.2200	0.2139	-0.10	0.920
	Emotion words	4.3180	4.3450	0.05	0.959
	Positive emotion	3.3120	3.7870	1.01	0.322
	Negative emotion	1.0170	0.5910	-2.77	0.010***
	Cognitive complexity	4.9340	4.8662	-0.19	0.850
PEI	Word count	6.5144	6.7788	1.09	0.285
	Self-reference	3.5850	3.5570	-0.07	0.946
	Reference to others	0.2177	0.2156	-0.04	0.972
	Emotion words	4.2730	4.3760	0.20	0.839
	Positive emotion	3.3650	3.8030	0.97	0.341
	Negative emotion	0.9442	0.5921	-2.31	0.028**
	Cognitive complexity	5.0008	4.8168	-0.54	0.592
RSI	Word count	6.2933	6.9384	2.98	0.006***
	Self-reference	3.6080	3.5410	-0.17	0.868
	Reference to others	0.2308	0.2061	-0.41	0.684
	Emotion words	4.6800	4.1730	-0.98	0.334
	Positive emotion	3.7210	3.5920	-0.27	0.789
	Negative emotion	0.9810	0.6081	-2.36	0.025**
	Cognitive complexity	4.6380	5.0071	1.06	0.299
RG	Word count	6.4062	6.7749	1.42	0.167
	Self-reference	3.4430	3.6200	0.41	0.687
	Reference to others	0.2711	0.1941	-1.21	0.237
	Emotion words	4.7780	4.0930	-1.38	0.178
	Positive emotion	3.7550	3.5670	-0.40	0.691
	Negative emotion	1.0436	0.5550	-3.43	0.002***
	Cognitive complexity	4.6436	5.0225	1.11	0.275

Key: Shaded areas indicate matching results with whole sample.

Table A8: Regression results for firm size

	Coef	StDev	t-stat	p-value
CYC				
Word count	-0.0325	0.0531	-0.61	0.545
Self-reference	0.3301	0.1203	2.74	0.010***
Reference to others	0.0013	0.0195	0.07	0.946
Emotion words	0.0842	0.1148	0.73	0.469
Positive emotion	0.1401	0.1026	1.37	0.183
Negative emotion	-0.0640	0.0363	-1.76	0.088*
Cognitive complexity	-0.0368	0.0783	-0.47	0.642
TEC				
Word count	-0.0031	0.0601	-0.05	0.960
Self-reference	0.3615	0.1493	2.42	0.022**
Reference to others	-0.0064	0.0337	-0.19	0.852
Emotion words	0.0776	0.1045	0.74	0.464
Positive emotion	0.0477	0.1003	0.48	0.638
Negative emotion	0.0695	0.0616	1.13	0.268
Cognitive complexity	0.17219	0.0846	2.03	0.051*
IDU				
Word count	0.0913	0.0579	1.58	0.126
Self-reference	0.0248	0.0973	0.25	0.801
Reference to others	-0.0157	0.0144	-1.09	0.283
Emotion words	0.0489	0.0864	0.57	0.575
Positive emotion	0.1195	0.0921	1.30	0.205
Negative emotion	-0.0283	0.0540	-0.52	0.604
Cognitive complexity	-0.0619	0.0939	-0.66	0.515

Key: Shaded areas indicate matching results with whole sample.

Appendix III: Thematic content analysis approaches in impression management studies

The following table provides an overview of the impression management studies using thematic content analysis, listing their research objective, thematic categories, units of analysis, coding method (i.e. manual or computerised) and coding dimensions.

Thematic content analysis approaches in impression management studies					
	Research objective	Categories	Unit of analysis ¹	Coding method	Coding dimensions
<i>(a) Narrative disclosure</i> Ingram & Frazier (1980)	Examine the association between content of narrative environmental disclosures and environmental performance	20 categories: monetary, past, specific, public interest, regulatory compliance, etc.	Sentence	Manual	(a) Evidence (b) Time (c) Specificity (d) Theme
Frazier et al.(1984)	Examine the content of MD&A and performance	Derived by means of computer analysis	Whole text	Computer (WORDS)	Derived by means of computer analysis
Tennyson et al. (1990)	Decision usefulness of narrative content of President's letter to shareholders and MD&A to predict bankruptcy	Five thematic constructs	Whole text	Computer (WORDS)	Derived by means of computer analysis
Clatworthy & Jones (2001a)	Determine whether there are systematic differences between profitable and unprofitable companies				

¹ Recoding unit (Jones 1994).

Thematic content analysis approaches in impression management studies (continued)

	Research objective	Categories	Unit of analysis	Coding method	Coding dimensions
(b) Thematic manipulation Abrahamson & Park (1994)	Examine whether and under which circumstances management conceals negative organizational outcome	Negative organizational outcomes	Whole text, paragraph	Manual & computer	Relative number of negative words
Smith & Taffler (2000)	Decision usefulness of narrative content of chairman's report to predict bankruptcy	Positive/negative organizational outcomes			(a) Evaluative (beneficial/adverse) (b) Potency (tangible/intangible) (c) Activity (dynamic/static) (d) Manageability (expected/unexpected)
Clatworthy & Jones (2001a)	Examines whether profitable and unprofitable companies have differential reporting patterns	Positive/negative organizational outcomes	Whole text	Manual	(a) Length (b) Key financial indicators (c) Quantitative references (d) Personal references (e) Future orientation (f) Good news
Clatworthy & Jones (2003)	Examines whether profitable and unprofitable companies report positive and negative organizational outcomes in different ways	Performance explanations	Sentence	Manual	(a) Classification of news (good/bad/neutral) (b) Attribution (internal/external)

Thematic content analysis approaches in impression management studies (continued)

	Research objective	Categories	Unit of analysis	Coding method	Coding dimensions
(c) Attribution Staw et al. (1983)	Presence of self-serving attributions in narrative corporate report sections	Performance explanations	Phrase/sentence (cause-effect)	Manual	(a) Locus of causality (company, industry, environment) (b) Direction of cause-effect (c) Past/future orientation (d) Implicit/explicit causation
Aerts (1994)	Presence of accounting bias in narrative corporate report sections	Performance explanations	Phrase /sentence (cause-effect)	Manual	(a) Locus of causality (internal/external) (b) Valence of the effect and of the causal factor (favourable/unfavourable) (c) Nature of explanation (technical accounting terminology and logic or not) (d) Expression of cause and effect (expressed in accounting terms or not)

Thematic content analysis approaches in impression management studies (continued)

	Research objective	Categories	Unit of analysis	Coding method	Coding dimensions
<i>(c) Attribution cont.</i> Aerts (2001)	Investigation of the change in performance attributions in narrative annual report documents over time	Performance explanations	Phrase/sentence (cause-effect)	Manual	<ul style="list-style-type: none"> (a) Locus of causality (internal/external) (b) Valence of the effect and of the causal factor (favourable/unfavourable) (c) Nature of explanation (technical accounting terminology and logic or not) (d) Expression of cause and effect (expressed in accounting terms or not)
Hooghiemstra (2001)	Comparison of performance attributions of US and Japanese companies	Performance explanations	Phrase, sentence (causal statements)	Manual	<ul style="list-style-type: none"> (a) valence of effect (positive/negative) (b) locus of causality (internal/external) (c) direction of cause-effect association (due to/despite of) (d) language of causal statement (causal language/accounting language)

Thematic content analysis approaches in impression management studies (continued)

	Research objective	Categories	Unit of analysis	Coding method	Coding dimensions
<i>Attribution cont.</i> Aerts (2005)	Presence of accounting bias in narrative corporate report sections	Performance explanations	Phrase /sentence (cause-effect)	Manual	(a) Explained effects: <ul style="list-style-type: none"> • Nature of content • Valence of the effect (negative/positive) • Time orientation (past, present, future) • Expression (quantitative/qualitative) • Organisational level (division, business unit, legal entity, group) (b) Explaining factors: <ul style="list-style-type: none"> • Type of explanation • Direction of influence (direct/opposite) • Causality locus (internal/external) • Explicitness • Expression (quantitative/qualitative)

Thematic content analysis approaches in impression management studies (continued)

	Research objective	Categories	Unit of analysis	Coding method	Coding dimensions
<i>(d) Performance comparisons</i> Short & Palmer (2003)	Examines the way CEOs compare performance	Performance referents (comparators used to measure organizational performance)	Clause ²	Manual	(a) Focus (internal = past vs. external = competitors)

² See Appendix VII for a description of this and other linguistic terms used in the paper.

Appendix IV: Computerised thematic content analysis programs

This appendix provides an overview of computer programs for automated thematic content analysis currently used in impression management research in accounting, and also outlines the features of *Linguistic Inquiry and Word Count*, the program used in this study.

Computerised thematic content analysis programs			
	Academic origin	Accounting application	Thematic dimensions
WORDS	Medicine	<ul style="list-style-type: none"> Frazier et al. (1984) Tennyson et al. (1990) 	No thematic dimensions. Key words (based on frequency counts)
<p>WORDS is a computer-assisted content analysis system developed by medical researchers, which "derives statistical associations between and among narrative words which are descriptive of central themes in the text" (Frazier et al. 1984: 318pp). The advantage of using WORDS is its objectivity. Tennyson et al. (1990: 398) describe the WORDS system as follows: "This procedure differs from other forms of content analysis in that thematic constructs are developed from the data without the need for prior specification of categories or the need for judges to score the data." Thus, the procedure is relatively objective, as it relies upon interassociations in the data rather than subjective decisions by readers to identify content.</p>			
DICTION	Linguistics	<ul style="list-style-type: none"> Sydserff & Weetman (2001) Yuthas et al. (2002) 	<ul style="list-style-type: none"> Certainty Optimism Activity Realism Commonality
<p>DICTION is a computerised content analysis program developed by applied linguistics that examines a text for verbal tone across five variables, namely (1) certainty, (2) optimism, (3) activity, (4) realism, and (5) commonality. It is not a thematic content analysis per se, but is more suited to analysing texts for rhetorical features, mood, or intent. The software contains a series of built-in dictionaries that search text documents for the semantic features reflected by the five variables and 35 sub-features (including tenacity, blame, ambivalence, motion, and communication). After a text is analyzed, DICTION compares the results for each of the 40 dictionary categories to a 'normal range of scores' which is based on more than 20,000-item sample of texts. Users can compare their text to either a general normative profile of all 20,000 texts or to any of seven specific sub-categories of texts (business, daily life, entertainment, journalism, literature, politics, scholarship) that can be further divided into 36 distinct types (e.g., financial reports, computer chat lines, music lyrics, newspaper editorials, novels and short stories, political debates, social science scholarship). In addition, DICTION outputs raw frequencies (in alphabetical order), percentages, and standardized scores; custom dictionaries can be created for additional analyses.</p>			
OXFORD CONCORDANCE	Linguistics	<ul style="list-style-type: none"> Smith & Taffler (2000) 	No thematic dimensions. Key words
<p>The Oxford Concordance Program (OCP) is a general purpose tool for generating concordances, word lists, and indexes from texts. A concordance starts with a list of words occurring in a text which is arranged in alphabetical order. However, as opposed to an index, the concordance additionally provides the context in which the word occurs in a given text. The OCP is a general purpose tool for text analysis and is suitable for applications such as stylistic analysis, vocabulary acquisition, dictionary making, textual editing, and content analysis.</p>			
Linguistic Inquiry and Word Count	Psychology (focus on personal narratives)	<ul style="list-style-type: none"> this study 	<ul style="list-style-type: none"> Linguistic dimensions Psychological processes Relativity Personal concerns (thematic dimensions)

Appendix V: Reliability statistics

According to Neuendorf (2002: 159), “... *the reliability subsample should probably never be smaller than 50 and should rarely need to be larger than about 300*”. Lombard et al. (2004) claim that a sample size of 50 units or ten percent of the full sample is appropriate.

‘Blind coding’ should be conducted by the coders of the intercoder reliability subsample (i.e. neither coder should see the coding of other coders prior to completion of the assessment) to avoid what researchers term ‘demand characteristic’, namely a tendency of participants in a study to try to give what the primary researcher wants or to skew results to meet a desired goal.

The coding is carried out by two coders, the author of this study and a linguist. A randomly chosen sample of seven chairman’s reports is used to assess intercoder reliability. The sample size corresponds to the ten percent level established by research to be appropriate (Lombard et al. 2004), i.e. *Minitab*’s random sampling procedure is used to select seven companies out of the 93, which include the following: (1) Surfcontrol PLC, (2) Atlantic Global PLC, (3) Whittard of Chelsea, (4) Corporate Services Group PLC, (5) Datamonitor PLC, (6) Albion PLC, (7) Meggitt PLC, (8) House of Fraser PLC, and (9) Cookson Group PLC.

Intercoder reliability statistics are calculated by means of the F-statistic which measures the average of precision and recall (see chapter 3, section 3.3.3), is computed as shown below.

Interannotator agreement statistic

$$F = \frac{1}{\frac{\alpha}{P} + \frac{1-\alpha}{R}}$$

Alpha (α) allows researchers to weight precision and recall. We adopt conventional practise (Manning and Schütze 1999) and set alpha to 0.5, thus assigning equal weights precision and recall. Annotator agreement tends to be in the low 70s for precision and in the high 50s to low 60s for recall (Hirschman et al. 1997). With average scores of 0.7187 for precision and 0.8151 for recall (see table below), interannotator agreement is within the accepted range.

This ascertains that the marking of grammatical and lexical ties within and between sentences (which provide the basis of the three manually generated cohesion-based measures of reading difficulty measures, namely (1) amount of cohesive ties, (2) cohesion density, and (3) proportion between given and new information) is based on objective criteria and does not reflect “*the idiosyncratic results of one’s rather subjective judgment*” (Tinsley and Weiss 1975: 359).

