

CRANFIELD UNIVERSITY

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Narratives in Corporate Annual Reports: The Drivers and Impacts of  
Narrative's Readability and Tone

School of Management  
PhD Programme

Doctor of Philosophy  
Academic Year: 2018 - 2019

Supervisor: Professor Yacine Belghitar  
Associate Supervisor: Dr Matthias Nnadi  
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degree of Doctor of Philosophy

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## **ABSTRACT**

Corporate annual reports have increased in size over time, not only to contain financial data but a plethora of narrative explanations concerning the firm's current performance and their prospects. This thesis attempts to fill the gaps presented in the field of research of narrative disclosure in corporate reports by conducting three interconnected studies presented in a journal article manuscript form. The first paper provides an understanding of the drivers and consequences of narrative disclosure in corporate reports by conducting a systematic literature review of existing studies. The aim is to get a full understanding behind the intentions and consequences of narrative disclosures, to identify the gaps in research, and to provide recommendations for future research. The second paper focuses on the consequences of the readability of narratives, as an impression management technique in corporate annual reports. This study expands existing literature by not only analysing the reading difficulty of narratives but also touching on the use of ambiguous. It is found that readability (using both readability and ambiguity measures) are negatively associated with firm performance, indicating management's use of impression management to obfuscate adverse performance, resulting in the reduction of performance persistence and firm value. The third paper focuses on earnings management as the driver of the tone of narratives. The study aims to find that relationship between earnings management (using accruals-based and real activities-based earnings management) and the tone of narratives, during two different strategic incentives that drive managers to manipulate earnings (meeting or beating prior year's earnings and leverage increase). It is found that when managers practice income-increasing (decreasing) earnings management the tone is positive (negative). The findings signify that whether the intention is beneficial or harmful to investors, the tone of narratives is biased towards management's intentions of earnings management practices.

**Keywords:** *Narratives; corporate annual reports; impression management; tone; readability; systematic literature review.*



*Dedicated to my Mother and Father,  
for their continuous love and support. I love you!*

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## **LIST OF ABBREVIATIONS**

ABS	Association of Business Schools
AEM	Accrual-Based earnings management
EDGAR	Electronic Data Gathering, Analysis and Retrieval
FRC	Financial Reporting Council
GAAP	Generally accepted accounting principles
GI	General Inquirer
IFRS	International Financial Reporting Standards
IPO	Initial Public Offering
IRH	Incomplete revelation hypothesis
LIWC	Linguistic Inquiry and Word Count programme
MD&A	Management Discussion and Analysis
R&D	Research and Development
REM	Real activities-based earnings management
ROA	Return on Assets
SEC	Securities and Exchange Commission
SLR	Systematic Literature Review
UK	United Kingdom
US	United States of America
MND	Minimal Narrative Disclosure

# **Chapter 1 — Introduction**

## **1.1 Research Background**

The primary objective of accounting is the aggregation of financial data to provide the public with financial information about the organisation. For example, accountants would gather numerous amounts of financial transactions to create an Income Statement (among other financial statements) that summarises the firm's performance (Li, 2010b). In addition to financial statements, a plethora of unstructured textual data has saturated the corporate annual report, along with other corporate disclosures. The quantitative section of financial reports can only provide historical information. Consequently, managers use narratives to accompany their financials and signal value relevant information to investors and other stakeholders about the firm's prospects.

Existing literature has gained interest towards the narratives accompanying financials in corporate reports, and it is found that those narratives are among the important mediums for managers to communicate with stakeholders and that financial data is only useful when it is communicated by textual information (Lee, 1982). According to the US Securities and Exchange Commission (1987), the sole presentation of numerical financial information in annual reports is not enough for investors to predict future performance, indicating the necessity to provide narratives explanations to accompany financial statements. Therefore, narratives in corporate reports are a significant and indispensable part of the document (Canniffe, 2003).

This is interesting to researchers because managers have flexibility in the way their narrative is communicated to stakeholders, moreover not all annual reports narratives are audited (Athanasakou and Hussainey, 2014). The level of disclosure in annual report is subjective and there are no explicit rules other than guidance (Financial Reporting Council, 2018). According to Aristotle's theory of the rhetorical tone of linguistics, Stanford Encyclopedia of Philosophy (2010, Section 4.2) writes, rhetoric is an unbiased tool "that can be used by persons of virtuous or depraved character. This capacity can be used for good or bad purposes; it can cause great benefits as well as great harms." Given that the communication of information through narratives can go from one extreme (harmful to readers as its misleading) to another extreme (beneficial to readers as it

provides value relevant information) it is interesting to investigate the narratives from both the preparer's perspective and the user's perspective (Merkle-Davies and Brennan, 2007).

Psychologists argue that when similar options are presented in different ways, it can impact individual's perception and change their attitude towards the offered options (Ajzen and Fishbein, 2000; Crano and Prislin, 2006). The main consensus that can be derived from the use of narratives in corporate reports is that the writing style of narratives can be used to communicate value-relevant information or obfuscate news to mislead investors and other stakeholders. For example, on the one hand, Li (2010b) found a relationship between forward-looking narratives with current and future earnings, suggesting its informativeness, and Davis and Tama-Sweet (2012) found that managers use net optimistic language to signal their expectations about the firm's future performance.

On the other hand, some studies claim that managers may intentionally manipulate narratives in corporate reports to impact investors and other readers' perceptions (Henry, 2008; Huang, Teoh, and Zhang, 2014). Huang, Teoh, and Zhang (2014) for instance show that abnormal tone (the use of positive and negative words) is positively related to strategic settings, indicating that the management intentionally influences the tone of narratives to mislead stakeholders.<sup>1</sup>

Accordingly, research on the narratives of corporate reports is gaining interest over time, as it is important to understand what drives narratives in corporate reports and how do narratives have an impact on other factors. There are three main reasons why the study of narrative in corporate reports is important; first, narratives in corporate reports carry information concerning quantitative financial data, such as the firm's performance. What makes it interesting is that given narrative's flexibility, there might be a reason for management to obfuscate information due to adverse performance which may decrease

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<sup>1</sup> Abnormal tone also known as tone management can be defined as "The choice of the tone level in qualitative texts that is incommensurate with concurrent quantitative information" (Huang, Teoh and Zhang, 2014, p.1083).

earnings quality (Li, 2008). Therefore, narratives in corporate disclosures can be useful to provide researchers with further understating of financial data.

Second, communication pattern can provide researchers insight into management's decision-making process, like the behavioural economic theory where the research area behind managers behavioural bias has been developed. While it is difficult for archival researchers to find direct measures of behavioural bias, managerial textual disclosures can be used as a means to understand the behaviour of the company's operations. For example, among corporate narrative disclosures managers will try to present themselves in the best possible way, and if there is adverse information that must be reported they are more likely to attribute failures to external factors (Clatworthy and Jones, 2001).

Finally, corporate textual disclosures can provide researchers with a better setting to understand management's incentives. As researchers can get a glimpse of the management's intentions and incentives, through the style of narratives disclosed (Li, 2010a, Bloomfield, 2002). For example, Huang, Teoh and Zhang (2014) examine whether managers manipulate the tone of narratives positively or negatively to hype up or depress the perception of investors depending on the incentive of managers. They find that in strategic settings (e.g. meet or beat earnings thresholds) managers would manipulate their narratives in line with their intentions.

Such extremes in the argument presented on the use of narratives in corporate reports makes the research area interesting to understand the motivations behind narrative's presentation, and how narratives' presentation can impact the firm as a result.

## **1.2 Research Aim and Objectives**

Motivated by the background of narratives in corporate reports, the objective of this thesis is to deliver novel insight into the drivers behind narratives in annual reports, and the impacts/consequences of the tone and readability behind the delivered textual information. Support exists in literature where Li (2008) can identify the determinants of the difficulty in narratives (readability), suggesting that when performance is poor, it motivates managers to obfuscate adverse news by making narratives difficult to read. Conversely, Bloomfield (2008) argue that such difficulty is due to the complexity of



operations and that adverse news is difficult to discuss. Moreover, Li (2010) finds that forward-looking narratives are associated with financial information, such as current and future performance. Indicating that narratives are indeed informative and provide readers with an insight into the prospects of the firm. Nevertheless, Lo, Ramos and Rogo (2017) find that when firms engage in earnings management, they also make narratives difficult to read, suggesting that they are trying to hide their earnings management activity. Due to the inconclusive findings in existing literature, it is evident that the use of narratives in corporate reports whether it is beneficial or misleading to readers is not clear cut, which motivates the following overarching research questions:

*“What are the drivers of narratives in corporate reports? What are the impacts of narratives in corporate reports?”*

From this overarching research question, the thesis proposes to identify and fill the gap in research by concentrating on three main objectives for each unique paper (presented in chapter 2, 3 and 4) in this thesis. The objective of the first paper (chapter 2) is to conduct a literature review in a systematic form, known as a ‘systematic literature review’ (SLR). After conducting a positioning study, a review question is developed to structure the review properly – “what does literature tell us about the drivers of narratives in corporate reports? What are the impacts of narratives in corporate reports?” The review question covers two domains “narratives” and “corporate reports”, suggesting that the review aims to discover all studies conducted of the textual aspect of accounting reports, to understand their “drivers” and “impacts”.

Drawing from the literature review’s aim, there are two objectives related to the second manuscript (chapter 3). First, it is to conduct an empirical study on the relationship between current firm performance and narrative’s reading difficulty. The second objective is to examine the consequences of the readability of narratives on how it impacts performance persistence and firm value. Narrative measures used in this paper include readability measures (number of pages, word count, fog index, the readability index) as well as the ambiguity measure (frequency of uncertain and weak modal words).