Results for interannotator agreement						
Entity Name	True positive (# of pairs)	False positive (# of pairs)	False negative (# of pairs)	Precision	Recall	F
Albion PLC	22	16	4	0.5789	0.8462	0.6875
Atlantic Global PLC	144	40	92	0.7826	0.6102	0.6857
Datamonitor PLC	2	4	1	0.3333	0.6667	0.4444
Whittard Of Chelsea PLC	8	9	3	0.4706	0.7273	0.5714
Corporate Services Group PLC	102	10	32	0.9107	0.7612	0.8293
Surfcontrol PLC	64	8	4	0.8889	0.9412	0.9143
House Of Fraser PLC	119	46	15	0.7212	0.8881	0.7960
Cookson Group PLC	35	7	2	0.8333	0.9459	0.8861
Meggitt PLC	93	5	5	0.9490	0.9490	0.9490
Average	65	16	18	0.7187	0.8151	0.7515

Appendix VI: Annotated example text

The following example is based on the chairman's report of Linx (2002). It illustrates the text annotation with *MMAX2*. Noun phrases are marked by brackets []. potentially cohesive noun phrases are marked in blue, and noun phrases standing cohesive relationships with on another are marked in blue and italics.

{[Overview]}

{[I] am pleased to report that [*Linx*] achieved [[[its] stated [objective]]] for [the year]]] of maintaining [underlying [profitability]] while continuing to invest in [[the future [development]]] of [[our] *businesses*]] around [the world].}

{In the face of [uncertain [economic [conditions]]], [this consistent [[profit] [performance]]] amply demonstrates [[the robustness] of [[our] *business*]].} {With [prudent [planning]], we have maintained [[[investment] in [the two fundamental [aspects]]] of [[our] *business*]] that will underpin [future [growth]]] – [[[a stream of new and improved [[products] and [technologies]]], and [a committed and focused [[distribution] network]]]] to provide [[access] to [[world] [markets]]].}

{In [the current [year]] [we] have launched [[important new [*products*]] in [our] [*Linx*] [inkjet]] and [*Linx*] [*Xymark*] [*laser*] [businesses]]], expanded [[sales] of [[Linx] [*products*]]] in [China] by more than [30%] and established [a fully-fledged [[distribution] [operation]]] in [*the USA*] to sell and support [[*laser*] [*products*]] in [*that important market*]].}

[Results] and [Dividend]

[Total [sales]] increased by [2%] to [£48.7m] (£47.6m). [Operating [*profits*]] before [[interest] [charges]] and [[the amortization] of goodwill]] were [£5.4m] compared with [£5.8m] achieved [last [year]], [*a figure*] which included [[an exceptionally strong [first [half]]] from [[Linx] [*Xymark*]]], where [*profits*] were materially higher than originally

expected by [£0.4m]. [[[Group] [*profit*]] before [tax]] was [£5.0m] (£5.2m), exactly in line with [[market] [expectations]].

{[[*Earnings*] [*per share*]] were [25.7p] (23.6p) equivalent to [27.4p] (25.5p) before [[[the amortization] of [goodwill] on [acquisitions]].} {[The Board] proposes [[*a final dividend*]] of [[5.6p] [*per share*]]] (5.5p), bringing [[the total] for [the year]] to [[8.4p] [*per share*]]] (8.2p), [[an increase] of [2%]].} {[*This dividend*] is covered 3.1 times by [*earnings*].} {If approved at [the Annual [General Meeting]]] [*the dividend*] will be paid on [22 November 2002] to [shareholders] on [the register] at [[the close] of [business]] on [1 November 2002].}

{[Prospects]}

{While [*economic conditions*] may be no more certain than [*they*] were [twelve [months]] ago, [[order] [[input] [levels]]] continue to remain at [satisfactory [levels]].}

{Looking ahead, [we] have [new [products]] to sell, and there are [more] in [the pipeline].} {[We] shall be working to develop further [[[our] [[distribution] [performance]]] in [all [markets]]], and we are actively looking for [opportunities] to build on [[[our] already [well-established [position]]] in the rapidly growing [Chinese [market]]].}

{[We] are looking forward to [a successful [year]] for [the Group]].}

The following examples illustrate the cohesive relationships existing in the chairman's report of Linx (2002). It contains 15 cohesive sets. Antecedents are highlighted in yellow and anaphoric expressions in grey. The noun phrases belonging to the same cohesive set are connected by means of a green line.

1. Antecedent: *Linx*; cohesive set {2}

MMAX2 1.0 BETA 3 C:\Doris\MAAX2\Texte\Linx.mmax

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[[Overview]]

[[I]] am pleased to report that **Linx** achieved **[[its]]** stated **[[objective]]** for **[[the year]]** of maintaining **[[underlying]]** **[[profitability]]** while continuing to invest in **[[the future]]** **[[development]]** of **[[our]]** **[[businesses]]** around **[[the world]]** .)

(In the face of **[[uncertain economic]]** **[[conditions]]** , **[[this consistent]]** **[[profit]]** **[[performance]]**) amply demonstrates **[[the robustness]]** of **[[our]]** **[[business]]**)
 With **[[prudent]]** **[[planning]]** , **[[we]]** have maintained **[[investment]]** in **[[the two fundamental]]** **[[aspects]]** of **[[our]]** **[[business]]** that will underpin **[[future]]** **[[growth]]** - **[[a stream]]** of new and improved **[[products]]** and **[[technologies]]** , and **[[a committed and focused]]** **[[distribution]]** **[[network]]** to provide **[[access]]** to **[[world]]** **[[markets]]** .)

(In **[[the current]]** **[[year]]** **[[we]]** have launched **[[important new]]** **[[products]]** in **[[our]]** **[[Linx]]** **[[inkjet]]** and **[[Linx]]** **[[Xymark]]** **[[laser]]** **[[businesses]]** , expanded **[[sales]]** of **[[Linx]]** **[[products]]** in **[[China]]** by more than **[[30%]]** and established **[[a fully-fledged]]** **[[distribution]]** **[[operation]]** in **[[the USA]]** to sell and support **[[laser]]** **[[products]]** in **[[that important]]** **[[market]]** .)

[[Results]] and [[Dividend]]

[[Total]] **[[sales]]** increased by **[[2%]]** to **[[£48.7m]]** (**[[£47.6m]]**) .
 [[Operating]] **[[profits]]** before **[[interest]]** **[[charges]]** and **[[the amortisation]]** of **[[goodwill]]** were **[[£5.4m]]** compared with **[[£5.8m]]** achieved **[[last]]** **[[year]]** , **[[a figure]]** which included **[[an exceptionally strong]]** **[[first]]** **[[half]]** from **[[Linx]]** **[[Xymark]]** , where **[[profits]]** were materially higher than originally expected by **[[£0.4m]]** .)

[[Group]] **[[profits]]** before **[[tax]]** was **[[£5.0m]]** (**[[£5.2m]]**) , exactly in line with **[[market]]** **[[expectations]]** .)

[[Earnings]] **[[per]]** **[[share]]** were **[[25.7p]]** (**[[23.6p]]**) equivalent to **[[27.4p]]** (**[[25.5p]]**) before **[[the amortisation]]** of **[[goodwill]]** on **[[acquisitions]]** .
 [[The Board]] proposes **[[a final]]** **[[dividend]]** of **[[5.6p]]** **[[per]]** **[[share]]** (**[[5.5p]]**) , bringing **[[the total]]** for **[[the year]]** to **[[6.4p]]** **[[per]]** **[[share]]** (**[[6.2p]]**) , **[[an increase]]** of **[[2%]]** .)

[[This dividend]] is covered 3.1 times by **[[earnings]]** .)

(If approved at **[[the Annual]]** **[[General]]** **[[Meeting]]**) **[[the dividend]]** will be paid on **[[22 November 2002]]** to **[[shareholders]]** on **[[the register]]** at **[[the close]]** of **[[business]]** on **[[1 November 2002]]** .)

Start | MAA | Inbo... | Intra... | MSN... | PhD... | JAVA | Linx | Mark... | MM... | 11:29

2. Antecedent: *businesses*; cohesive set {4}

[[Overview]]

[[I]] am pleased to report that [Linx] achieved [[[[its] stated [objective]]] for [the year]]] of maintaining [underlying [profitability]] while continuing to invest in [[the future [development]]] of [[our] [businesses]]] around [the world] .]

[In the face of [uncertain economic [conditions]] , [this consistent [[profit] [performance]]] amply demonstrates [[the robustness] of [[our] [business]]] .] [With [prudent [planning]] , [we] have maintained [[[[investment] in [the two fundamental [aspects]]] of [[our] [business]]] that will underpin [future [growth]]] - [[a stream] of new and improved [[products] and [technologies]]] , and [a committed and focused [[distribution] [network]]] to provide [[access] to [[world] [markets]]] .]

[In [the current [year]] [we] have launched [[important new [products]] in [[our] [[Linx] [inkjet]] and [[Linx] [Xymark]] [[laser] [businesses]]]] , expanded [[sales] of [[Linx] [products]]] in [China] by more than [30%] and established [a fully-fledged [[distribution] [operation]]] in [the USA] to sell and support [[laser] [products]] in [that important [market]]] .]

[[[Results] and [Dividend]]]

[[Total [sales]]] increased by [2%] to [£48.7m] (£47.6m) .]

[[Operating [profits]]] before [[Interest] [charges]]] and [[the amortisation] of [goodwill]]] were [£5.4m] compared with [£5.8m] achieved [last [year]] , [a figure] which included [[an exceptionally strong [first [half]]] from [[Linx] [Xymark]]] , where [profits] were materially higher than originally expected by [£0.4m] .]

[[[Group] [profit]]] before [tax] was [£5.0m] ([£5.2m]) , exactly in line with [[market] [expectations]] .]

[[Earnings] [per [share]]] were [25.7p] (23.6p) equivalent to [27.4p] (25.5p) before [[the amortisation] of [goodwill]] on [acquisitions]] .]

[[The Board] proposes [[a final [dividend]] of [[5.6p] [per [share]]] (5.5p) , bringing [[the total] for [the year]] to [[8.4p] [per [share]]] (8.2p) , [[an increase] of [2%]] .]

[[This dividend] is covered 3.1 times by [earnings] .]

[If approved at [the Annual [General [Meeting]]] [the dividend] will be paid on [22 November 2002] to [[shareholders] on [the register]] at [[the close] of [business]] on [1 November 2002] .]

3. Antecedent: *our business*; cohesive set {2}

[[Overview]]

[[I]] am pleased to report that [Linx] achieved [[[[its] stated [objective]]] for [the year]]] of maintaining [underlying [profitability]] while continuing to invest in [[the future [development]]] of [[our] [businesses]]] around [the world] .]

[In the face of [uncertain economic [conditions]] , [this consistent [[profit] [performance]]] amply demonstrates [[the robustness] of [[our] [business]]] .] [With [prudent [planning]] , [we] have maintained [[[[investment] in [the two fundamental [aspects]]] of [[our] [business]]] that will underpin [future [growth]]] - [[a stream] of new and improved [[products] and [technologies]]] , and [a committed and focused [[distribution] [network]]] to provide [[access] to [[world] [markets]]] .]

[In [the current [year]] [we] have launched [[important new [products]] in [[our] [[Linx] [inkjet]] and [[Linx] [Xymark]] [[laser] [businesses]]]] , expanded [[sales] of [[Linx] [products]]] in [China] by more than [30%] and established [a fully-fledged [[distribution] [operation]]] in [the USA] to sell and support [[laser] [products]] in [that important [market]]] .]

[[[Results] and [Dividend]]]

[[Total [sales]]] increased by [2%] to [£48.7m] (£47.6m) .]

[[Operating [profits]]] before [[Interest] [charges]]] and [[the amortisation] of [goodwill]]] were [£5.4m] compared with [£5.8m] achieved [last [year]] , [a figure] which included [[an exceptionally strong [first [half]]] from [[Linx] [Xymark]]] , where [profits] were materially higher than originally expected by [£0.4m] .]

[[[Group] [profit]]] before [tax] was [£5.0m] ([£5.2m]) , exactly in line with [[market] [expectations]] .]

[[Earnings] [per [share]]] were [25.7p] (23.6p) equivalent to [27.4p] (25.5p) before [[the amortisation] of [goodwill]] on [acquisitions]] .]

[[The Board] proposes [[a final [dividend]] of [[5.6p] [per [share]]] (5.5p) , bringing [[the total] for [the year]] to [[8.4p] [per [share]]] (8.2p) , [[an increase] of [2%]] .]

[[This dividend] is covered 3.1 times by [earnings] .]

[If approved at [the Annual [General [Meeting]]] [the dividend] will be paid on [22 November 2002] to [[shareholders] on [the register]] at [[the close] of [business]] on [1 November 2002] .]

4. Antecedent: *the world*; cohesive set {2}

MMAX2 1.0 BETA 3 C:\Doris\MAAX2\exte\Linx.mmax

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[[Overview]]

[[I]] am pleased to report that [Linx] achieved [[its] stated [objective]] for [the year]] of maintaining [underlying [profitability]] while continuing to invest in [[the future [development]] of [[our] [businesses]]] around [the world] .)

[In the face of [uncertain economic [conditions]] , [this consistent [[profit] [performance]]] amply demonstrates [[the robustness] of [[our] [business]]] .) [With [prudent [planning]] , [we] have maintained [[investment] in [the two fundamental [aspects]]] of [[our] [business]]] that will underpin [future [growth]]] - [[a stream] of new and improved [[products] and [technologies]]] , and [a committed and focused [[distribution] [network]]] to provide [[access] to [[world] [markets]]] .)

[In the current [year]] [we] have launched [[important new [products]]] in [[our] [[Linx] [inkjet]] and [[Linx] [Xymark]] [[laser] [businesses]]]] , expanded [[sales] of [[Linx] [products]]] in [China] by more than [30%] and established [a fully-fledged [[distribution] [operation]]] in [the USA] to sell and support [[laser] [products]] in [that important [market]] .)

[[[Results] and [Dividend]]]

[[Total [sales]] increased by [2%] to [£48.7m] (£47.6m) .) [[Operating [profits]] before [[interest] [charges]] and [[the amortisation] of [goodwill]]] were [£5.4m] compared with [£5.8m] achieved [last [year]] , [a figure] which included [[an exceptionally strong [first [half]]] from [[Linx] [Xymark]]] , where [profits] were materially higher than originally expected by [£0.4m] .)

[[[Group] [profit]] before [tax]] was £5.0m (£5.2m) , exactly in line with [[market] [expectations]] .)

[[Earnings] [per [share]]] were [25.7p] (23.6p) equivalent to [27.4p] (25.5p) before [[the amortisation] of [goodwill]] on [acquisitions]] .) [[The Board] proposes [[a final [dividend]] of [[5.6p] [per [share]]]] (5.5p) , bringing [[the total] for [the year]] to [[8.4p] [per [share]]] (8.2p) , [[an increase] of [2%]] .)

[[This dividend] is covered 3.1 times by [earnings]] .)

[If approved at [the Annual [General [Meeting]]] [the dividend] will be paid on [22 November 2002] to [[shareholders] on [the register]] at [[the close] of [business]] on [1 November 2002] .)

Start MAA... Inbo... Intra... MSN... PHD... JAVA... the... Mark... MM... EN 11:30

5. Antecedent: *products*; cohesive set {4}

MMAX2 1.0 BETA 3 C:\Doris\MAAX2\exte\Linx.mmax

File Settings Display Tools Info

[[Overview]]

[[I]] am pleased to report that [Linx] achieved [[its] stated [objective]] for [the year]] of maintaining [underlying [profitability]] while continuing to invest in [[the future [development]] of [[our] [businesses]]] around [the world] .)

[In the face of [uncertain economic [conditions]] , [this consistent [[profit] [performance]]] amply demonstrates [[the robustness] of [[our] [business]]] .) [With [prudent [planning]] , [we] have maintained [[investment] in [the two fundamental [aspects]]] of [[our] [business]]] that will underpin [future [growth]]] - [[a stream] of new and improved [[products] and [technologies]]] , and [a committed and focused [[distribution] [network]]] to provide [[access] to [[world] [markets]]] .)

[In the current [year]] [we] have launched [[important new [products]]] in [[our] [[Linx] [inkjet]] and [[Linx] [Xymark]] [[laser] [businesses]]]] , expanded [[sales] of [[Linx] [products]]] in [China] by more than [30%] and established [a fully-fledged [[distribution] [operation]]] in [the USA] to sell and support [[laser] [products]] in [that important [market]] .)

[[[Results] and [Dividend]]]

[[Total [sales]] increased by [2%] to [£48.7m] (£47.6m) .) [[Operating [profits]] before [[interest] [charges]] and [[the amortisation] of [goodwill]]] were [£5.4m] compared with [£5.8m] achieved [last [year]] , [a figure] which included [[an exceptionally strong [first [half]]] from [[Linx] [Xymark]]] , where [profits] were materially higher than originally expected by [£0.4m] .)

[[[Group] [profit]] before [tax]] was £5.0m (£5.2m) , exactly in line with [[market] [expectations]] .)

[[Earnings] [per [share]]] were [25.7p] (23.6p) equivalent to [27.4p] (25.5p) before [[the amortisation] of [goodwill]] on [acquisitions]] .) [[The Board] proposes [[a final [dividend]] of [[5.6p] [per [share]]]] (5.5p) , bringing [[the total] for [the year]] to [[8.4p] [per [share]]] (8.2p) , [[an increase] of [2%]] .)

[[This dividend] is covered 3.1 times by [earnings]] .)

[If approved at [the Annual [General [Meeting]]] [the dividend] will be paid on [22 November 2002] to [[shareholders] on [the register]] at [[the close] of [business]] on [1 November 2002] .)

Start MAA... Inbo... Intra... MSN... PHD... JAVA... prod... Mark... MM... EN 11:30

6. Antecedent: *Linux*; cohesive set {3}

MMAX2 1.0 BETA 3 C:\Doris\MAAX2\Texte\Linux.mmax

File Settings Display Tools Info

[[Overview]]

[[I]] am pleased to report that *Linux* achieved [[its] stated [objective]] for [the year]] of maintaining [underlying [profitability]] while continuing to invest in [[the future [development]] of [[our] [businesses]]] around [the world] .)

[In the face of [uncertain economic [conditions]] , [this consistent [[profit] [performance]]] amply demonstrates [[the robustness] of [[our] [business]]] .) [With [prudent [planning]]] , [we] have maintained [[investment] in [the two fundamental [aspects]]] of [[our] [business]]] that will underpin [future [growth]]] - [[a stream] of new and improved [[products] and [technologies]]] , and [a committed and focused [[distribution] [network]]] to provide [[access] to [[world] [markets]]] .)

[In [the current [year]]] [we] have launched [[important new [products]]] in [[our] [[Linux] [inkjet]] and [[Linux] [Xymark]] [[laser] [businesses]]]] , expanded [[sales] of [[Linux] [products]]] in [China] by more than [30%] and established [a fully-fledged [[distribution] [operation]]] in [the USA] to sell and support [[laser] [products]] in [that important [market]] .)

[[Results] and [Dividend]]

[[Total [sales]]] increased by [2%] to [£48.7m] (£47.6m) .)

[[Operating [profits]]] before [[interest] [charges]] and [[the amortisation] of [goodwill]] were [£5.4m] compared with [£5.8m] achieved [last [year]] . [a figure] which included [[an exceptionally strong [first [half]]] from [[Linux] [Xymark]]] , where [profits] were materially higher than originally expected by [£0.4m] .)

[[Group] [profit]] before [tax] was £5.0m (£5.2m) , exactly in line with [[market] [expectations]] .)

[[Earnings] [per [share]]] were [25.7p] (23.6p) equivalent to [27.4p] (25.5p) before [[the amortisation] of [goodwill]] on [acquisitions]] .)

[[The Board] proposes [[a final [dividend]] of [[5.6p] [per [share]]]] (5.5p) , bringing [[the total] for [the year]] to [[8.4p] [per [share]]] (8.2p) , [[an increase] of [2%]] .)

[[This dividend] is covered 3.1 times by [earnings]] .)

[If approved at [the Annual [General [Meeting]]] [the dividend] will be paid on [22 November 2002] to [[shareholders] on [the register]] at [[the close] of [business]] on [1 November 2002] .)

Start [MAA... Inbo... Intra... MSN... PhD... JAVA... prod... Mark... MM... 11:30

7. Antecedent: *laser*; cohesive set {2}

MMAX2 1.0 BETA 3 C:\Doris\MAAX2\Texte\Linux.mmax

File Settings Display Tools Info

[[Overview]]

[[I]] am pleased to report that *Linux* achieved [[its] stated [objective]] for [the year]] of maintaining [underlying [profitability]] while continuing to invest in [[the future [development]] of [[our] [businesses]]] around [the world] .)

[In the face of [uncertain economic [conditions]] , [this consistent [[profit] [performance]]] amply demonstrates [[the robustness] of [[our] [business]]] .) [With [prudent [planning]]] , [we] have maintained [[investment] in [the two fundamental [aspects]]] of [[our] [business]]] that will underpin [future [growth]]] - [[a stream] of new and improved [[products] and [technologies]]] , and [a committed and focused [[distribution] [network]]] to provide [[access] to [[world] [markets]]] .)

[In [the current [year]]] [we] have launched [[important new [products]]] in [[our] [[Linux] [inkjet]] and [[Linux] [Xymark]] [[laser] [businesses]]]] , expanded [[sales] of [[Linux] [products]]] in [China] by more than [30%] and established [a fully-fledged [[distribution] [operation]]] in [the USA] to sell and support [[laser] [products]] in [that important [market]] .)

[[Results] and [Dividend]]

[[Total [sales]]] increased by [2%] to [£48.7m] (£47.6m) .)

[[Operating [profits]]] before [[interest] [charges]] and [[the amortisation] of [goodwill]] were [£5.4m] compared with [£5.8m] achieved [last [year]] . [a figure] which included [[an exceptionally strong [first [half]]] from [[Linux] [Xymark]]] , where [profits] were materially higher than originally expected by [£0.4m] .)

[[Group] [profit]] before [tax] was £5.0m (£5.2m) , exactly in line with [[market] [expectations]] .)

[[Earnings] [per [share]]] were [25.7p] (23.6p) equivalent to [27.4p] (25.5p) before [[the amortisation] of [goodwill]] on [acquisitions]] .)

[[The Board] proposes [[a final [dividend]] of [[5.6p] [per [share]]]] (5.5p) , bringing [[the total] for [the year]] to [[8.4p] [per [share]]] (8.2p) , [[an increase] of [2%]] .)

[[This dividend] is covered 3.1 times by [earnings]] .)

[If approved at [the Annual [General [Meeting]]] [the dividend] will be paid on [22 November 2002] to [[shareholders] on [the register]] at [[the close] of [business]] on [1 November 2002] .)

Start [MAA... Inbo... Intra... MSN... PhD... JAVA... [laser]... Mark... MM... 11:31

8. Antecedent: *the USA*; cohesive set {2}

[[Overview]]

[[I]] am pleased to report that [Linx] achieved [[(its) stated [objective]]] for [the year]] of maintaining [underlying [profitability]] while continuing to invest in [[the future [development]]] of [[our] [businesses]]] around [the world] .)

[In the face of [uncertain economic [conditions]] , [this consistent [[profit] [performance]]] amply demonstrates [[the robustness] of [[our] [business]]] .
[With [prudent [planning]]] , [we] have maintained [[(investment) in [the two fundamental [aspects]]] of [[our] [business]]] that will underpin [future [growth]]
- [[(a stream) of new and improved [[products] and [technologies]]] , and [a committed and focused [[distribution] [network]]] to provide [[access] to [[world] [markets]]] .)

[In [the current [year]] [we] have launched [[important new [products]] in [[our] [[Linx] [linkjet]] and [[Linx] [Xymark]] [[laser] [businesses]]]] , expanded [[sales] of [[Linx] [products]]] In [China] by more than [30%] and established [a fully-fledged [[distribution] [operation]]] in [the USA] to sell and support [[laser] [products]] in [that important [market]] .)

[[Results] and [Dividend]]

[[Total [sales]] increased by [2%] to [£48.7m] (£47.6m) .
[[Operating [profits]] before [[interest] [charges]] and [[the amortisation] of [goodwill]]] were [£5.4m] compared with [£5.8m] achieved [last [year]] , [a figure] which included [[an exceptionally strong [first [half]]] from [[Linx] [Xymark]]] , where [profits] were materially higher than originally expected by [£0.4m] .
[[Group] [profit] before [tax]] was £5.0m (£5.2m) , exactly in line with [[market] [expectations]] .)

[[Earnings] [per [share]]] were [25.7p] (23.6p) equivalent to [27.4p] (25.5p) before [[the amortisation] of [goodwill]] on [acquisitions]] .
[[The Board] proposes [[a final [dividend]] of [[5.6p] [per [share]]]] (5.5p) , bringing [[the total] for [the year]] to [[8.4p] [per [share]]] (8.2p) , [[an increase] of [2%]] .
[[This dividend] is covered 3.1 times by [earnings]] .
[If approved at [the Annual [General [Meeting]]] [the dividend] will be paid on [22 November 2002] to [[shareholders] on [the register]] at [[the close] of [business]] on [1 November 2002]] .)

9. Antecedent: *profits*; cohesive set {3}

[[Overview]]

[[I]] am pleased to report that [Linx] achieved [[(its) stated [objective]]] for [the year]] of maintaining [underlying [profitability]] while continuing to invest in [[the future [development]]] of [[our] [businesses]]] around [the world] .)

[In the face of [uncertain economic [conditions]] , [this consistent [[profit] [performance]]] amply demonstrates [[the robustness] of [[our] [business]]] .
[With [prudent [planning]]] , [we] have maintained [[(investment) in [the two fundamental [aspects]]] of [[our] [business]]] that will underpin [future [growth]]
- [[(a stream) of new and improved [[products] and [technologies]]] , and [a committed and focused [[distribution] [network]]] to provide [[access] to [[world] [markets]]] .)

[In [the current [year]] [we] have launched [[important new [products]] in [[our] [[Linx] [linkjet]] and [[Linx] [Xymark]] [[laser] [businesses]]]] , expanded [[sales] of [[Linx] [products]]] In [China] by more than [30%] and established [a fully-fledged [[distribution] [operation]]] in [the USA] to sell and support [[laser] [products]] in [that important [market]] .)

[[Results] and [Dividend]]

[[Total [sales]] increased by [2%] to [£48.7m] (£47.6m) .
[[Operating [profits]] before [[interest] [charges]] and [[the amortisation] of [goodwill]]] were [£5.4m] compared with [£5.8m] achieved [last [year]] , [a figure] which included [[an exceptionally strong [first [half]]] from [[Linx] [Xymark]]] , where [profits] were materially higher than originally expected by [£0.4m] .
[[Group] [profit] before [tax]] was £5.0m (£5.2m) , exactly in line with [[market] [expectations]] .)