The third manuscript (chapter 4) is also drawn from the gaps identified in the SLR, and its main goal is to examine the impact of both accrual-based earnings management (AEM)

and real activities-based earnings management (REM) on the tone of narratives in annual reports. The ‘tone’ in this study is defined as the level of usage of optimistic and pessimistic language. Also, the paper aims to identify how the impact of earnings management (AEM and REM) differs in two strategic situations, to meet or beat prior year’s earnings and during an increase in leverage. According to the objectives listed in this section, the next section summarises their contributions.

### **1.3 Summary of Contributions**

The thesis makes several contributions to knowledge in the field of research of narratives in accounting. First, it enhances our understanding of the role of narratives in corporate disclosures, by conducting an SLR as the first manuscript (*titled: the drivers and impacts of narratives in corporate reports: a systematic literature review*), the paper identifies the motivation behind including narratives in corporate report, and the impacts of corporate narrative’s disclosure through a framework that combines it with the writing style mechanisms used in narratives, specifically readability and the tone of narratives. Existing studies have conducted literature reviews on narratives in annual reports mainly focusing impression management (Merkle-Davies and Brennan, 2007), textual analysis (Li, 2010) and methodology (Loughran and McDonald, 2014,2016).

The SLR included in this thesis differs from its predecessors: first and foremost, it is up to date and includes studies conducted up to 2019 (current year). Second, it uses a systematic review methodology presented by Tranfield, Denyer and Smart (2003), ensuring a rigorous, transparent, and replicability. Third, it mostly contributes to knowledge by identifying the gaps in research. Two distinct gaps were identified empirical, methodological and a research framework gap.

Building on the findings from the SLR, the second paper (*titled: The Impact of Firm Performance on Readability and Ambiguity of Annual Report Narratives and the Consequences*) that examines the impact of current performance on the readability and ambiguity of narratives, and its consequences, and it addresses the gap in research that the consequences of readability are not addressed as well as the it has been addressed within the research of tone of narratives. Moreover, it refers not only the readability as a form of reading difficulty in narratives, but also ambiguous language. Ambiguity in

narratives has been minimally researched, but when it is, it is usually addressed with readability. For example, Ertugrul et al. (2017) examined the impact of readability and the ambiguity for companies with strict loan contracts. Indicating that the consequences of readability and ambiguity are the same as creditors will make contracts stricter when they perceive uncertainty induced by ambiguous language and low readability. Consequently, the second paper makes three contributions. First, the paper contributes to readability in financial disclosures literature. Bloomfield (2008) argues against Li's (2008) findings that the inverse relationship between readability and performance persistence is not enough to conclude that managers could be obfuscating adverse information, although this type of study has been conducted before (Li, 2008), this paper expands on existing studies by addressing four different types of readability measures (fog index, number of pages, word count and a newly constructed readability composite index) and it is the first study to examine the consequences of ambiguity of performance persistence.

Second, building on Bloomfield's (2008) discussion, this study conducts further analysis that test the obfuscation hypothesis, by examining the consequences of the readability of narratives on firm value to validate the obfuscation hypothesis, as far as it is known it is the first paper that examines the impact of readability and ambiguity on firm value to examine investors valuation.

Finally, this paper also contributes methodologically by creating a composite index the combines the three different readability measures (fog index, number of pages and word count) into one measure called 'readability index'. Previous studies have examined readability by testing the readability measures separately (Li, 2008; Loughran and McDonald, 2014). This paper argues that although different measures of readability ultimately examines reading difficulty, managers can employ more than one technique at the same time (e.g. making the language difficult to read and increasing the size of the annual report document), therefore, the holistic composite index (readability index) can capture all the techniques in one variable. The readability index reflects the probable causal factor in explaining the link between the tendency of the annual reports to be less readable and current performance. It is also found that a composite index reduces

measurement errors and can overcome issues like precision, reliability and accuracy (Balakrishnan, and Verdi, 2014)

Lastly, the third paper (*titled: the impact of earnings management on the tone of narratives in corporate annual reports*) mainly focuses on the drivers of narratives annual reports. Specifically, it examines how earnings management and different strategic situations impact the tone of narratives, and it contributes to knowledge in three ways. Firstly, Itridis (2016) was the only study found that conducted a direct association between AEM and the tone of narratives. This thesis expands on Itridis's (2016) study by examining if REM practices impact the tone of narratives the same way AEM does<sup>2</sup>. Secondly, the study adds to the list of determinants identified by Li (2010) by suggesting that earnings management and firms that meet or beat prior year's earnings are also determinants of the tone of narratives in annual reports.

Nevertheless, this study is not the only study that examined the role of earnings management on narratives in corporate reports. However, this paper contributes to the studies that investigate the role of earnings management in the informativeness of annual report textual disclosures. Prior studies examine the link between earnings management and narratives using readability (Lo, Ramos and Rogo, 2017), the grammatical structure of languages (Kim, Kim and Zhou, 2017), and abnormal tone (Huang, Teoh and Zhang, 2014). This paper differs substantially from these studies for the following reasons. (a) the papers use the actual tone (net of positive and negative words) which differentiate from the abnormal tone. (b) In addition to the meet or beat prior year's earnings as the incentive to manage earnings that is employed in prior research (Huang, Teoh and Zhang, 2014; Lo, Ramos and Rogo, 2017), this study examines the use of earnings management when leverage increases as it is considered as an incentive for managers to either engage in income-increasing or income-decreasing earnings management. (c) This paper uses the full annual report document compared to the use of management discussion and analysis (MD&A) (Lo, Ramos and Rogo, 2017). As Grimmer and Stewart (2013), and Yekini, Wisniewski and Millo (2016) point out, the content analysis of lengthier documents is

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<sup>2</sup> It is worth noting that Lo, Ramos and Rogo (2017) examine the effects of AEM and REM on readability, while this study focuses on the effects on the tone of narratives. Also, Itridis (2016) only focused on the direct relationship between AEM and pessimistic (negative) tone.

more reliable because it is easier to identify the linguistic style as compared to shorter sections of annual reports.

## **1.4 Research Philosophy**

In accounting, there are three research paradigms that dominate the field, the positivist paradigm, interpretive paradigm and the critical paradigm (Chua, 1986). They differ in the assumptions of the ontological (reality) perspective and the epistemological (knowledge gathering) perspective (Merkle-Davies, Brennan and Vourvachis, 2012).

According to Merkle-Davies, Brennan and Vourvachis (2012), the positivist paradigm revolves around the ontological perspective that reality is external and is independent of the researcher (realist) and the epistemological perspective that socially the world is measured objectively, resulting in mostly using a quantitative methodology. Conversely, the interpretive paradigm revolves around an ontological perspective that people rather than external influences determine the social world (Chua, 1986), and an epistemological perspective characterised by subjectivity by understanding the social world through interpretation and reflection, this paradigm mainly uses a qualitative approach (Merkle-Davies, Brennan and Vourvachis, 2012). Finally, the critical paradigm revolves around an ontological perspective that the social world is determined by history, society, cultural and political factors (Chua, 1986) it also revolves around the epistemology that is subjective but critical (Merkle-Davies, Brennan and Vourvachis, 2012) and mainly uses a qualitative methodology.

According to Merkle-Davies, Brennan and Vourvachis (2012) generally speaking the content analysis field can take a qualitative or a quantitative approach to the research but mostly it focuses on quantifying text to analyse its content, thus, is linked to an empirical positivist approach (also known as “classical positivism”), similar to what is conducted in this thesis. This research follows a positivist paradigm and is a form of classical positivism. As according to Chua (1986), the classical positivist approach concerning this research predominantly is considered quantitative in its data collection and statistical in its analysis.

## 1.5 Thesis structure

A paper-based format is employed in this thesis, the structure combines three “Journal ready” manuscripts each distinct in its academic contribution in three different chapters (including the literature review). All three papers, although they are unique, are surrounding the same theme. In this thesis, all three papers relate to the topic of narratives in corporate annual reports. The distinct papers discussed in this thesis are as follows.

Chapter 2 pertains to the first research objective to derive the first paper manuscript, and it belongs to the SLR. This paper aims to review recent literature on the drivers and impact/consequences of narratives in corporate reports by answering the following review question: *What does the literature tell us about the drivers behind narratives in corporate reports? What are the impacts of narratives in corporate reports?* To review existing literature, an SLR methodology is applied. It starts by identifying keywords, generating search strings and creating an inclusion and exclusion criteria that best answers the review question. The literature that is derived from the SLR is then synthesised to capture the two main themes that come out of it, the ‘readability’ of narratives (

which assesses the level of reading ease of textual narrative) and the ‘tone’ (the effect of narrative communication on readers feelings, such as optimism and pessimism) of narratives. Accordingly, the papers retrieved are then critically analysed to understand the drivers of the narratives in corporate reports and their impacts.

Chapter 3 pertains to the second manuscript, and it utilises the recommendations mentioned from chapter 2 (the SLR) and investigates the association of current firm performance on annual report’s narrative’s readability and ambiguity and its impact/consequences, on performance persistence and firm value. This topic aims to cover a gap identified in the SLR, pertaining to both the driver and impacts, to further contribute to knowledge. This chapter investigates impression management using readability and ambiguity of narratives and how it associates with current performance to detect whether firms try to obfuscate adverse results. Next, the chapter examines the consequences of ambiguity and the readability of narratives on performance persistence and firm value. Initially, this chapter discusses a brief literature review related to this specific subject and develops the hypotheses. Then, the chapter discusses the research

design where it illustrates the sample collection, describe the methods used to measure readability and ambiguity, as well as describe the regression models and specifications used to test the hypotheses. Finally, the papers present the results and discuss it, considering existing research and extract the implication and contributions it offers to knowledge.

Chapter 4 belongs to the third manuscript, and it aims to address another gap recognised from the SLR regarding the tone of narratives in corporate annual reports. This chapter's objective is to examine the impact of earnings management on the tone of narratives in corporate annual reports. First, the paper start with presenting a brief literature review specifically on the tone of narratives and earnings management. It then moves on to develop the hypotheses and does so by applying the "fraud triangle". Next, the paper describes the research design, the sample is similar to the sample used in Chapter 3, but it differs in the methodology applied. Chapter 4 continues to describe the measurement methods of the tone of narratives and the modified Jones model (used to measure AEM) and Roychowdhury's (2006) discretionary expenses model (used to measure REM), along with the regression specifications used in this paper. Finally, the results and robustness tests are discussed in line with related literature to analyse the findings and implications.

Finally, chapter 5 concludes by gathering all findings from the three studies together to discuss the overall contribution. It next discusses the overall implications, the limitations, and finally provides recommendations for future research.

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## **Chapter 2 — The Drivers and Impacts of Narratives in Corporate Reports: A Systematic Literature Review**

### **Abstract**

The fundamental goal behind accounting is to provide information: accountants gather numerous financial transactions to create a net income, summarising the firm's performance (Li, 2010a). Yet, annual reports and other corporate disclosures are increasingly saturated with a plethora of additional textual data to accompany the financials and quantitative information. This study aims to review recent literature on the drivers and impacts behind narratives in corporate disclosures by answering the following review questions: What does the literature tell us about the drivers behind narratives in corporate reports? What are the impacts of narratives in corporate reports? A systematic literature review methodology was applied, identifying keywords, generating search strings and creating an inclusion and exclusion criteria to best answers the review questions. It was found that the use of narratives can either be used to provide incremental information to reduce the information asymmetry or to mislead investors. The main drivers behind the narratives in annual reports were found to be financial performance, internal and external control and earnings management. The study also found that narratives can directly affect the capital market, future performance, earnings quality and external financing impacts. The review concludes by identifying gaps and opportunities for future research.

**Keywords:** *Corporate reports; narratives; tone; complexity; readability; financial statements; annual reports.*

## 2.1 Introduction

Overtime, corporate reporting practices have broadened and become more complex, incorporating not only quantitative financial information but also qualitative information, such as imagery, textual and graphical data (Beattie, 2014). A sole focus on quantitative aspects of corporate reports may limit investors' ability to get a full understanding of a firm's current and future economic condition. However, unlike the financial statement in annual reports, narratives in all mediums of corporate reporting are flexible, and managers have wide latitude in communicating firm performance to stakeholders.

According to Brennan and Merkle-Davies (2013), when external auditors conduct an audit, they are limited to the financial statements and the notes, possibly going through the narratives to ensure that they are consistent with financial statements. They suggest that, due to the non-comprehensive inspection of narratives, it is easier for managers to manipulate the disclosed textual information. This potentially provides space for managers to partake in opportunistic self-serving behaviour. The literature addressing narratives in corporate reports largely occupy two sides of the arguments: the impression management argument and the informative argument. The first suggests that narratives are used to serve opportunistic and selfish motives and are harmful to stakeholders. The second states that managers use narratives to communicate what they privately know, hence, reducing information asymmetry.

Accounting literature refers to impression management as the deliberate action by management to purposely make textual financial information harder to process and comprehend to influence the perception of stakeholders (Leventis and Weetman, 2004; Merkl-Davies and Brennan, 2007; Merkle-Davies, Brennan and McLeay, 2011). Courtis (1998) relates impression management to what he calls the 'obfuscation hypothesis'. According to Courtis (1998, 461), it is "...management's tendency to manipulate or arrange prose to enhance "good news" with writing that's easier to read, and mask "bad news" with more difficult writing." Li (2008), for example, found that firms with lower performance obfuscated their bad news by deliberately making narrative harder to read to reduce the reaction from readers. Accordingly, some literature condemns narrative disclosures because of the evidence that they provide biased information especially when

the company has adverse results to report; poor results incentivise the management to influence and shape stakeholders' perception about the organisation (Bloomfield, 2002; Clatworthy and Jones, 2003).

However, there is also evidence that managers may use the narratives section to provide stakeholders with useful information, so that investors are able to make adequate decisions. Smith and Taffler (2000), for instance, argue that narratives in annual reports provide valuable information to users, allowing the potential prediction of firm failure. Also, Merkley (2014) argues that managers amend narratives in the research and development (R&D) disclosures regarding changes in current performance so they can provide relevant information. Hence, incremental information can facilitate understanding of the factors that have an impact on current and future performance, which are not always clear from financial data; this reduces information asymmetry (Zhang, Aerts and Pan, 2019).

The research of textual information in corporate disclosures has gained interest, as narrative disclosures are important to understand in finance and accounting research for several reasons. Firstly, the flexibility of narrative disclosures allows information about the firm's performance to be obfuscated during times of adverse performance, which may decrease earnings quality (Li, 2008). Therefore, narratives in corporate disclosures can be useful to provide further understating of financial data. Secondly, communication patterns can provide an insight into a management's decision-making processes, leading to the study of management's behavioural bias as explained in the behavioural economic theory highlights. While it is difficult for archival researchers to find direct measures of behavioural bias, managerial textual disclosures can be used to understand the behaviour of the company's operations. For example, by using narrative disclosures, managers may try to present themselves in the best possible way, and if there is adverse information that must be reported they are more likely to attribute failures to external factors (Clatworthy and Jones, 2001). Finally, corporate textual disclosures can provide researchers with a better setting to understand management's incentives, providing a glimpse from the managerial perspective: how narratives are written may illuminate both the intentions and incentives facing managers (Li, 2010a).

Based on the background of corporate narrative disclosures, the objective of this paper is to synthesise the literature surrounding this subject by investigating three main areas. Firstly, it explores the different mechanisms for measuring narratives in corporate reports (also referred to as writing style): the tone of narratives (Loughran and McDonald, 2011) and the narrative's readability (Li, 2008; Bonsall et al., 2017)

Secondly, it examines the driver or motivation behind narrative reporting, for example, financial performance (Li, 2008; 2010b) or earnings management (Lo, Ramos and Rogo, 2017). Finally, the impacts/consequences of narratives, in terms of earnings quality (Li, 2008), future performance (Li, 2010), or capital market impacts (Yekini, Wisnieski and Millo, 2016).

This paper covers the theoretical background behind corporate narrative disclosures; a systematic literature review was conducted to answer the following review questions:

*What does the literature tell us about the drivers behind narratives in corporate reports?*

*What are the impacts of narratives in corporate reports?*

This chapter discusses prior research of narratives in corporate reports from two angles: the driver or motivation behind the inclusion of narratives in corporate reports, and the impact/consequences of using them. The perspectives are discussed by categorising them into two measurement themes; the tone used and the narrative's readability. Both themes are further categorised to identify the motive/drivers behind the narrative in accounting as well as the possible consequences. It also sheds light on whether the narratives are potentially beneficial or harmful for users.

The structure of this paper is organised as follows; first, a systematic search is conducted following the keywords, search strings, and inclusion and exclusion criteria. Second, the final sample of academic papers is synthesised to answer the research question. Finally, the review makes suggestions for future research.

The remainder of the paper is organised as follows. Section 2.2 discusses the theoretical background. Section 2.3 presents the methodology. Section 2.4 is the descriptive results

and analysis. Section 2.5 presents the thematic structure. Section 2.6 details the discussion and future research. Finally, section 2.7 concludes.

## **2.2 Theoretical Background**

Given that the literature's review objective is to explain the motivation and the impact/consequences of narratives in corporate reports, the theories are explained in the same manner. First, theories behind the motivation to use narratives in corporate disclosures are discussed, followed by the theories behind the impact or consequences of the usage of narratives.

### **2.2.1 Theories Behind the Driver of Narratives:**

The agency theory and the signalling theory are the two most common theories utilised in the research examining managerial motivation for textual narratives in corporate reports, focusing on investors as the audience (Merkle-Davies and Bernnan, 2007). In addition, uncertainty also affects narratives in corporate reports (Li, 2008).

#### **2.2.1.1 Agency Theory:**

According to Jensen and Meckling (1976), an agency problem is created when there is a distinct separation between ownership and control as it leads to information asymmetry. Particularly, capital market participants believe that managers are behaving opportunistically in these circumstances. More specifically, according to Merkle-Davies and Bernnan (2007), narratives may result in "impression management". Impression management is when managers deliberately provide biased information when experiencing adverse results, in order to influence the perception of readers about their firm (Bloomfield, 2002).

Another aspect of agency theory suggests that managers act to benefit stakeholders: when managers hold private information, they will share it to provide incremental information and reduce information asymmetry (Merkle-Davies and Bernnan, 2007). According to Baginski, Hassell and Hillison (2000) when managers provide incremental information to reduce information asymmetry between managers and investors, it results in a

reduction in the cost of capital, leading to an increase in the share price and possibly enhancing their compensation.

#### **2.2.1.2 Signaling Theory**

According to Elzahar and Hussainey (2012) signalling theory is when managers deliver signals to current and potential readers, by disclosing adequate informational signals in the corporate reports. Unlike the agency theory, Merkle-Davies and Brennan (2007) argue that the signalling theory focuses on well-performing firms in which managers signal their advantages by increasing the transparency of presented information and disclosing it with clarity. Another scenario for signalling is when firms report poor performance but do so with informative narratives to explain the losses to investors and signal that they can turn the numbers around in the near future. Morris (1987) argues that both agency and signalling theories can be combined to provide adequate accounting decision predictions.