[[Earnings] [per [share]]] were [25.7p] (23.6p) equivalent to [27.4p] (25.5p) before [[the amortisation] of [goodwill]] on [acquisitions]] .
[[The Board] proposes [[a final [dividend]] of [[5.6p] [per [share]]]] (5.5p) , bringing [[the total] for [the year]] to [[8.4p] [per [share]]] (8.2p) , [[an increase] of [2%]] .
[[This dividend] is covered 3.1 times by [earnings]] .
[If approved at [the Annual [General [Meeting]]] [the dividend] will be paid on [22 November 2002] to [[shareholders] on [the register]] at [[the close] of [business]] on [1 November 2002]] .)

10. Antecedent: £5.4m; cohesive set {2}

MMAAX2 1.0 BETA 3 C:\Doris\MMAAX2\Texte\Linx.mmax

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[[Overview]]

[[I]] am pleased to report that [Linx] achieved [[([its] stated [objective])] for [the year]] of maintaining [underlying [profitability]] while continuing to invest in [[the future [development]] of [[our] [businesses]]] around [the world] .)

[In the face of [uncertain economic [conditions]] , [this consistent [[profit] [performance]]] amply demonstrates [[the robustness] of [[our] [business]]] .
[With [prudent [planning]] , [we] have maintained [[([investment] in [the two fundamental [aspects]])] of [[our] [business]]] that will underpin [future [growth]] - [[([a stream] of new and improved [[products] and [technologies]])] , and [a committed and focused [[distribution] [network]]] to provide [[access] to [[world] [markets]]] .)

[In [the current [year]] [we] have launched [[important new [products]] in [[our] [[Linx] [inkjet]] and [[Linx] [Xymark]] [[laser] [businesses]]]] , expanded [[sales] of [[Linx] [products]]] In [China] by more than [30%] and established [a fully-fledged [[distribution] [operation]]] in [the USA] to sell and support [[laser] [products]] in [that important [market]] .)

[[[Results] and [Dividend]]]

[[Total [sales]] increased by [2%] to [£48.7m] (£47.6m) .
[[Operating [profits]] before [[interest] [charges]] and [[the amortisation] of [goodwill]]] were [£5.4m] compared with [£5.8m] achieved [last [year]] , [a figure] which included [[an exceptionally strong [first [half]]] from [[Linx] [Xymark]]] , where [profits] were materially higher than originally expected by [£0.4m] .
[[[Group] [profit]] before [tax]] was £5.0m (£5.2m) , exactly in line with [[market] [expectations]] .)

[[Earnings] [per [share]]] were [25.7p] (23.6p) equivalent to [27.4p] (25.5p) before [[the amortisation] of [goodwill]] on [acquisitions]] .
[[The Board] proposes [[a final [dividend]] of [[5.6p] [per [share]]]] (5.5p) , bringing [[the total] for [the year]] to [[8.4p] [per [share]]] (8.2p) , [[ah increase] of [2%]] .
[[This dividend] is covered 3.1 times by [earnings]] .
[If approved at [the Annual [General [Meeting]]] [the dividend] will be paid on [22 November 2002] to [[shareholders] on [the register]] at [[the close] of [business]] on [1 November 2002] .)

Start MAAX Herbst Intran MSN PhDA JAVA [£5.4m] Marka MM... RE q... 11:16

11. Antecedent: earnings; cohesive set {2}

MMAAX2 1.0 BETA 3 C:\Doris\MMAAX2\Texte\Linx.mmax

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[[Overview]]

[[I]] am pleased to report that [Linx] achieved [[([its] stated [objective])] for [the year]] of maintaining [underlying [profitability]] while continuing to invest in [[the future [development]] of [[our] [businesses]]] around [the world] .)

[In the face of [uncertain economic [conditions]] , [this consistent [[profit] [performance]]] amply demonstrates [[the robustness] of [[our] [business]]] .
[With [prudent [planning]] , [we] have maintained [[([investment] in [the two fundamental [aspects]])] of [[our] [business]]] that will underpin [future [growth]] - [[([a stream] of new and improved [[products] and [technologies]])] , and [a committed and focused [[distribution] [network]]] to provide [[access] to [[world] [markets]]] .)

[In [the current [year]] [we] have launched [[important new [products]] in [[our] [[Linx] [inkjet]] and [[Linx] [Xymark]] [[laser] [businesses]]]] , expanded [[sales] of [[Linx] [products]]] In [China] by more than [30%] and established [a fully-fledged [[distribution] [operation]]] in [the USA] to sell and support [[laser] [products]] in [that important [market]] .)

[[[Results] and [Dividend]]]

[[Total [sales]] increased by [2%] to [£48.7m] (£47.6m) .
[[Operating [profits]] before [[interest] [charges]] and [[the amortisation] of [goodwill]]] were [£5.4m] compared with [£5.8m] achieved [last [year]] , [a figure] which included [[an exceptionally strong [first [half]]] from [[Linx] [Xymark]]] , where [profits] were materially higher than originally expected by [£0.4m] .
[[[Group] [profit]] before [tax]] was £5.0m (£5.2m) , exactly in line with [[market] [expectations]] .)

[[Earnings] [per [share]]] were [25.7p] (23.6p) equivalent to [27.4p] (25.5p) before [[the amortisation] of [goodwill]] on [acquisitions]] .
[[The Board] proposes [[a final [dividend]] of [[5.6p] [per [share]]]] (5.5p) , bringing [[the total] for [the year]] to [[8.4p] [per [share]]] (8.2p) , [[ah increase] of [2%]] .
[[This dividend] is covered 3.1 times by [earnings]] .
[If approved at [the Annual [General [Meeting]]] [the dividend] will be paid on [22 November 2002] to [[shareholders] on [the register]] at [[the close] of [business]] on [1 November 2002] .)

Start MAAX Herbst Intran MSN PhDA JAVA [Eam] Marka MM... RE q... 11:16

12. Antecedent: *per share*; cohesive set {3}

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[[Overview]]

[[I]] am pleased to report that [Linx] achieved [[[[its] stated [objective]]] for [the year]] of maintaining [underlying [profitability]] while continuing to invest in [[the future [development]]] of [[our] [businesses]]] around [the world] .)

[[In the face of [uncertain economic [conditions]]] , [this consistent [[profit] [performance]]] amply demonstrates [[the robustness] of [[our] [business]]] .
[[With [prudent [planning]]] , [we] have maintained [[[[investment] in [the two fundamental [aspects]]] of [[our] [business]]] that will underpin [future [growth]]] - [[[[a stream] of new and improved [[products] and [technologies]]] , and [a committed and focused [[distribution] [network]]]] to provide [[access] to [[world] [markets]]] .)

[[In [the current [year]] [we] have launched [[important new [products]]] in [[our] [[Linx] [inkjet]] and [[Linx] [Xymark]] [[laser] [businesses]]]] , expanded [[sales] of [[Linx] [products]]] in [China] by more than [30%] and established [a fully-fledged [[distribution] [operation]]] in [the USA] to sell and support [[laser] [products]] in [that important [market]]] .)

[[[Results] and [Dividend]]]

[[Total [sales]]] increased by [2%] to [£48.7m] (£47.6m) .)
[[Operating [profits]]] before [[interest] [charges]] and [[the amortisation] of [goodwill]] were [£5.4m] compared with [£5.8m] achieved [last [year]] . [a figure] which included [[an exceptionally strong [first [half]]] from [[Linx] [Xymark]]] , where [profits] were materially higher than originally expected by [£0.4m] .)

[[[Group] [profit]]] before [tax] was [£5.0m] ([£5.2m]) , exactly in line with [[market] [expectations]] .)

[[Earnings] [per [share]]] were [25.7p] (23.6p) equivalent to [27.4p] (25.6p) before [[the amortisation] of [goodwill]] on [acquisitions]] .)
[[The Board] proposes [[a final [dividend]] of [[5.6p] [per [share]]]] (5.5p) , bringing [[the total] for [the year]] to [[8.4p] [per [share]]] (8.2p) , [[an increase] of [2%]] .)

[[This dividend]] is covered 3.1 times by [earnings] .)

[[If approved at [the Annual [General [Meeting]]] [the dividend]] will be paid on [22 November 2002] to [[shareholders] on [the register]] at [[the close] of [business]] on [1 November 2002] .)

Start MAA... Herbst... Intran... MSN... PHDA... JAVA... per s... Marka... MM... RE q... 11:17

13. Antecedent: *a final dividend of 5.6p per share*; cohesive set {3}

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[[Overview]]

[[I]] am pleased to report that [Linx] achieved [[[[its] stated [objective]]] for [the year]] of maintaining [underlying [profitability]] while continuing to invest in [[the future [development]]] of [[our] [businesses]]] around [the world] .)

[[In the face of [uncertain economic [conditions]]] , [this consistent [[profit] [performance]]] amply demonstrates [[the robustness] of [[our] [business]]] .
[[With [prudent [planning]]] , [we] have maintained [[[[investment] in [the two fundamental [aspects]]] of [[our] [business]]] that will underpin [future [growth]]] - [[[[a stream] of new and improved [[products] and [technologies]]] , and [a committed and focused [[distribution] [network]]]] to provide [[access] to [[world] [markets]]] .)

[[In [the current [year]] [we] have launched [[important new [products]]] in [[our] [[Linx] [inkjet]] and [[Linx] [Xymark]] [[laser] [businesses]]]] , expanded [[sales] of [[Linx] [products]]] in [China] by more than [30%] and established [a fully-fledged [[distribution] [operation]]] in [the USA] to sell and support [[laser] [products]] in [that important [market]]] .)

[[[Results] and [Dividend]]]

[[Total [sales]]] increased by [2%] to [£48.7m] (£47.6m) .)
[[Operating [profits]]] before [[interest] [charges]] and [[the amortisation] of [goodwill]] were [£5.4m] compared with [£5.8m] achieved [last [year]] . [a figure] which included [[an exceptionally strong [first [half]]] from [[Linx] [Xymark]]] , where [profits] were materially higher than originally expected by [£0.4m] .)

[[[Group] [profit]]] before [tax] was [£5.0m] ([£5.2m]) , exactly in line with [[market] [expectations]] .)

[[Earnings] [per [share]]] were [25.7p] (23.6p) equivalent to [27.4p] (25.5p) before [[the amortisation] of [goodwill]] on [acquisitions]] .)
[[The Board] proposes [[a final [dividend]] of [[5.6p] [per [share]]]] (5.5p) , bringing [[the total] for [the year]] to [[8.4p] [per [share]]] (8.2p) , [[an increase] of [2%]] .)

[[This dividend]] is covered 3.1 times by [earnings] .)

[[If approved at [the Annual [General [Meeting]]] [the dividend]] will be paid on [22 November 2002] to [[shareholders] on [the register]] at [[the close] of [business]] on [1 November 2002] .)

Start MAA... Herbst... Intran... MSN... PHDA... JAVA... a final... Marka... MM... RE q... 11:17

14. Antecedent: *economic conditions*; cohesive set {2}

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(In [the current [year]] [we] have launched [[important new [products]] in [[our] [[Linx] [inkjet]] and [[Linx] [Xymark]] [[laser] [businesses]]]], expanded [[sales] of [[Linx] [products]]] in [China] by more than [30%] and established [a fully-fledged [[distribution] [operation]]] in [the USA] to sell and support [[laser] [products]] in [that important [market]] .)

[[[Results] and [Dividend]]]

[[Total [sales]] increased by [2%] to [£48.7m] (£47.6m) .
[[Operating [profits]] [before [[interest] [charges]]] and [[the amortisation] of [goodwill]]] were [£5.4m] compared with [£5.8m] achieved [last [year]] , [a figure] which included [[an exceptionally strong [first [half]]] from [[Linx] [Xymark]]] , where [profits] were materially higher than originally expected by [£0.4m] .)

[[[Group] [profit]] before [tax] was £5.0m (£5.2m) , exactly in line with [[market] [expectations]] .)

[[[Earnings] [per [share]]] were [25.7p] (23.6p) equivalent to [27.4p] (25.5p) before [[the amortisation] of [goodwill]] on [acquisitions]] .
[[The Board] proposes [[a final [dividend]] of [[5.6p] [per [share]]]] (5.5p) , bringing [[the total] for [the year]] to [[8.4p] [per [share]]] (8.2p) . [[an increase] of [2%]] .
[[This dividend] is covered 3.1 times by [earnings]] .
[[If approved] at [the Annual [General [Meeting]]] [the dividend] will be paid on [22 November 2002] to [[shareholders] on [the register]] at [[the close] of [business]] on [1 November 2002]] .)

[[Prospects]]

[While [economic [conditions]] may be no more certain than [they] were [twelve [months]] ago , [[order] [[input] [levels]]] continue to remain at [satisfactory [levels]] .)

[Looking ahead , [we] have [new [products]] to sell , and there are [more] in [the pipeline] .
[[We] shall be working to develop further [[our] [[distribution] [performance]]] in [all [markets]] , and [we] are actively looking for [opportunities] to build on [[our] already well-established [position]] in [the rapidly growing [Chinese [market]]] .)

[[We] are looking forward to [[a successful [year]] for [the Group]] .)

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15. Antecedent: *markets*; cohesive set {2}

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(In [the current [year]] [we] have launched [[important new [products]] in [[our] [[Linx] [inkjet]] and [[Linx] [Xymark]] [[laser] [businesses]]]], expanded [[sales] of [[Linx] [products]]] in [China] by more than [30%] and established [a fully-fledged [[distribution] [operation]]] in [the USA] to sell and support [[laser] [products]] in [that important [market]] .)

[[[Results] and [Dividend]]]

[[Total [sales]] increased by [2%] to [£48.7m] (£47.6m) .
[[Operating [profits]] [before [[interest] [charges]]] and [[the amortisation] of [goodwill]]] were [£5.4m] compared with [£5.8m] achieved [last [year]] , [a figure] which included [[an exceptionally strong [first [half]]] from [[Linx] [Xymark]]] , where [profits] were materially higher than originally expected by [£0.4m] .)