#### **2.2.1.3 Uncertainty**

The agency and the signalling theory explain why and how managers deliberately communicate private information through narratives. Ultimately, their communication will impact the tone and readability of narratives. However, there is another reason why narratives turn out the way they do, which is related to the economic environment in general. One situation that may impact the transparency and reading difficulty of narratives is uncertainty. For example, Li (2008) suggest that firms in a growth stage may have business models that are complex and is within an uncertainty phase, as a result these firms may have annual reports that are complex with narratives that are difficult to read. He also suggests that firms that are new to the market are filled with uncertainties as investors are not familiar with, resulting in their annual report narratives being difficult to comprehend.

#### **2.2.2 Theories Behind the Impact/Consequence of Narratives:**

Two main theories are used to address the impact or consequence of narratives in corporate disclosures: the economic-based theory and the behavioural finance theories (Bloomfield, 2002; Mullainathan and Shleifer, 2005; Merkle-Davies and Brennan, 2007).

### **2.2.2.1 Economics-Based Theory**

The economics-based theory mainly summarises the consequences of the usage of narratives in corporate reports through the market reaction. As stated within the agency theory (and will be discussed thoroughly in section 1.5.1) there are two competing arguments regarding the use of narratives in annual reports, the incremental information argument (suggesting that narratives provide additional information to reduce information), or the impression management argument. Within the economic-based theory, narratives impact on the capital market from the incremental information argument is explained through the expected utility theory. The expected utility theory suggests that a reaction or consequence to narratives in corporate reports is assumed to be influenced by informative information (Merkle-Davies and Bernnan, 2007). Merkle-Davies and Brennan (2007) argue that, according to this theory, it is assumed that narratives are value relevant and not driven by opportunistic managerial motives. The theory assumes an efficient market hypothesis and that investors are sophisticated, hence not inclined to opportunism from managers. For example, Kravet and Muslu (2013) examine the impact that changes in risk disclosures (using tone of narratives that represent risk) have on market reaction. They found that risk disclosure in the narratives on annual reports is positively related to return volatility and volume of trading, which indicates that narrative risk disclosures are informative in a sense that investors are more likely to perceive the risk from the narrative.

Under the impression management argument of narratives, the economic-based theory proposes the incomplete revelation hypothesis (IRH). This hypothesis suggests that the easier the information is to extract and process the more likely that it is included in the share price and the more likely it is not incentivised by managers attempting to hide adverse information (Bloomfield, 2002; Merkle-Davies and Bernnan, 2007). For example, Li (2008) found that managers deliberately complicate narratives by increasing reading difficulty and word count in annual reports when they report poor performance. Consistent with IRH, he believes that this is a way to increase the processing cost of narratives in annual reports to conceal adverse news.



### **2.2.2.2 Behavioural Finance Theory**

Behavioural finance is a theory grounded in psychology and used to explain the stock market abnormalities, such as high rises and low falls of the stock price. Shliefer (2000) suggests that investors' experiences play a role in influencing the stock price, which can explain the existence of anomalies; even sophisticated investors can be influenced by specific information that may bias their processing of information resulting in stock price anomalies (Mullainathan and Shleifer, 2005).

Unlike economic-theories, behavioural finance theory assumes that the market is inefficient: investors are subject to cognitive bias and uncertainties which lead to them making irrational investment decisions; this creates an inefficient market (Merk-Davies and Brennan, 2007). Therefore, investors are susceptible to impression management or opportunistic biases by managers seeking to mislead the investor's perception. It is believed that there are three explanations to investors perception to impression management: (i) cognitive limitation, which limits investors to see through impression management practices, hence, affecting their decision-making process. For example, it is found that it is easier to mislead unsophisticated investors through impression management than they can on more sophisticated investors, this is due to their cognitive limitations. Unsophisticated investors focus more on the explanation and presertantional factor rather than financials (Elliott, 2006). (ii) The other reason is due to social biases, where managers can only mislead investors by taking advantage of discretionary disclosure if the perception from investors that the company is credible, by attributing negative news else where and good news to the firm, and it has to be believable (Merkle-Davies and Brennan, 2007). For example, Zhang and Aerts (2015) found that managers use attributional factors through causal reasoning when they fail to meet or beat earnings thresholds. Consequently, Barton and Mercer (2005) posit that when the explanation is convincing to the investors it may decrease the cost of capital. (iii) The final explanation is through the wording of information, also known as framing (Merkle-Davies and Brennan, 2007). Generally speaking, the prospect theory posits that the framing of information may affect the way it is deciphered, suggesting that the perception of losses and gains by investors are different and that investors are inclined to make decisions based on gains rather than losses (Kahneman and Tversky, 1979; Merkle-Davie and Brennan,

2007). In narratives literature, one way to change the framing of information is through the use of specific words such as positive, negative and ambiguous words (Loughran and McDonald, 2011). For example, Davis and Tama-sweet (2012) found that that when firms meet or beat analyst forecast, managers reduce the amount of pessimistic language (reduce the amount of negative words) in earnings press-release to avoid negative stock price impacts around earnings announcement.

## **2.3 Methodology**

Systematic literature reviews (SLR) originated in the medical field but are now well-established in the management field (Tranfield, Denyer and Smart, 2003). Unlike the conventional literature review, the systematic literature review is a more structured method for retrieving relevant articles to ensure that no significant articles in the field are missed. According to Tranfield, Denyer and Smart (2003), a systematic literature review must be rigorous, transparent, and replicable. To do so, each step conducted in the SLR must be documented and rationalised.

There are five necessary steps in Tranfield, Denyer and Smart's (2003) model: 1. Identify keywords built from the scoping study conducted previously; 2. Create search strings that adequately fit the study; 3. Screen results by developing a review protocol and inclusion and exclusion criteria to answer the pre-determined review question; 4. Conduct screening and quality appraisal of the literature found; 5. Reporting - this includes data extraction, descriptive analysis and thematic analysis.

### **2.3.1 Keywords**

Prior to identifying the keywords, a positioning study review was conducted regarding narratives in accounting and corporate reports to determine the scope of this study and to develop an appropriate review question. Consequently, keywords were identified from the review question. Given the increase in qualitative information included in financial statement and the vast amount of voluntary documents and disclosures that are presented by companies and their management, this study sought to explore what has driven and motivated this increase, and what the impact has been. This led to the overarching review questions:

*What does the literature tell us about the drivers behind narratives in corporate reports?  
 What are the impacts of narratives in corporate reports?*

The area of research was then presented to my supervisors (a primary and a secondary supervisor). Discussion of the subject area pointed towards an SLR and approval was granted to continue to the next stage of research. The objective of the SLR is to answer the research question by conducting a thorough review of extant literature and identifying the gaps for future research. The review question presented above contains two main domains “narratives” and “corporate reports”. The main aim of this research is to identify all studies conducted that focus on the textual aspect of narratives in accounting, focusing on annual reports and any document that supplements or relates to information in the annual reports (such as the corporate annual report in full or sections, earnings press releases and conference calls).

Based on the two areas explained above, two search strings with a variety of keywords for each search string were generated. As per the scoping study, various keywords relating to both “narratives” and “corporate reports” were extracted. Table 2-1 shows the full list of keywords derived, which were then combined into search strings to commence with the extraction of literature from available databases.

**Table 2-1** Reseach Strings and Keywords

	<b>String 1: Narratives</b>	<b>String 2: Corporate Reports</b>
<b>Key Words</b>	“Narratives”	“corporate reports”
	"tone"	“corporate disclosures”
	“Tone management”	“financial disclosures”
	“Tone manipulation”	“voluntary disclosures”
	“Forward-looking”	“disclosure”
	“readability”	“information content”
	“complexity”	“annual report”
	“Reading ease”	“press release”
	“reading manipulation”	“earnings press release”
	“Text”	“conference calls”
	“textual”	“analyst report”
	“textual analysis”	“president’s letter”
	"thematic"	“chairman’s letter”
	“thematic analysis”	“CEO statement”
	“genre”	“management discussion and analysis
	“genre analysis”	“MD&A”

“rhetoric”	“financial notes”
“impression”	
“impression management”	
“sentiment”	
“sentiment analysis”	

### 2.3.2 Search Strings

Table 2-1 shows the themes extracted from the review question and the related keywords or “strings”. The search strategy combined the search strings using Boolean connectors (OR, AND) to develop a query which could be run through the chosen databases. String 1 contains all relevant keywords for “narratives”: to ensure all relevant papers were retrieved in the search, the Boolean connector “OR” was used to combine all the keywords. Likewise, string 2 pertains to the subject area of “corporate reports” where all mediums managers use to provide information to investors and various stakeholders are considered and combined with the Boolean connector OR. Words ending in the letter/s “s” or “ing” required the usage of “\*”; for example, the word “narrative” can be written as simply “narrative” or “narratives”, so was combined with an asterisk - “narrative\*” - so that both forms were captured by the database. Thus, the following search strings were developed:

- **String 1:** ("narrative\*" OR "tone" OR "tone management" OR "tone manipulation" OR "forward-looking narrative\*" OR "readability" OR "complexity" OR "reading ease" OR "reading manipulation" OR "text\*" OR “textual” OR "textual analysis" OR "thematic" OR "thematic analysis" OR "genre" OR "genre analysis" OR "rhetoric" OR “impression” OR "impression management" OR "sentiment" OR "sentiment analysis")
- **String 2:** (“corporate report\*” OR "corporate disclosure\*" OR "financial disclosure\*" OR "voluntary disclosure\*" OR "disclosure\*" OR "information content\*" OR "annual report\*" OR “press release” OR "earning\* press release" OR "conference call\*" OR "analyst\* report\*" OR “president\* letter” OR chairman\* letter” OR “CEO statement\*” OR “management discussion and analysis” OR “MD&A” OR “financial note\*”)

Additionally, in order to address the research question regarding the motivates behind narratives in corporate reports, and the impacts of narratives in corporate reports, both strings were always combined<sup>3</sup> with the Boolean connector “and” as follows:

- ("narrative\*" OR "tone" OR "tone management" OR "tone manipulation" OR "forward-looking narrative\*" OR "readability" OR "complexity" OR "reading ease" OR "reading manipulation" OR "text\*" OR “textual” OR "textual analysis" OR "thematic" OR "thematic analysis" OR "genre" OR "genre analysis" OR "rhetoric" OR “impression” OR "impression management" OR "sentiment" OR "sentiment analysis") AND (“corporate report\*” OR "corporate disclosure\*" OR "financial disclosure\*" OR "voluntary disclosure\*" OR "disclosure\*" OR "information content\*" OR "annual report\*" OR “press release” OR "earning\* press release" OR "conference call\*" OR "analyst\* report\*" OR “president\* letter” OR chairman\* letter” OR “CEO statement\*” OR “management discussion and analysis” OR “MD&A” OR “financial note\*”)

### **2.3.3 Data Collection**

After the construction of the search strategy, the search strings created was applied to the chosen databases. To retrieve the best and most comprehensive set of results, ABI/INFROM ProQuest and EBSCO were used. Upon running the query, the primary search produced a total of 33540 papers, with 29390 from ABI/INFROM ProQuest and 4150 from EBSCO. The results were filtered according to the inclusion and exclusion criteria to include only English peer-reviewed articles from high-ranking, scholarly journals (refer to inclusion and exclusion criteria Table 2-2). Also, due to the review question being broad, the number of papers the search strings retrieved were extensive. According to Boland, Cherry and Dickson (2017) one way to reduce the amount of overwhelming literature is to limit age. Therefore, part of the exclusion criteria is to exclude studies before the year 2000, which leaves us with the most recent literature and not outdated ones.

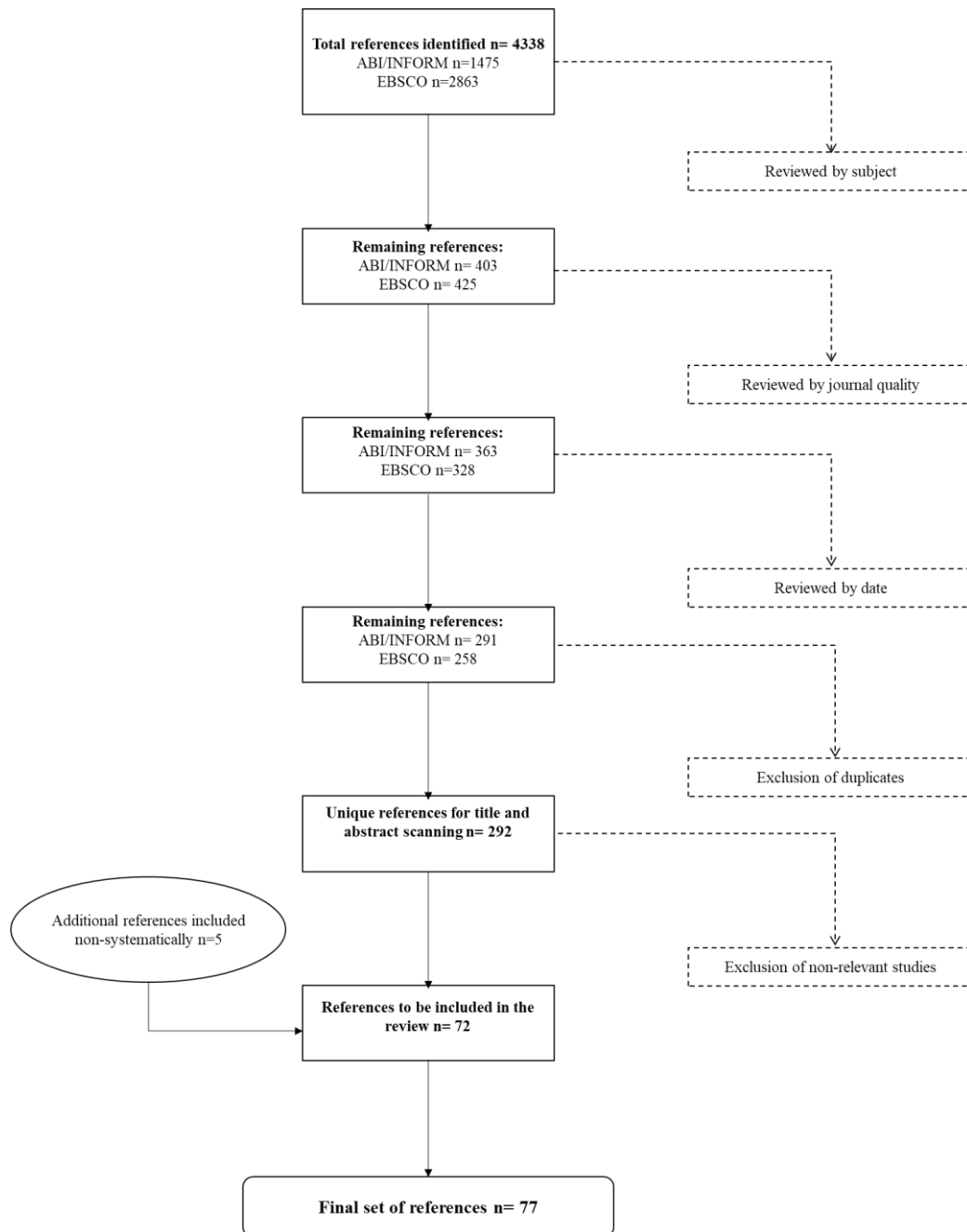
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<sup>3</sup> The keyword for “impact” or “motivation” are not included, as the research typically does not explicitly state the word “impact” or “motivate”. For example, the paper, “Credit default swap spreads and annual report readability”, discusses the impact of readability on credit default swaps, without using the word “impact”. To ensure that all related papers were retrieved, all included papers were scanned for further papers relating to the motivations and impact of narratives in corporate reports.

**Table 2-2** Research Protocol

<b>Include</b>	<b>Justification</b>
Peer-reviewed journal articles	Peer-reviewed articles are typically of higher quality than non-peer reviewed articles
3* and 4* ABS academic journal ranking	Filtration of articles based on the highest of quality
Articles from the year 2000 onwards	To ensure papers included are current and that the number of papers extracted are manageable with the resources available
<b>Exclude</b>	<b>Justification</b>
Articles not in English	English is the language the review is conducted in.
1* and 2* ABS academic journal ranking	They do not fit the quality criteria
Non-relevant subjects	E.g. subjects in Health or Technology
Articles that do not address motivation or impacts	Papers that do not address motivations and impacts will not be answering the review question.

After applying the above-mentioned criteria, ABI/INFROM ProQuest retrieved 291 papers and EBSCO retrieved 258 papers (figure 2-1 shows a detailed selection process). The titles and abstracts were exported to Excel, where the references were organised, and duplicates removed; this produced 292 unique references. The remaining references were then scanned by title and abstract against the inclusion and exclusion criteria to ensure that they related to the study and that they contributed to answering the review question. This produced 72 references; these were subjected to full-text examination where they were then categorised into themes. The themes were motive, impact, narrative technique, method, and outcome. After reading the literature five additional references were found and added, taking the full set of references included in the literature review up to 77. Figure 2-1 shows the summary of data collection following Boland, Cherry and Dickson’s (2017) style.



**Figure 2-1** Summary of Selection Process

## 2.4 Descriptive Results and Analysis

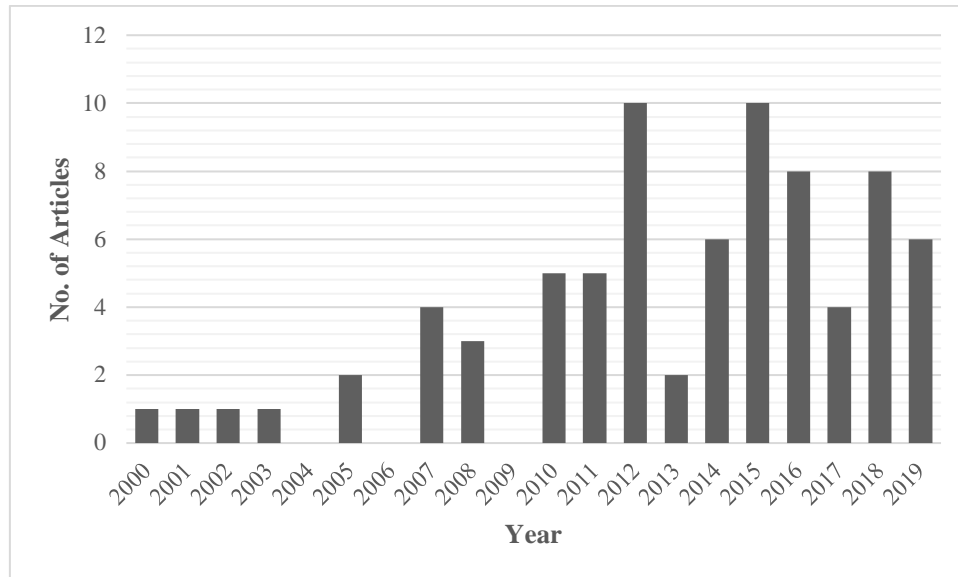
Table 2-3 reports how the 77 articles were distributed across the academic journals. Two significant outlets for the research topic were the *Accounting Review* and the *Accounting, Auditing & Accountability Journal* as they consist of 11.7% and 10.4%, respectively, of the research papers selected for the review. Figure 2-2 shows the dissemination of articles by year of publication.