[[[Group] [profit]] before [tax] was £5.0m (£5.2m) , exactly in line with [[market] [expectations]] .)

[[[Earnings] [per [share]]] were [25.7p] (23.6p) equivalent to [27.4p] (25.5p) before [[the amortisation] of [goodwill]] on [acquisitions]] .
[[The Board] proposes [[a final [dividend]] of [[5.6p] [per [share]]]] (5.5p) , bringing [[the total] for [the year]] to [[8.4p] [per [share]]] (8.2p) . [[an increase] of [2%]] .
[[This dividend] is covered 3.1 times by [earnings]] .
[[If approved] at [the Annual [General [Meeting]]] [the dividend] will be paid on [22 November 2002] to [[shareholders] on [the register]] at [[the close] of [business]] on [1 November 2002]] .)

[[Prospects]]

[While [economic [conditions]] may be no more certain than [they] were [twelve [months]] ago , [[order] [[input] [levels]]] continue to remain at [satisfactory [levels]] .)

[Looking ahead , [we] have [new [products]] to sell , and there are [more] in [the pipeline] .
[[We] shall be working to develop further [[our] [[distribution] [performance]]] in [all [markets]] , and [we] are actively looking for [opportunities] to build on [[our] already well-established [position]] in [the rapidly growing [Chinese [market]]] .)

[[We] are looking forward to [[a successful [year]] for [the Group]] .)

Start MAAX... Herbst... Intran... MSN... PHDA... JAVA [mark] Marka... MM... RE q... 11.18

Appendix VII: Coding manual

1. Coding Guidelines and Methods of Coding

1.1. Coding objective

The objective of this study is to analyse cohesion between noun phrases in the 2002 chairman's reports of nine UK companies, namely (1) Surfcontrol PLC, (2) Atlantic Global PLC, (3) Whittard Of Chelsea PLC, (4) Corporate Services Group PLC, (5) Datamonitor PLC, (6) Albion PLC, (7) Meggitt PLC, (8) House Of Fraser PLC, and (9) Cookson Group PLC

It is your job to identify the noun phrases which stand in a cohesive relation to each other and mark them as (a) antecedents and (b) anaphoric expressions. The following figure illustrates the types of cohesive devices covered by this study:

Types of cohesive devices included in this study						
Type of cohesion	Grammatical cohesion			Lexical cohesion		
Cohesive devices	Reference		Substitution	Repetition	Synonym	Near synonym
	Endophora	Exophora				
	Anaphora					
Linguistic devices	<ul style="list-style-type: none"> • pronouns • direct anaphors • synonym 					
Examples	<i>he, him, his, himself</i>		<i>I/my/mine; we/our/ours; you/your/yours</i>		<i>do, one, the same</i>	

Note: It is not required to classify cohesion into the five different categories listed above. This means that it is not necessary to distinguish between referential repetition (direct anaphor) and lexical repetition or referential synonyms/near synonyms (IS-A anaphors) and lexical synonyms or near synonyms. This means that in terms of annotation, the following two sentences will be treated identically:

1a. Referential use of repetition, i.e. direct anaphor:

{[The Board] proposes [[a final [dividend]] of [[5.6p] [per [share]]]] (5.5p), bringing [[the total] for [the year]] to [[8.4p] [per [share]]] (8.2p), [[an increase] of [2%]].}
{[This [dividend]] is covered 3.1 times by [earnings].}

Both expressions refer to the same extra-linguistic entity, namely a dividend of 5.6p per share.

1b. Non-referential/lexical use of repetition:

{In [the current [year]] [we] have ... expanded [[sales] of [[Linx] [products]]] in [China] by more than [30%] and established [a fully-fledged [[distribution] [operation]]] in [the USA] to sell and support [[laser] [products]] in [that important market]].}

The two expressions refer to different extra-linguistic entities, namely *Linx products* and *laser products*.

2a. Referential use of synonym, i.e. IS-A anaphor:

{In [the current [year]] [we] have ... established [a fully-fledged [[distribution] [operation]]] in [the USA] to sell and support [[laser] [products]] in [that important market]].}

Both expressions refer to the same extra-linguistic entity, namely *the USA*.

2b. (Non-referential/lexical use of synonym):

[Part of [[our] [strategy]] will include [[the purchase] of [attractive add-on [businesses]]] and we are pleased to have announced [[[the acquisition] of [[the business]] and [certain [assets]]] of [BRS Taskforce] from Exel]]. (CSG 2002).

The expressions *the purchase* and *the acquisition* refer to two different extra-linguistic entities, namely *the purchase to the purchase of add-on businesses* and *the acquisition to the acquisition of BRS Taskforce*.

1.2. Text annotation

Text annotation is carried out according to the guidelines established by the Seventh Message Understanding Conference (MUC-7) on co-reference¹ which have been adapted to annotate cohesive relations.

Text annotation is carried out in two steps. The first step involves marking all the linguistic entities which could potentially form a cohesive relationship with other linguistic entities. The second step entails marking two or more linguistic entities as being cohesive, i.e. being interconnected.

1.2.1. Marking linguistic entities

The first step in the annotation process is to mark the linguistic entities which are potentially cohesive with other linguistic entities. This means that a marked expression may or may not form a cohesive tie with another marked expression. Linguistic entities to be marked are referred to as markables.

1.2.2. Style of annotation

In the context of this study, markable expressions (potentially cohesive noun phrases) are rendered in blue and cohesive noun phrases (antecedents and anaphoric expressions) are rendered in blue and italics. The boundaries of markables are rendered by means of brackets [].

Expressions may contain two or more markables, i.e. expressions may refer to specific parts of other expressions. The presence of two or more markables within an expression are rendered by means of brackets within brackets [[] or []]:

{[[*Earnings*] [*per* [*share*]]] were [25.7p] (23.6p) equivalent to [27.4p] (25.5p) before
[[[the amortization] of [goodwill] on [acquisitions]].] {[[The Board] proposes [[a final

[*dividend*] of [[5.6p] [*per* [*share*]]]] (5.5p) ... {[*This* [*dividend*]] is covered 3.1 times by [*earnings*].}

In the first sentence there are three markables in the expression *earnings per share*, namely *earnings per share*, *earnings*, and *per share*. The expression *per share* in the second sentence refers back to *per share* in the first sentence and the noun phrase *earnings* in the third sentence refers back to *earnings* in the first sentence.

1.2.3. Type of linguistic entities to be marked

Nouns, noun phrases and pronouns

Cohesion will be marked between elements of the following categories: (a) nouns, such as [*earnings*], (b) noun phrases, such as [[*a final* [*dividend*]] of [[5.6p] [*per* [*share*]]]], and (c) pronouns, such as [*they*] and [*s/he*]. Pronouns include (a) personal pronouns [*they*, *them*], [*s/he*, *her/him*], (b) possessive pronouns [*their*, *theirs*], [*her/s*, *his*], (c) reflexive pronouns [*themselves*] and [*herself*, *himself*], and (d) demonstrative pronouns [*this*].

Possessive and reflexive pronouns

The possessive forms of pronouns used as determiners are markable:

{[*I*] am pleased to report that [*Linx*] achieved [[[[*its*] stated [*objective*]]] ...

There are three potential markables for relations in the expression *its stated objective*, namely *its*, the entire noun phrase *its stated objective*, and *objective*.

Reflexive pronouns are markable:

[*He*] shot [*himself*] with [*his* [*revolver*]].

He, *himself*, and *his* should all be marked cohesive.

¹ See http://www.itl.nist.gov/iaui/894.02/related_projects/muc/proceedings/co_task.html.

Names and named entities

Names and named entities, such as [Linx] and [Xymark], including dates [22 November 2002], times, currency amounts [£48.7m], and percentages [2%] are all considered noun phrases and thus represent markables (all Linx 2002).

Present participles

Present participles which are modified by other nouns [program trading] or adjectives [prudent [planning]] (Linx 2002), are preceded by an article, such as *a* [a placing "the", "my", etc.) or are followed by an "of" phrase ("slowing of the economy") are to be considered noun-like and ARE markable.

Pre-nominal modifiers

Pre-nominal modifiers, such as [[trade] [stocktaking]] in [[trade] [[stocktaking] business]] are markable (Christie 2002).

The pre-nominal modifier [stocktaking] forms a cohesive relationship with the noun phrase [stocktaking] in the next paragraph:

[Orridge & Co] ... complements [[our] Venners' licensed [trade] [[stocktaking] [business]]] ...

[The Group] now has [[substantial [platforms]]] in [stocktaking] ...

The following table provides a summary of linguistic entities to be marked as being potentially cohesive with other linguistic entities:

Expressions to be marked as being potentially cohesive with other expressions			
Linguistic Categories	Subcategories and examples		
Noun phrases	Simple noun (<i>firm, firms</i>)	Noun with article (<i>a firm, the firm</i>)	Noun with adjective (<i>a large firm, large firms</i>)
Pronouns	Personal pronouns (<i>I, myself</i>)	Demonstrative pronouns (<i>this, that</i>)	Possessive pronouns (<i>my, mine</i>)
Dates	<i>January 23, 1999</i>		
Currency expressions	<i>£1.2 million</i>		
Percentages	<i>17%</i>		
Names	<i>Amanda Street</i> (Christie 2002)		
Named entities	<i>Reuters, United Nations, London</i>		
Present participles	Modified by nouns or adjectives (Program trading, excessive spending)	Preceded by article (<i>the spending, our spending</i>)	Followed by <i>of</i> (slowing of the economy)
Pre-nominal modifiers	<i>Stocktaking business</i> (Christies 2002)		

Type of linguistic entities not to be marked

The relation is marked only between pairs of elements both of which are markables. This means that some markables that look anaphoric will not be coded.

Pronouns without antecedents

In certain cases, pronouns may not have an antecedent and are thus not to be marked: As [shareholders] are aware, it is [[our] [strategy]] to extend [[our] [activities]], either in [geographical or product [terms]], in order to achieve [[a satisfactory [level]] of [long-term [growth]]] (Christie 2002).

Pronouns (including demonstrative pronouns) may refer to something unmarkable, for example, a clausal construction. In such cases they are not to be marked:

Program trading is not to the benefit of the small investor, that's for sure.

Although *that* is related to *program trading is not to the benefit of the small investor*, the latter is not markable, so no antecedent is annotated for *that*.

Implicit pronouns

Do not code relations between a relative pronoun and the noun phrase to which it attaches or the gap that it fills:

the movie which I saw

The relative pronoun *which* bears no markable relation to either *the movie* (the head to which the relative pronoun attaches) or to the implicit object of *saw* (the gap that the pronoun fills).

Gerunds

Gerunds, i.e. phrases headed by a present participle, are taken to be verbal if they can take an object or can be modified by an adverb and are thus not markable:

{[I] am pleased to report that [*Linx*] achieved [[[*its*] stated [objective]] for [the year]]] of maintaining [underlying [profitability]] while continuing to invest in [[the future [development]] of [[*our*] [businesses]]] around [the world].} (Linx 2002).

In the above example *maintaining* is not treated as part of the noun phrase [underlying [profitability]] since it could take an adjective, such as *constantly maintaining* [underlying profitability].

1.2.4 Expressions not to be marked as cohesive:

Inter-year comparisons

[Total [sales]] increased by [2%] to [£48.7m] (£47.6m) (Linx 2002).

The following Table provides a summary of linguistic entities not to be marked as being potentially cohesive with other linguistic entities:

Expressions NOT to be marked as being potentially cohesive with other expressions

Linguistic Categories	Subcategories and examples		
<i>Pronouns</i>	<i>Antecedent is clause:</i> TIC plc will go bankrupt, that's certain.	<i>Implicit pronouns:</i> the film which I saw	<i>Pronouns without antecedents:</i> It's raining
<i>Gerunds²</i>	Slowing the economy is supported by some;		
<i>Inter-year comparisons</i>	Total sales increased by 2% to £48.7m (£47.6m).		

1.2.5 Size of linguistic entities

How much of the markable to annotate

Markables must include the head of the markable (as defined below) and may include any additional text up to a maximal noun phrase (as defined below).

For most noun phrases, the head will be the main noun, without its left and right modifiers. In the following examples the head of the noun phrase is marked in bold:

[uncertain [economic [conditions]]] (Linx 2002)

[that [important [market]].}

[[[[its] stated [objective]] for [the year]]] (Linx 2002)

The last example can be decomposed into two further noun phrases with the following heads:

[[[its] stated [objective]]

[its]

Fixed phrases

[CEOs] who receive [golden handshakes] face [criticism] by [union representatives].

Minimum noun phrase

² Gerund = a verbal form using a present participle.

The minimum noun phrase is the head of a noun phrase, often a simple noun, such as [earnings] or [the world] (Linx 2002).

Maximum noun phrase

The maximal noun phrase includes all text which may be considered a modifier of the noun phrase. The following linguistic entities can act as modifiers:

Adjectives

[prudent [planning]],

Appositional phrases

Appositional phrases are two noun phrases referring to the same entity.

[[QueueBuster], [[a product] which provides [tangible and quantifiable [benefits]] to [[our] [customers]]]] (Netcall 2002)

Non-restrictive relative clauses

Non-restrictive relative clauses do not restrict the reference of a phrase to which or to whose head it relates.

[[a figure] which included [[an exceptionally strong [first [half]]] from [[Linx] [Xymark]]]]

[[[[investment] in [the two fundamental [aspects]]] of [[our] [business]]] that will underpin [future [growth]]]

The noun phrase [a figure] refers to the specific figure of £5.4m, regardless of the presence or absence of the relative clause which included [[an exceptionally strong [first [half]]] from [[Linx] [Xymark]]]] that follows; therefore it constitutes a non-restrictive (also called an appositional) relative clause).

Contrast this with the example of a restrictive relative clause:

[CEOs] who receive [golden handshakes] face [criticism] by [union [representatives]].

Restrictive relative clauses restrict the reference of a phrase to which head it relates. The noun phrase *CEOs* refers only to those CEOs who received golden handshakes and not to CEOs in general.

Prepositional phrases

Prepositional phrases which may be viewed as modifiers of the noun phrase or of a containing clause (i.e. phrases which provide the answer to the question *What kind of?*):

[[[its] stated [objective]] for [the year]]] (Linx) [*What kind of objective?*]

[[the future [development]] of [[our] businesses]] (Linx) [*What kind of future development?*]

[[[investment] in [the two fundamental [aspects]]] of [[our] [business]]] (Linx) [*What kind of investment?*]

[important new [products]] in [our] [Linx] [inkjet]] and [Linx] [Xymark]] [laser] [businesses]]] (Linx 2002) [*What kind of important new products?*]

[[our] already well-established [position] in the rapidly growing Chinese market (Linx 2002) [*What kind of position?*]

[[access] to [[world] [markets]]] (Linx 2002) [*What kind of access?*]

However, prepositional phrases which do not modify the noun phrase or containing clause are regarded as separate noun phrases:

[[the future [development]] of [[our] businesses]] around [the world] (Linx) [*Where?*]

[[sales] of [[Linx] [products]]] in [China] (Linx) [*Where?*]

Conjoined noun phrases

Conjoined noun phrases are noun phrases which contain the conjunction *and*:

[[[a stream] of new and improved [[products] and [technologies]]]

Noun phrases which contain two or more heads are marked by defining the minimal string (head of noun phrase) as the span from the first 'head' through the last 'head' including all material in between. The maximal string includes the entire maximal conjoined noun phrase. Thus we mark cohesion between *The sleepy boys and girls* and *their* as follows:

[[[[[a stream] of new and improved [[products] and [technologies]]], and [a committed and focused [[distribution] network]]]]]

2. Using MMAX2

2.1. Text preparation

Since not all noun phrases are correctly identified during the automatic noun phrase identification process described in section 5.4.1., a manual post-edit is required. This entails (a) creating new markables, i.e. marking noun phrases not recognized by the program and (b) resizing markables, i.e. changing the size of a markable, i.e. including/excluding words from a particular noun phrase. This involves three different tasks, namely (1) creating new noun phrases, (2) resizing noun phrases, and (3) inserting markable handles:

2.2. Creating new noun phrases

In order to create a new noun phrase, the word/words need to be highlighted by means of left clicking in the word/first word in question and dragging the mouse to the end of the word/last word in question. This highlights the word/words pale blue. This action causes a popup menu to appear with various options. The option 'creating markable on nplevel' needs to be selected. This renders the previously black word/words blue, indicating that they are marked as noun phrases.

2.3 Resizing noun phrases

To add a word to a particular noun phrase, the noun phrase in question has to be selected. This is shown by it being highlighted in yellow. Then, the word/words to be added need to be highlighted by means of left clicking in the word/first word in question and dragging the mouse to the end of the word/last word in question. This highlights the word/words pale blue. This action causes a popup menu to appear saying 'append to this markable'. Clicking on it resizes the noun phrase. This is indicated by the additional words also being highlighted in yellow.

2.4 Inserting markable handles

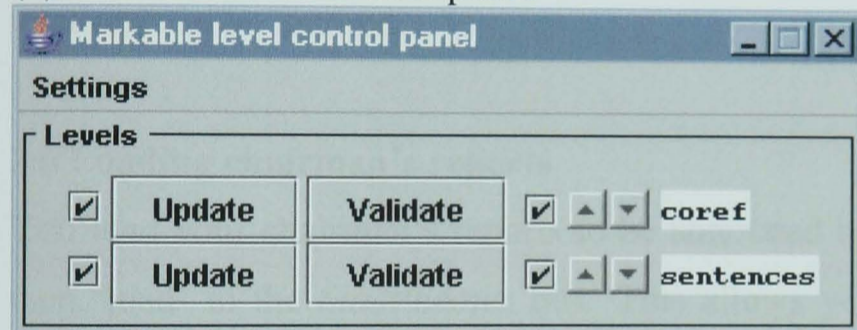
Markable handles, i.e. black brackets of the type [], mark noun phrase boundaries. When a noun phrase is resized, they are not automatically inserted. This needs to be done by opening the display menu in the main menu and selecting 'reapply current style sheet'. This causes the entire display to be rebuilt and the markable handles become visible on the recently created noun phrase.

Annotations need to be saved by means of opening the file menu in the main menu and selecting 'save' and 'all'.

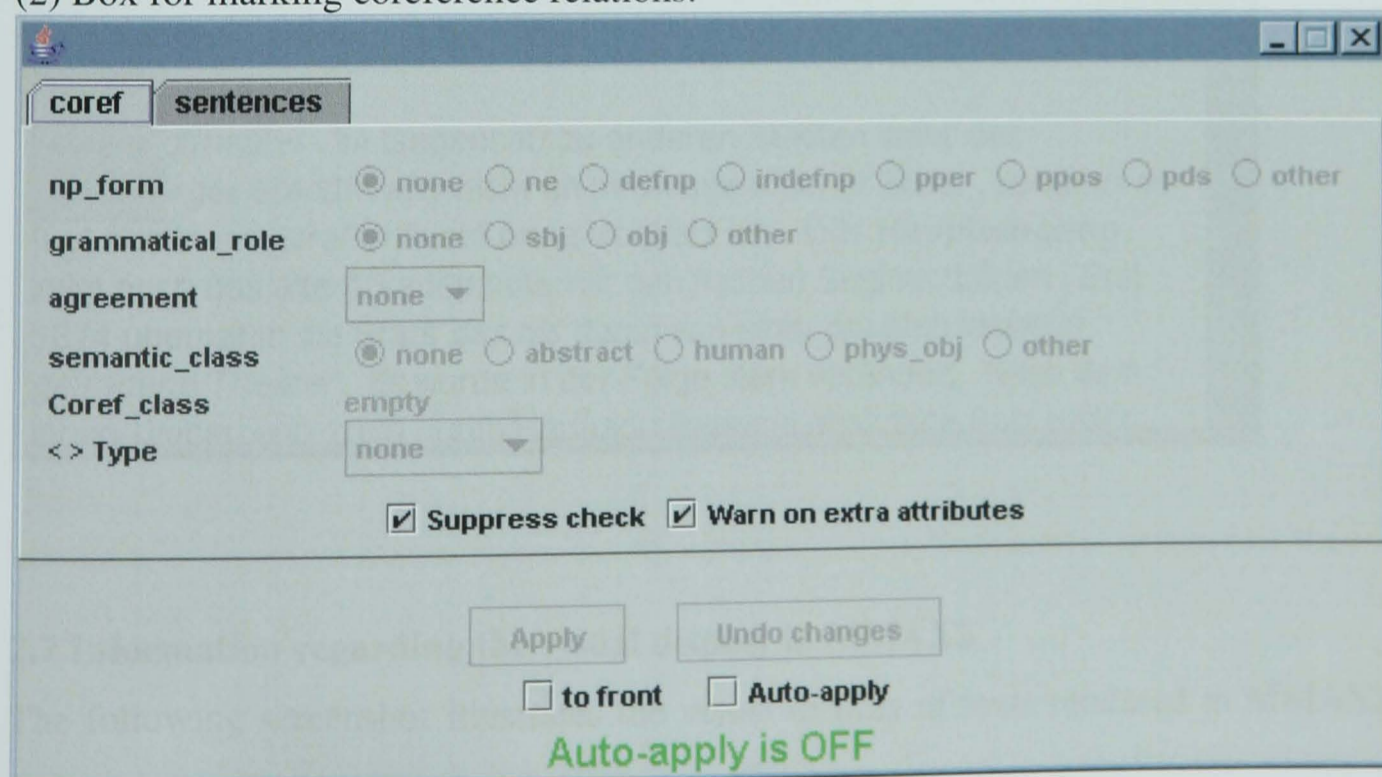
2.5 Starting MMAX2

MMAX2 is started by clicking on *startmax2_htc_win.bat*. This will cause a box to pop up saying 'do not validate' and 'validate now'. Choose 'do not validate'. This will cause three boxes to appear on your screen, namely (1) the markable level control panel in the top right corner, (2) a box for marking coreference relations (in the context of this study cohesive relations) in your top left corner, and (3) the sample text *Stadtheater* in the centre:

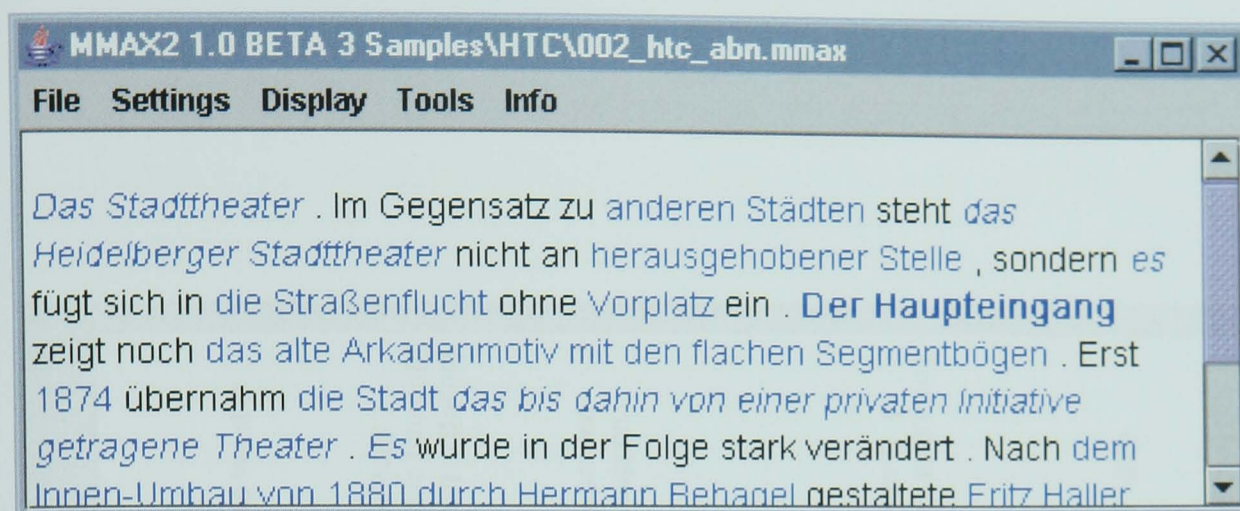
(1) Markable level control panel



(2) Box for marking coreference relations:



(3) Sample text *Stadttheater*:

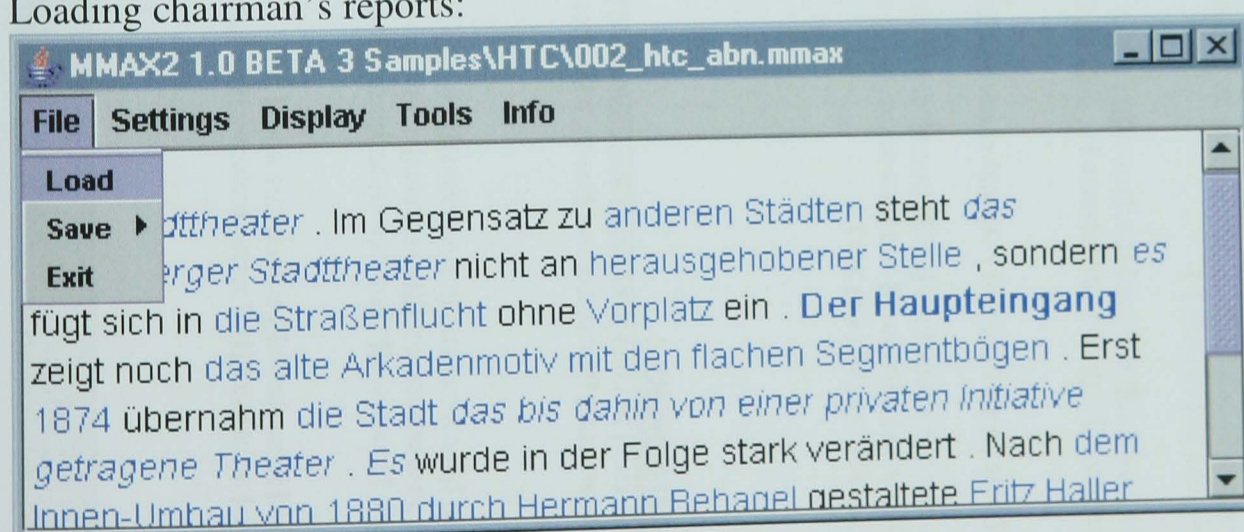


The annotation process only involves the box displaying the actual text to be annotated. The markable menu control box and the box for marking coreference relations can be ignored.