**Table 2-3** Articles by Source Title

<b>Journals</b>	<b>No. Articles</b>
The Accounting Review	9
Accounting, Auditing & Accountability Journal	8
Journal of Accounting & Economics	7
Accounting and Business Research	6
Contemporary Accounting Research	6
Journal of Accounting Research	5
Journal of Banking & Finance	5
Review of Accounting Studies	4
Accounting Horizons	3
Accounting Forum	2
Accounting, Organizations & Society	2
Journal of Accounting & Public Policy	2
Journal of Financial and Quantitative Analysis	2
Review of Quantitative Finance and Accounting	2
The British Accounting Review	2
The Journal of Finance	2
Abacus	1
European Accounting Review	1
International Review of Financial Analysis	1
Journal of Accounting Literature	1
Journal of Accounting, Auditing & Finance	1
Journal of Applied Accounting Research	1
Journal of Business Finance & Accounting	1
The International Journal of Accounting	1
The Journal of Business Communication	1
Financial Markets, Institutions and Instruments	1

Due to the exclusion criteria, the articles spanned from the year 2000 until 2019. Research around the subject of narratives in accounting was increasing between 2000 and 2010, with some extensive attention up until 2015, when interest declined. However, six of the included articles were published in 2019, showing that the subject is gaining popularity again. There are some recent articles not reviewed in this SLR as they did not pertain to the review question.





**Figure 2-2** Number of Articles per Year of Publication

## 2.5 Thematic Structure

### 2.5.1 Arguments for and Against Narratives in Corporate Reports

Like many different academic research areas, there are various conflicting arguments due to inconclusive results. There are diverse arguments around the use of narratives in corporate reports: from the assertion that textual disclosures provide useful content, or that they are not informative and are simply boilerplate documents - procedural and unoriginal (Li, 2010a, Bloomfield, 2008). As per the theoretical background mentioned in Section 2.2, agency theory argues that when there is a separation between ownership and control, managers may be incentivised to behave opportunistically, biasing the information disclosed (Jensen and Meckling, 1976). Due to the conflicting theoretical points of view, empirical literature is also inconclusive.

There is an established argument suggesting that narratives in corporate reports are beneficial and provide incremental information (e.g. Li, 2010b; Asay, Libby and Rennekamp, 2018; Merkle-Davies, Bernnan, and Mcleay, 2011; Schleicher, Hussainey and Walker, 2007; Yekini, Wisniewski, and Millo, 2016; Bushee, Gow and Taylor, 2018; Hassanein, Zalata and Hussainey, 2019). As quantitative financial statements may be insufficient to provide readers with all necessary information to make a well-developed analytical decision, narratives can offer managers the opportunity to offer private information to investors as a signal to the reader and to reduce information asymmetry.

In this case managers may act for the benefit of stakeholders, reducing the asymmetrical gap between insiders and outsiders (Merkle-Davies and Bernnan, 2007).

Li (2010) found that the tone of narratives (established by counting the frequency of positive and negative words of forward-looking sentences) was determined by the financial characteristics of the firm, such as accruals, size, growth, age, returns, earnings volatility, and complexity of operations. Additional analysis found that narratives in the current MD&A predicted future earnings, providing further evidence of the informativeness of forward-looking statement in MD&As. Similarly, Davis, Piger and Sedor (2012) argue that the use of optimistic and pessimistic language in earnings-press releases provided insight to readers about future earnings. They indeed found that optimistic language was positively related to future performance and had a market response.

Hassanein and Hussainey (2015) argued that in order for forward-looking narratives to be informative, they must change from year to year, particularly when firm performance has changed. They found that the change in forward-looking financial disclosure was positively associated with firm value, signifying its informativeness and that narrative reporting in the UK is considered credible by investors (Hassanein, Zalata and Hussainey, 2019). The preceding papers suggest that narratives are written in accordance with the firm's financial status and firm characteristics; this implies that narratives are genuinely usefulness in corporate reports.

On the other hand, the flexibility behind narrative reporting may create an agency problem and lead to a bias in narrative disclosure (Schleicher and Walker, 2010; Clatworthy and Jones, 2003; Lo, Ramos and Rogo, 2017; Huang, Teoh and Zhang, 2013; Li, 2008; Courtis, 2004). Li (2008) found that managers deliberately complicated the use of language in annual reports when they reported adverse performance. He also found that when performance was transitory, they tended to increase the number of words written and make the language difficult to read to hide weak performance. Clatworthy and Jones (2003) looked at attribution to examine the possible use of impression management; they found that managers attribute poor performance to external factors and good performance to internal factors, to manage the perception of readers. Huang, Teoh

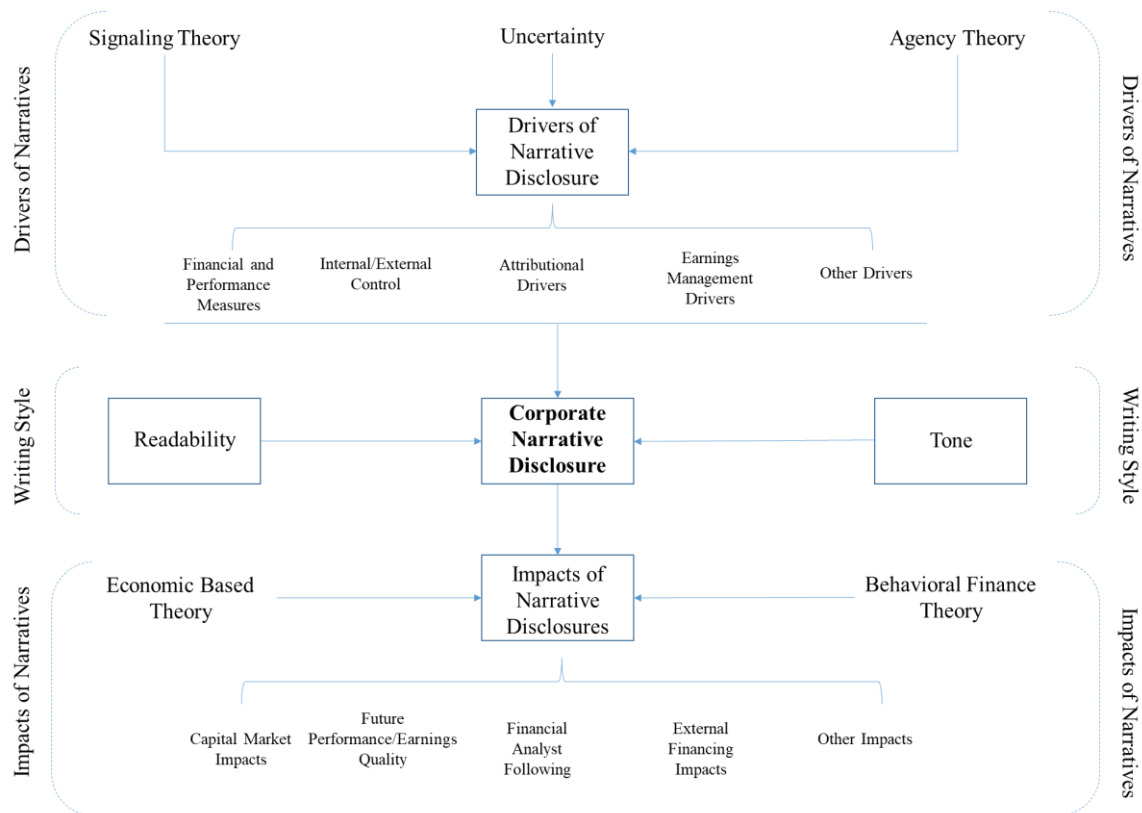
and Zhang (2014) use Li's (2010) list of the determinants of tone to calculate "abnormal tone". They found that an abnormal tone was significantly associated with strategic events in which managers are more likely to practice earnings management (such as to meet or beat earnings thresholds, and mergers and acquisitions)<sup>4</sup>. Hence, they argue that the presence of agency motives leads to managers being incentivised to use flexibility in narratives to mislead or obfuscate their earnings management practices.

### **2.5.2 Thematic analysis**

Narratives in annual reports can be analysed differently depending on how textual information is written. The following section groups the literature according to the way it examines writing style. Based on the literature reviewed, the drivers and impacts of narratives can be ascertained from the textual style, thus the literature review centers around the writing style, specifically the narrative's "readability" and "tone". Figure 2-3 represents a diagram that summarises the thematic analysis and how they link each other. The links created in the diagram explains the drivers and impacts behind narratives in corporate disclosures. The drivers of narrative disclosures are based on three main theories discussed in the section 2 the "signaling theory" and the "agency theory" and "uncertainty". The impacts of narrative disclosures are based on two theories: "economic-based theories" and "behavioural finance theories". The rest of the paper focuses on the drivers and impact that can be ascertained from each writing style. Going forward, section 4.2.1 discusses the literature on the drivers and impacts according to the tone of narratives in corporate reports, and section 4.2.2 discusses literature on the drivers and impacts of the tone of narratives in corporate reports.