2.6 Loading chairman's reports

You load your chairman's reports to be annotated by means of clicking on 'file' and then 'load' in the *Stadttheater* box. This allows you to choose any of your sample texts:

Loading chairman's reports:



2.7 Information regarding the visual display in MMAX2

The following screenshot illustrates the visual display of texts rendered in MMAX2 format:

MMAX2 1.0 BETA 3 C:\Doris\MAAX2\Texte\Linx.mmax

File Settings Display Tools Info

{[Overview]}

{[I]} am pleased to report that [Linx] achieved {[[[its] stated [objective]]} for [the year]] of maintaining [underlying [profitability]] while continuing to invest in [[the future [development]] of [[our] [businesses]]] around [the world] .}

{In the face of [uncertain economic [conditions]] , [this consistent [[profit] [performance]]] amply demonstrates [[the robustness] of [[our] [business]]] .}

{With [prudent [planning]] , [we] have maintained {[[[investment] in [the two fundamental [aspects]]] of [[our] [business]]] that will underpin [future [growth]]} - {[[a stream] of new and improved [[products] and [technologies]]} , and [a committed and focused [[distribution] [network]]] to provide [[access] to [[world] [markets]]] .}

{In [the current [year]] [we] have launched {[[important new [products]] in [[our] [[Linx] [inkjet]] and [[Linx] [Xymark]] [[laser] [businesses]]]} , expanded [[sales] of [[Linx] [products]]] in [China] by more than [30%] and established [a fully-fledged [[distribution] [operation]]] in [the USA] to sell and support [[laser] [products]] in [that important [market]] .}

{[[Results] and [Dividend]]}

{[[Total [sales]] increased by [2%] to [£48.7m] (£47.6m) .}

{[[Operating [profits]] [before [[interest] [charges]]] and [[the amortisation] of [goodwill]]] were [£5.4m] compared with [£5.8m] achieved [last [year]] , [a figure] which included [[an exceptionally strong [first [half]]] from [[Linx] [Xymark]]] , where [profits] were materially higher than originally expected by [£0.4m] .}

{[[[Group] [profit]] before [tax]] was £5.0m ([£5.2m]) , exactly in line with [[market] [expectations]] .}

{[[Earnings] [per [share]]] were [25.7p] (23.6p) equivalent to [27.4p] (25.5p) before {[[the amortisation] of [goodwill]] on [acquisitions]] .}

{[The Board] proposes [[a final [dividend]] of [[5.6p] [per [share]]]] (5.5p) , bringing [[the total] for [the year]] to [[8.4p] [per [share]]] (8.2p) , [[an increase] of [2%]] .}

{[This dividend] is covered 3.1 times by [earnings] .}

{[If approved at [the Annual [General [Meeting]]] [the dividend] will be paid on [22 November 2002] to [[shareholders] on [the register]] at [[the close] of [business]] on [1 November 2002] .}

Start | Chair... | Post... | Intra... | MSN... | PhD... | JAVA | [the ...] | Mark... | MM... | EN | 12:09

- (1) The parts of text which are not noun phrases (i.e. verbs and verb phrases) are rendered in black.
- (2) All potentially cohesive noun phrases, i.e. all noun phrases which could stand in a cohesive relation to each other, have been rendered in blue.
- (3) The noun phrases standing in a cohesive relation are rendered in blue and italics.
- (4) In a set of noun phrases marked as being cohesive, the selected noun phrase is highlighted in yellow (see **[the USA]** and the other noun phrases belonging to the same set are highlighted in grey (see **[that important [market]]**). Selecting a noun phrase which is part of a cohesive set, causes all the noun phrases in the cohesive set to be connected by a green line.
- (5) Sentence boundaries are marked in green brackets of the type { }.
- (6) Noun phrase boundaries are marked in black brackets of the type [].

Note that the easiest way to select a particular noun phrase is to click on its handles, which are marked by means of brackets. This allows you to select either entire noun phrases or noun phrases embedded within noun phrases:

{ In [the current [year]] [we] have launched [[important new [products]] in [our] [Linx] [inkjet]] and [Linx] [Xymark]] [laser] [businesses]]], expanded [[sales] of [[Linx] [products]]] in [China] by more than [30%] and established [a fully-fledged [[distribution] [operation]]] in [the USA] to sell and support [[laser] [products]] in [that important market]]. }

In order to mark the cohesion between [the USA] and [that important [market]], you click on the outer handles. In order to mark the cohesion between the first and the second occurrence of *products*, you click on the inner handles, i.e. [[important new [products]] and [[laser] [products]], respectively.

It is important to note that anaphoric expressions can refer to different parts of embedded noun phrases, forming complex grammatical and lexical interrelationships between sentences. Both components of the noun phrase [[laser] [products]] are separately cohesive with other noun phrases in the text, namely [laser] with [laser] in the noun phrase [[important new [products]] in [our] [Linx] [inkjet]] and [Linx]

[Xymark]] [laser] [businesses]]]] and [products] with [products] in the noun phrase [[important new [products]] in [our] [Linx] [inkjet]] and [Linx] [Xymark]] [laser] [businesses]]]].

3. Coding instructions

3.1 Types of cohesive relations to be marked

Endophoric references (anaphoric and cataphoric)

Two cohesive expressions can stand in an either anaphoric or cataphoric relation to each other.

In the sentence below, [the USA] and [that important market]] stand in a cohesive relation with one another with [the USA] as the antecedent and [that important market]] as the anaphoric expression.

{In [the current [year]] [we] have ... established [a fully-fledged [[distribution] [operation]]] in [the USA] to sell and support [[laser] [products]] in [that important market]].}

Two cohesive expressions can also stand in a cataphoric relation to each other.

In spite of [[its] [difficulties]], [Master Change] earned [a significant [gross [profit]]] in [[its] [major [[trading] [area]]]], [Paris]].

3.2 Types of cohesive relations not to be marked

3.2.1 Exophoric references

The pronouns *I/me/my/mine*, *we/us/our/ours*, and *you/your/yours* are treated as exophoric references, i.e. references to entities outside the text itself. They are not marked as coreferential.

3.3 Cohesive span

Cohesion is only marked within one paragraph and from one paragraph to the next. If there are occurrences of the same expression in two paragraphs not immediately adjacent to each other, they are not to be marked as cohesive.

Headings are treated as boundaries between paragraphs. Therefore, cohesion between noun phrases is not to be marked if they occur in two paragraphs separated by a heading.

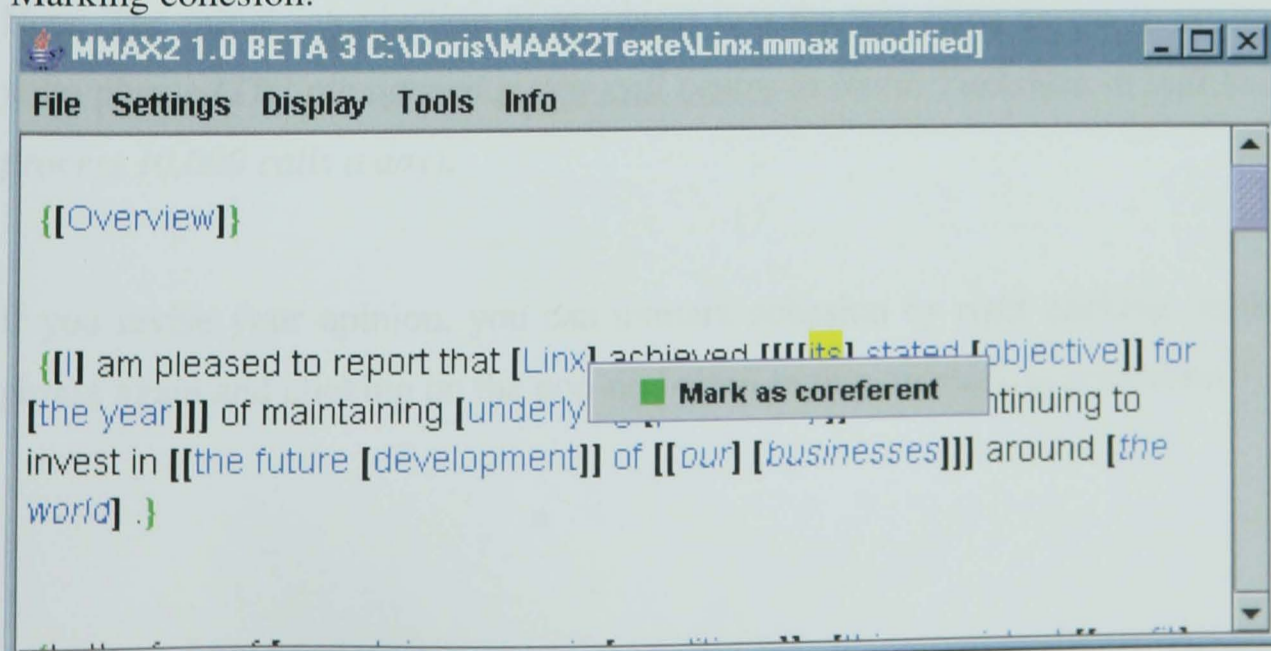
Enumerations in the form of bullet points are treated as an entity. Therefore, cohesion is marked across bullet points.

3.4 Marking cohesive ties between noun phrases with MMAX2

Are some noun phrases dependent on their interpretation on a noun phrase occurring earlier in the text? If yes, you need to mark this grammatical or lexical connection between noun phrases.

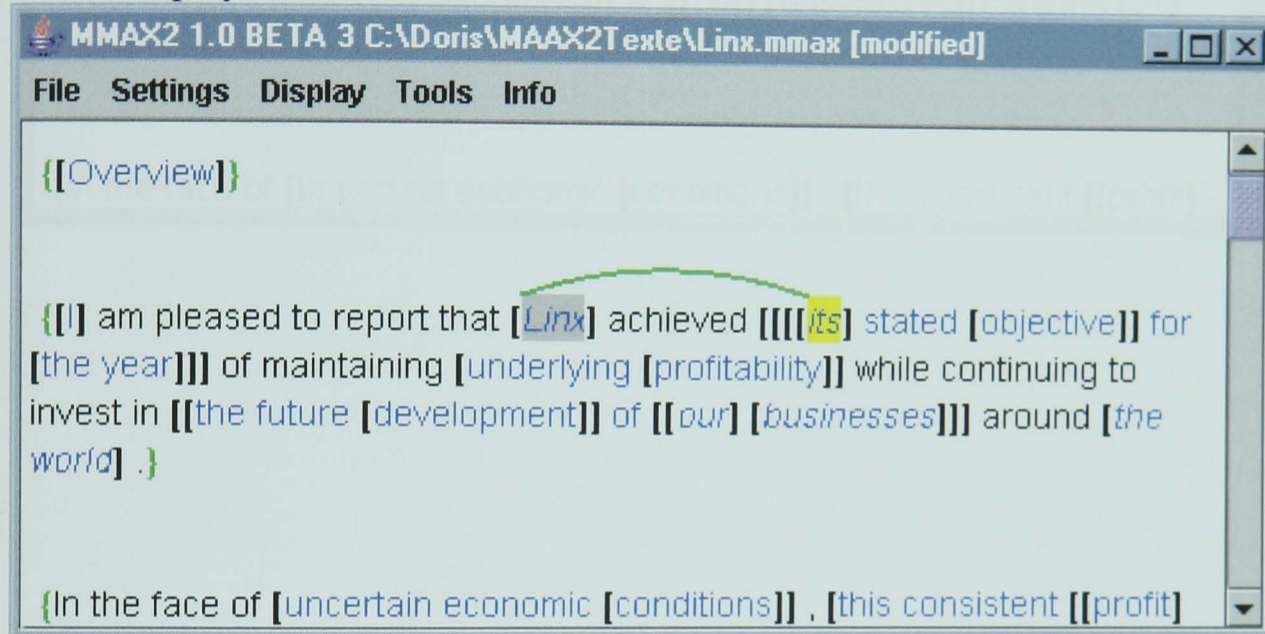
For this purpose, the first noun phrase to be included in the set is selected by left-clicking it. As a result, it will be highlighted in yellow. The second noun phrase to be added is then right-clicked, which causes a popup button saying 'mark as coreferent' to appear. This is due to the fact that this software has been developed for analysing referential relations. In the context of this study, interpret 'mark as coreferent' as 'mark as cohesive':

Marking cohesion:



Clicking on 'mark as coreferent' causes the two noun phrases to be linked. This is graphically displayed by means of the noun phrases appearing in italics and by them being connected by means of a green line. The green line indicates that the two noun phrases are cohesive and belong to the same set:

Visual display of cohesion:



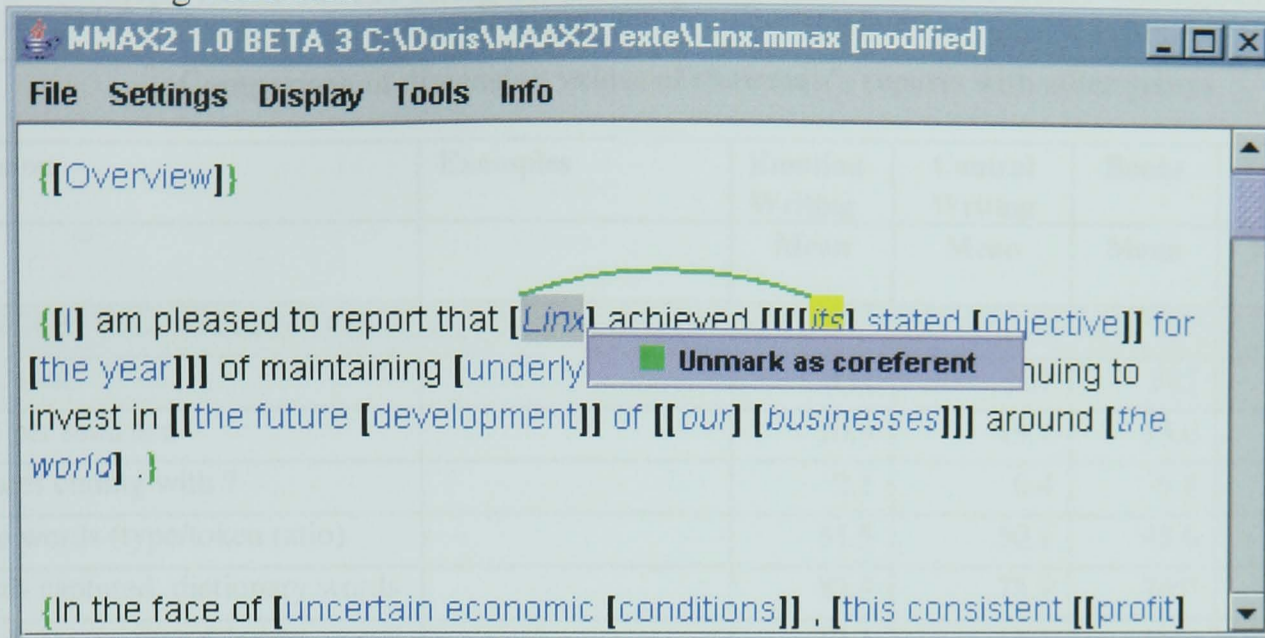
If additional noun phrases belong to the same set, the whole process is repeated.