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<sup>4</sup> Earnings management is "the use of managerial discretion over (within GAAP) accounting choices, earnings reporting choices, and real economic decisions to influence how underlying economic events are reflected in one or more measures of earnings" (Walker, 2013 p.446)



**Figure 2-3** Thematic analysis of the drivers and impacts of corporate narratives disclosures

### 2.5.2.1 Tone of Narratives in Corporate Reports

Beyer et al. (2010) argues that, although quantitative financials are important for readers to understand the firm’s performance, the readers comprehension of the firm’s outcome and prospect is improved through the non-quantitative sections of the annual reports, such as the narratives where managers explain the financials. As mentioned above, the qualitative sections can either increase informativeness or mislead readers.

Narratives can be measured through the examination of “tone” (Henry, 2008; Loughran and McDonald, 2011; Rogers, Buskirk and Zechman, 2011). According to the sociology literature, examining the tone of narratives exposes the writer’s moral attitude regarding the information they portray (Richardson, 1990). Rogers, Buskirk, and Zechman (2011, p. 2161) explains tone in the financial context in terms of the level of optimism and pessimism used in the language, and they define the influence of tone as “the choice of which outcomes to emphasize, as well as the manner in which management describes those outcomes.” Henry (2008) defines tone as the “effect of communication.” Similarly,

Davis, Piger, and Sedor (2005) defines tone as the “sum of words from praise, satisfaction and inspiration categories”. Generally, tone refers to the attitude of the writer and what the writer wants to deliver to the reader. To decipher the meaning behind the narratives and to quantify the qualitative information, researchers use the frequencies of specific words in order to capture the themes within the tone. For example, positive words (e.g. ‘excellent’, ‘efficient’, ‘empower’) represent an optimistic tone, while negative words (e.g. ‘fail’, ‘illegal’, ‘noncompliant’) represent a pessimistic tone (Henry, 2008; Loughrand and McDonald, 2011).

There are typically two methods to quantify the tone of narratives in annual reports: manual content analysis or computer-based content analysis. Manual content-analysis is also known as “meaning-oriented” analysis (Schleicher and Walker, 2010). Schleicher and Walker (2010) employ a manual content analysis: manually reading the outlook section and retrieving sentences that are forward-looking, scoring them based on whether the tone was positive, negative or neutral. The advantage of manual content analysis is that it can code subtle and sensitive tones that may not be exposed through a computer-assisted analysis, making the analysis precise and specifically tailored to its respective study (Li, 2010a). However, the manual content analysis comes with its disadvantages. For the most part, it is considered subjective, replicability is more difficult, and it lends itself to a smaller sample size due to it being time-consuming (Li, 2010a; Schleicher and Walker, 2010).

Conversely, computer-based content analysis, also known as “form-oriented”, is characterised by being objective (e.g. Huang, Teoh and Zhang, 2014; and Wisniewski, and Yekini, 2015); it is also more replicable, which can more easily lead to subsequent research and can be used to analyse larger data sets, enhancing empirical power (Li, 2010a). There are two main approaches: a statistical approach (Li, 2010b) or a dictionary approach (Henry, 2008; Loughran and McDonald, 2011). The statistical approach relies on special algorithms and statistical correlations between keywords and documents to create its classification (Li, 2010a; 2010b), whereas the dictionary approach relies on the frequency of a predetermined word-list (dictionary) that can categorise the document into specific connotations based on the majority of its tone (Loughran and Mcdonald, 2011); these wordlists are either developed by the researchers based on the aim of the analysis

or researchers use predetermined dictionaries. Existing studies have utilised dictionaries to examine financial information's impact on the tone of narratives (Li, 2010b), or the impact of narrative tone on the market reaction or firm value (Davis, Piger and Sedor, 2011; Yekini, Wisniewski and Millo, 2016). Previous studies have used positive and negative words lists from Diction and General Inquirer (GI); however, the application of these to financial studies has been criticised, as they are word lists created for political communications and social psychology, respectively. For example, the word 'beat' in Diction and GI is considered a negative word representing physical violence, whereas in the economic industry it is considered a positive word representing an increase in profitability or a competitive superiority (Henry, 2008).

Henry (2008) was among the first to publish a list of finance-specific positive and negative wordlist to measure narrative tone. Loughran and McDonald (2011) added to this list by expanding the negative words in the list to make it more comprehensive, where they perceived a lack. They also created additional lists that cater to the field of finance, namely: litigious, uncertainty, weak modal, strong modal, superfluous and constraining wordlists. They suggest that access to more dictionaries specifically related to finance is fruitful for future research.

Having established the background of narratives in corporate reports, the upcoming sections continue to answer the overarching review question based on studies conducted using the tone of narratives as a measurement tool. The drivers behind narratives in corporate reports are discussed, which primarily relate to the firm's financial condition and managers manipulative practices. The primary impact of tone is found to be largely are on future performance and market reactions, among others.

#### ***2.5.2.1.1 Drivers of Corporate Report Narratives' Tone:***

Narratives in corporate reports are typically voluntary or highly flexible. Certain drivers act as motivation for those narratives to be written in a specific language and format; these drivers include financial and performance measures (Bujaki and McConomy, 2012; Clatwrothy and Jones 2003; Bodnaruk, Loughran and Mcdonald, 2015) internal and external controls (Wang and Hussainy, 2013; Lee and Park, 2019), management

manipulation incentives (Huang, Teoh and Zhang, 2014; Larcker and Zakolyunkina, 2012) and attribution (Kimbrough and Wang, 2014).

### *Financial and Performance Measures*

The most important information for investors to glean from corporate reports is the company's performance and their subsequent financials. Given that annual reports, along with other corporate disclosures, have increased in size due to the addition of narratives, one might assume that those narratives provide an additional explanation on their disclosures. Merkley (2014) found that managers adjust the tone of narratives in research and development disclosures to match it with current performance. Li (2010b) documents that current performance determines the tone of forward-looking statements in annual reports, along with other financial characteristics like a firm's size, age and volatility.

However, some circumstances may motivate managers to conceal their adverse financial disclosures through narratives. Clatworthy and Jones (2003) suggested, since accounting narratives do not go through the same level of audit as the financials do, they may be prone to impression management. They found that the tone in annual reports was used to emphasise an optimistic version of the narrative in a self-serving manner; this occurred with bad news and good news (measured as per a firm's performance). Similarly, Schleicher and Walker (2010) and Schleicher (2012) found that firms would upwardly bias the tone of narratives in the outlook section of annual reports when their performance declined.

Merkle-Davies, Brennan and Mcleay (2011) go beyond economic theories to view impression management of narratives in annual reports from a social psychology perspective. They apply content analysis by primarily focusing on keywords developed in psychology research to assess the chairman's statement and whether information included was used to mislead investors or not. Generally, they found that narratives in chairman's statements were not used to mislead investors' perception by providing information that was inconsistent with financials. Rather, firms with poor performance were more likely to use information to make sense of their adverse outcomes.

Based on the abovementioned, narratives are driven by mandatory financials such as the firm's performance; the type of association can determine the motivations for managers tone and style of narratives. Broadly speaking, narratives are typically used to emphasise performance or to present over-optimistic narratives to conceal information.

### *Internal and External Controls*

Usually, internal and external controls such as corporate governance and auditors enhance the level of disclosure. Osama and Guillamon-Sorin (2011) examined the impact of corporate governance in restricting impression management by assessing disclosure tone. They focused on narratives in the earnings press release, examining occurrences of impression management used by managers to influence the perception of investors. They found that strong corporate governance mechanisms monitoring management's disclosure did improve the transparency of information, and as such, reduced impression management in earnings press releases.

Similarly, Wang and Hussainey (2013) examined the effect of corporate governance on forward-looking statements in annual reports. They found that the decision to include voluntary disclosures was influenced by corporate governance, which subsequently enhanced the reported narratives. They also found that forward-looking narratives of well-governed firms resulted in the ability of the market to anticipate future performance.

Alongside these internal controls, there are external control mechanisms such as auditors and accounting standards that can ensure narratives in annual reports are written in favour of investors and other users. Miihkinena (2012) examined the narratives in annual reports that represent risk disclosures by measuring the frequency of risk words and the level of its coverage, examining the role of the disclosure quality under the International Financial Reporting Standards (IFRS) on the level of quality of risk disclosed by companies. An increase in quality and quantity of information representing risk was found, but no increase in the quantitative disclosure, hence, questioning the influence of IFRS on the information of risk disclosed.

From an auditor's perspective, Lee and Jong (2019) found that when the audit committee includes members that are experts in the accounting field, it minimises managers



opportunities to bias the tone of narratives in MD&A's. Moreover, Hassanein, Zalata and Hussainey (2019) found that forward-looking narratives are incremental and positively impacted firm value when they were audited by a Big-4 audit firm. Broadly speaking, internal or external control minimised the harmful effect of management opportunism that may arise due to flexibility in writing the narratives in annual reports.

Recently, little research has been conducted that focuses on control: while corporate governance and audit elements are examined, other regulatory elements which control the level of opportunism are neglected. For example, in the UK, the Companies Act was reviewed and amended in 2006, which specifically included a section that explains how narratives in annual reports should be written (Companies Act, 2006). Based on the Companies Act (2006), the Financial Reporting Council (FRC) have developed guidance for managers to follow. Similarly, in the US, the Security and Exchange Commission (SEC) mandates that all companies release an MD&A section according to specific requirements. It would be informative to compare the US GAAP and the IFRS to see which resulted in better quality annual reports; equally, it would be useful to assess the quality of annual reports before and after the regulation that was put in place by the UK or the US. Therefore, it could be fruitful for future research to accommodate these gaps and provide practical implications and contributions for standard setters.