This process causes noun phrases to be expressed by means of an identical *member* attribute, i.e. MMAX2 identifies them as being members of the same set.

Note: The initial introduction of an object into the text often occurs as an indefinite noun phrase (*TIC plc opened a new call centre in North Yorkshire. It will be able to process 10,000 calls a day*).

If you revise your opinion, you can unmark cohesion by right clicking on the noun phrase again and clicking on the pop-up button saying 'unmark as coreferent':

Unmarking cohesion:



Appendix XIII: Linguistic Inquiry and Word Count categories

Comparison of dimension values of chairman's reports with other genres						
Dimension	Examples	Emotion Writing Mean	Control Writing Mean	Books Mean	Talking Mean	Chair man's Mean
I. LINGUISTIC DIMENSIONS						
Word count		327	301	667	394	993.9
Words per sentence		20.9	19.4	13.0	10.9	30.1
Sentences ending with ?		2.1	0.4	9.8	21.6	0.0
Unique words (type/token ratio)		51.5	50.1	48.6	50.8	42.6
% words captured, dictionary words		83.3	78.9	74.0	75.4	63.1
% words longer than 6 letters		13.1	14.1	16.4	10.1	29.8
Total pronouns	<i>I, our, they, you're</i>	17.2	12.4	13.6	15.8	3.9
1 st person singular	<i>I, my, me</i>	10.6	8.2	2.7	5.6	0.4
1 st person plural	<i>we, our, us</i>	0.8	1.5	0.5	1.0	2.3
Total first person	<i>I, we, me</i>	11.4	9.7	3.3	6.6	2.7
Total second person	<i>you, you'll</i>	0.4	0.3	1.5	4.0	0.1
Total third person	<i>she, their, them</i>	3.3	1.2	7.0	2.5	0.4
Negations	<i>no, never, not</i>	2.3	0.8	1.9	2.8	0.3
Assents	<i>yes, OK, mmhmm</i>	0.1	0.0	0.2	1.6	0.1
Articles	<i>a, an, the</i>	5.0	7.2	7.5	4.3	9.2
Prepositions	<i>on, to, from</i>	12.6	15.2	13.2	9.2	16.0
Numbers	<i>one, thirty, million</i>	1.0	1.0	1.0	1.5	5.0
II. PSYCHOLOGICAL PROCESSES						
Affective or Emotional Processes	<i>happy, ugly, bitter</i>	5.3	2.3	3.9	4.0	4.0
Positive Emotions	<i>happy, pretty, good</i>	2.7	1.7	2.2	2.7	3.2
Positive feelings	<i>happy, joy, love</i>	0.9	0.3	0.7	0.9	0.2
Optimism and energy	<i>certainty, pride, win</i>	0.5	0.4	0.5	0.3	1.5
Negative Emotions	<i>hate, worthless,</i>	2.6	0.6	1.6	1.3	0.8
Anxiety or fear	<i>nervous, afraid,</i>	0.6	0.2	0.4	0.3	0.0
Anger	<i>hate, kill, pissed</i>	0.7	0.2	0.6	0.5	0.1
Sadness or depression	<i>grief, cry, sad</i>	0.7	0.2	0.4	0.2	0.4
Cognitive Processes	<i>cause, know, ought</i>	7.8	4.1	6.1	7.3	3.5
Causation	<i>because, effect,</i>	1.1	0.6	0.6	1.1	0.9
Insight	<i>think, know,</i>	2.5	1.1	1.9	2.4	1.0
Discrepancy	<i>should, would,</i>	2.7	1.1	2.1	1.7	0.5
Inhibition	<i>block, constrain</i>	0.3	0.3	0.4	0.2	0.4
Tentative	<i>maybe, perhaps,</i>	2.5	1.6	1.8	2.2	0.5
Certainty	<i>always, never</i>	1.4	0.7	0.9	0.9	0.6
Sensory and Perceptual Processes	<i>see, touch, listen</i>	2.5	2.2	3.2	2.6	0.4
Seeing	<i>view, saw, look</i>	0.5	0.8	0.9	1.0	0.3
Hearing	<i>heard, listen, sound</i>	1.1	0.8	1.7	1.3	0.1
Feeling	<i>touch, hold, felt</i>	0.8	0.3	0.4	0.2	0.1

Social Processes	<i>talk, us, friend</i>	9.5	6.0	13.1	10.9	4.9
Communication	<i>talk, share,</i>	1.7	1.3	2.3	1.9	0.8
Other references to people	<i>1st pl, 2nd, 3personal</i>	4.8	3.0	9.2	7.6	2.9
Friends	<i>pal, buddy,</i>	0.6	0.3	0.1	0.1	0.1
Family	<i>mom, brother,</i>	1.2	0.4	0.4	0.2	0.0
Humans	<i>boy, woman, group</i>	0.8	0.4	0.7	0.7	0.2
III. RELATIVITY						
Time	<i>hour, day, o'clock</i>	5.0	6.2	3.5	3.4	5.2
Past tense verb	<i>walked, were, had</i>	6.9	5.8	7.5	4.5	2.1
Present tense verb	<i>walk, is, be</i>	10.2	8.7	6.2	13.7	4.8
Future tense verb	<i>will, might, shall</i>	1.0	1.7	0.9	0.9	1.0
Space	<i>around, over, up</i>	2.4	3.3	3.0	2.6	2.9
Up	<i>up, above, over</i>	1.2	2.0	1.3	1.2	1.3
Down	<i>down, below, under</i>	0.2	0.5	0.4	0.2	0.3
Inclusive	<i>with, and, include</i>	6.3	7.1	5.9	4.5	7.9
Exclusive	<i>but, except, without</i>	4.0	2.6	3.1	3.8	1.4
Motion	<i>walk, move, go</i>	1.3	2.6	1.1	1.6	0.7
IV. PERSONAL CONCERNS						
Occupation	<i>work, class, boss</i>	2.5	3.9	1.3	1.7	5.2
School	<i>class, student,</i>	1.2	2.6	0.3	0.8	0.5
Job or work	<i>employ, boss,</i>	0.5	0.8	0.6	0.5	3.5
Achievement	<i>try, goal, win</i>	0.9	0.8	0.6	0.5	1.5
Leisure activity	<i>house, TV, music</i>	1.1	2.6	0.9	0.8	0.5
Home	<i>house, kitchen,</i>	0.8	1.5	0.5	0.3	0.1
Sports	<i>football, game, play</i>	0.3	0.7	0.1	0.2	0.2
Television and movies	<i>TV, sitcom, cinema</i>	0.1	0.3	0.1	0.1	0.1
Music	<i>tunes, song, cd</i>	0.1	0.3	0.2	0.1	0.0
Money and financial issues	<i>cash, taxes, income</i>	0.3	0.3	0.3	0.5	2.3
Metaphysical issues	<i>God, heaven, coffin</i>	0.4	0.2	0.4	0.2	0.0
Religion	<i>God, church, rabbi</i>	0.2	0.2	0.2	0.1	0.0
Death and dying	<i>dead, burial, coffin</i>	0.2	0.0	0.2	0.0	0.0
Physical states and functions	<i>ache, breast, sleep</i>	1.2	2.5	2.0	0.9	0.3
Body states, symptoms	<i>ache, heart, cough</i>	0.6	0.8	1.5	0.5	0.2
Sex and sexuality	<i>lust, penis, fuck</i>	0.3	0.1	0.2	0.2	0.0
Eating, drinking, dieting	<i>eat, swallow, taste</i>	0.2	1.1	0.2	0.2	0.0
Sleeping, dreaming	<i>asleep, bed, dreams</i>	0.1	0.6	0.2	0.1	0.0
Grooming	<i>wash, bath, clean</i>	0.1	0.6	0.1	0.1	0.0

Appendix IX: Linguistic terminology

Anaphor	A word or phrase which explicitly refers back to an earlier word or phrase. <i>Peter was late. He was stuck in a traffic jam. He is an anaphor which refers back to Peter.</i>
Antecedent	The first occurrence of a word or phrase which later words or phrases refer back to. <i>Peter was late. He was stuck in a traffic jam. Peter is the antecedent which he refers back to.</i>
Bridge	A word or phrase which implicitly refers back to an earlier word or phrase. <i>Peter became <u>Chairman</u> in 1999. The responsibility soon became too much for him. The responsibility is a bridge which refers back to Chairman.</i>
Clause	Part of a sentence. The brackets indicate that the following sentence consists of two clauses: [<i>He was late</i>] [<i>because he was stuck in a traffic jam</i>].
Cohesion	The connection within and between sentences in texts, e.g. <i>Peter came late. He was stuck in a traffic jam.</i> The link between the pronoun <i>he</i> and its antecedent <i>Peter</i> are aspects of cohesion.
Collocation	A customary association of words with other words, such as in the phrases <i>innocent bystander, far reaching consequences</i> , etc.
Conjunction	A word used to connect sentences or part of sentences. <i>He was late because he was stuck in a traffic jam. Because</i> is a conjunction.
Co-reference	A relation holding between two or more noun phrases specifying the same extra-linguistic entity. Co-reference needs to be distinguished from substitution, which involves the relationship between words only.
Corpus	A collection of texts which is carefully sampled to be maximally representative of the language being analyzed.
Corpus analysis	Involves the computerized analysis of the linguistic features of the sample texts.
Corpus linguistics	Involves the study of language that includes all processes related to processing, usage and analysis of corpora.
Discourse	Discourse is the name given to units of language longer than a single sentence
Discourse analysis	The study of cohesion and other relationships between sentences in written or spoken discourse.
Ellipsis	The omission of a word that is superfluous or can be understood from contextual clues, e.g. <i>This year's profit is higher than last year's [profit]</i> . The ellipsis is indicated by brackets.
Euphemism	A mild or vague expression substituted for one thought to be too harsh or direct (e.g., <i>pass over</i> for <i>die</i>).
Genre	A grouping of texts which are related by sharing recognizably functionalized features of form and content.
Grammatical cohesion	Connection within and between sentences in a text by means of grammatical devices, e.g. <i>Peter came late. He was stuck in a traffic jam.</i> The sentences are grammatically linked by means of <i>he</i> referring back to <i>Peter</i> .
Hyperonym	A generic or superordinate term. The word <i>flower</i> is the hyperonym for <i>rose, lily, and violet</i> .

Appendix VII: Linguistic terminology (cont.)

Hyponym	A subordinate term. A word or phrase of narrower or more specific meaning that comes 'under' another of wider or more general meaning, e.g. <i>rose</i> under <i>flower</i> .
Lexical cohesion	Connection within and between sentences in a text by means of meaning, e.g. <i>Mr. Biggs has brought TIC Plc into <u>the 21st century</u>. Changes involve the launch of a brand new website and a major face-lift of stores.</i> The sentences are linked by means of <i>changes</i> referring back to <i>the 21st century</i> .
Lexis	Vocabulary
Morphology	A branch of linguistics concerned with analysing the structure of words. The morphology of a given word is its structure or form, e.g. <i>grow – growth – growing, profit – profitability – profitable</i> .
Passive voice	Grammatical construction involving a passive verb. A grammatical term that contrasts with active voice. The sentence <i>Helen met the visitors</i> is in the active voice and the sentence <i>The visitors were met by Helen</i> is in the passive voice.
Noun	A noun is a word that names a person or thing. Common nouns name persons or things which are not peculiar to one example, i.e. are of a general nature (<i>director, balance sheet</i>), whereas proper nouns name persons or things of which there is only one example (<i>Asia, Enron</i>). Concrete nouns refer to physical things (<i>factory, annual report</i>), and abstract nouns to concepts (<i>prudence, dishonesty</i>).
Noun phrase	A word or group of words functioning in a sentence exactly like a noun, with a noun or pronoun as head. In the following noun phrases the heads are indicated by underlining: <i>the newly appointed <u>CEO</u> and failing <u>industries</u></i> .
(Personal) Pronouns	Each of the pronouns in English (<i>I, you, he, she, it, we, they, me, him, her, us, and them</i>) comprising a set that shows contrasts of person, gender, number, and case.
Reference	Relationship between two expressions which may appear to refer to each other, but they share the same referent in the real world. An example is anaphoric reference which is concerned with one expression, referring back to another, e.g. <i><u>The CEO</u> claims that he has not been informed.</i>
Rhetoric Substitution	Language designed to persuade or impress Substitution, in contrast to reference, is a relationship between words. Contrast: <i>Is that <u>your paper</u>? May I borrow it?</i> (reference) <i>Is that <u>your paper</u>? I didn't get one today</i> (substitution)
Synonym	A word or phrase that means the same as another word or phrase, e.g. <i>to go into administration</i> and <i>to go bankrupt</i> .
Syntax	The way in which words and clauses are ordered and connected so as to form sentences; or the set of grammatical rules governing such word-order.
Tense	Tense is expressed by verbs and indicates whether the action denoted by the verb takes place in the present, past or future, e.g. <i>profits are stable</i> vs. <i>profits have been stable</i> , <i>profits will remain stable</i> .