### *Earnings Management Drivers*

Like earnings management, there are managerial incentives that would drive managers to set the tone of narratives in an opportunistic way to fulfil their needs. Huang, Teoh and Zhang (2014) define "tone management" as "the choice of the tone level in qualitative text that is incommensurate with concurrent quantitative information" (Huang, Teoh and Zhang, 2014, p.1083). They argue that narratives are important for providing further explanations to readers of annual reports; however, due to agency motives, the narratives can be presented in a way which misleads stakeholders. As such, they found that abnormal positive tone is significantly related to specific strategic events that motivate managers to manipulate earnings, such as just meeting or beating the earnings benchmark, mergers and acquisitions or seasoned equity offers.

Larcker and Zakolyunkina (2012) examine deceptive language in the transcripts of conference calls of firms and companies with restatements to ascertain if management manipulation is at play; they found that CEO's would use optimistic words excessively with few anxiety-related words, at a level which had the potential to be deceptive.

This area of research is relatively new and has room to grow. Earnings management has been highly developed: managers have the potential to manipulate financials due to the flexibilities in the accounting standards. Narratives in annual reports are prone to even more flexibility. It would be interesting for future research to replicate some earnings management studies on narratives of corporate reports and determine if narratives are used to complement management earnings manipulation practices.

#### *Attributional Drivers*

Attribution is a way for managers to free themselves from error, taking responsibility for the good news and performance and attributing the bad news and performance to external factors (Clatworthy and Jones, 2003; Merkle-Davies and Brennan, 2007). Although it might not be a driver per se, it is considered as part of the drivers of narratives tone because managers may be inclined to imply through the tone that responsibility is internally or externally attributed. This can be measured through the use of causal reasoning and "causal intense" words: i.e. connectors such as "a consequence of" or "on condition that" (Zhang and Aerts, 2015).

Walter (2005) found that the tendency of managers to attribute adverse information externally was typically self-serving. He measured attribution using entitlements, enhancements, excuses, and causality denials to justify disclosures. He reasoned that the attributions were self-serving as there was a significant association with specific managerial incentives depending on the context explained by the management in the director's report.

Thus, attribution is considered a form of impression management (Aerts, 2005; Merkle-Davies and Brennan, 2007). Managers attribute negative outcomes to external factors and positive outcomes to internal factors; these attributional tendencies represent a self-serving bias (Aerts, 2005). To examine this further, Aerts (2005) examined the

motivations of the capital market to distinguish between strong and weak motivations which equate to self-serving and non-self-serving narratives. He concluded that the use of attribution in narratives is a deliberate technique used consciously and not a “results of cognitive informational process” (p. 493), i.e. unconscious attributional tendencies (Aerts, 2005).

Zhang and Aerts (2015) examined the way in which firms justify their failure to meet or beat earnings thresholds, finding that they used a high frequency of causal intense words. They found a strong relationship between firms that fail to meet or beat earnings thresholds and causal language, indicating that firms tend to justify their failures in their annual reports, which equates to impression management. Additionally, it was found that causal reasoning intensity can be informative, as it is negatively associated with analysts forecast dispersion (Zhang, Walter and Huifeng, 2019). Attribution studies are also minimally developed, and it would be fruitful to combine studies that focus on positive and negative words and whether the optimistic or pessimistic tone is attributional.

#### *Other Drivers*

There are other motivations and drivers for the tone of narratives that are either relatively new in existing literature or have been given little attention. For example, Meyew, Sethuraman and Venkatachalam (2015) examine the tone of MD&A's to see if they predict a going concern: if companies are not doing well and are potentially at risk of being categorised as a going concern, it might drive managers to express their narratives in a specific way. They found that the tone had predictive power to expose if a firm would continue as a going concern. Levy, Shalev and Zur (2018) found that litigation risk was a driver; unlike board-serving CFO's, non-board serving CFO's used a more conservative tone during earnings conference calls, typically using more negative words and reporting bad news earlier. Buchholz et al. (2018) examined the level of narcissism present in CEO's narrative tone. They argue that narcissism is a managerial trait that is associated with optimistic language in corporate disclosures. By spotting specific narcissistic

behaviour in CEO's, they found that there is a strong positive association between narcissism in CEO's and abnormal optimistic tone<sup>5</sup>.

Baginski, Clinton and McGuire (2014) examined the corporate control contest hypothesis where they found that proxy contest drives managers to increase voluntary forward-looking narratives. Their results suggest that this behaviour is due to managers wanting to signal that weaker performance in the past is transitory and that they are in control of their operations.

Another motivation is legitimacy drivers: Ogden and Clarke (2005) examined how companies use narratives in annual reports to gain legitimacy. They found that privatised regional water in the UK uses impression management techniques by deploying assertive and defensive writing styles to persuade customers of their legitimacy and that the privatisation of water companies is beneficial.

Finally, Smith and Taffler (2000) examined the relationship between the content of the chairman's statement and financial distress; they suggested that financial distress changes the way narratives are written and can predict future bankruptcy. By conducting a "meaning-oriented" manual analysis, they found that the content was related to a firm's performance, suggesting that narratives provide important information; specifically, narrative content potentially relates to firm failure and therefore can predict the risk of bankruptcy. Since these previous studies do not fall within a major theme of this SLR, they are rich research topics to develop further.

#### ***2.5.2.1.2 Impact of Tone of Narratives in Corporate Reports***

Narrative data in annual reports can have an impact on the capital market (Price, Doran and Peterson, 2018; Schleicher, Athanasakou and Hussainey, 2014; Cardinaels, Hollander and White, 2019), future performance (e.g. Allee and Deangelis, 2015; Li,

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<sup>5</sup> Buchholz et al. (2018, p.532) define narcissism in their study "...as self-love, helps individuals to function successfully since it is based on self-esteem." They argue the managers with narcissistic traits are prone to self-enhancement. They measure narcissism by determining 15 indicators that reflect five determinants from historical data. For example, one determinant is medial exposure, which is the way in which narcissistic CEO's get public acknowledgement.

2010b, Wang and Hussainey, 2013) and debt (Ertugrul et al., 2017; Ataullah, Vivian and Xu, 2018); these will be discussed in turn.

### *Capital Market Impacts*

The relationship between the tone of narratives and the capital market, i.e. stock price and investors' judgement, is a relatively popular research area. Schleicher, Hussainey and Walker (2007) examine the relationship between disclosure quality through the frequency of forward-looking narratives in annual reports and share price anticipation. They found that, for loss-making firms, investors can anticipate future share price when managers provide future predictions (using forward-looking statements) in their narratives, but they did not find the same evidence for profit-making firms. Additionally, some studies focused on the stock price returns, stating that the tone of narratives and what narratives imply can predict future returns and abnormal stock returns. Broadly speaking, it is suggested that written words explaining the future or words capturing the firms' reality or activity, have predictive power for readers (Wisniewski and Yekini, 2015; Karapandza, 2016).

Feldman et al. (2010) also focused on the annual report, specifically looking at the MD&A section. They found that the short-window market reaction is significantly associated with the tone of narratives (using positive and negative keywords), indicating that narratives in MD&A's contain incremental information for readers. Moreover, Davis and Tama-Sweet (2012) found that the use of optimistic and pessimistic language in earnings press-releases (which are similar to annual reports) have an impact on capital markets, and that they were positively related to the stock price response. Overall, the studies discussed suggest that narratives in annual reports are beneficial, providing useful informational content for investors.

Hussainey and Mouselli (2010) examined how the quality of narratives in corporate annual reports in the UK can predict the change in future earnings. They constructed a risk factor measure using disclosure quality (a score based on the number of narratives that are future-oriented); they found that disclosure quality identified the usefulness of narratives in corporate annual reports, indicating whether investors were able to harness the information to make proper future-oriented decisions. Similarly, but from a different

perspective, Kravet and Muslu (2013) focused on risk disclosures and their impact on the capital market. They examined the impact that changes in risk disclosures (using the tone of narratives that represent risk) had on the changes the market reaction. They found that risk disclosure was positively related to return volatility and volume of trading, which indicated that narrative risk disclosures are informative, in that investors are more likely to perceive the risk when they were presented narratively.

Nevertheless, not all narratives have a beneficial impact on the capital market (Henry and Peytcheva, 2018, Arslan-Ayaydin et al., 2016; Cardinaels, Hollander and White, 2019). Arslan-Ayaydin et al. (2016) found that the tone of narratives in earnings-press releases were set by managers as a form of opportunistic behaviour to influence the perception of investors and gain capital market benefits. Cardinaels, Hollander and White (2019) investigated the difference in impact between managerial generated summaries of earnings press-releases and automated summaries. They found that managerial-generated summaries were biased and that the automated summaries were conservative; investors were confident in their judgement towards the automation. Finally, Chen, Nagar and Schoenfeld (2018) found that, during conference calls, analysts' comments moved stock prices rather than the managerial comments, indicating that investors rely on the analyst rather than the management during conference calls.

This indicates that it is not just textual elements in corporate reports that influence the market, but even conversation in conference calls influence investors reactions. Lee (2016) examined the impact of narratives on investor's decisions by using predetermined conference call transcripts. They found that when managers answered questions in a conference call using prepared scripts, the absence of spontaneity made financial analysts relegate their forecasts, which in turn resulted in investors having adverse market reactions.

Overall, it seems that the tone of narratives is more likely to carry informational content and has a positive impact on the capital market. However, some studies disagree, resulting in inconclusive conclusions. Therefore, this area has room to grow to further understand the impact of the tone of narratives in corporate disclosures.

#### *Future Performance and Earnings Quality*

Information disclosed, whether beneficial or harmful, may have an impact or provide information about the outlook of the company. It may deter investors from investing due to high levels of uncertainty, or it may predict the trend of their performance in the future. Li (2010b) found that the tone of narratives in forward-looking statements in annual reports and the MD&A section has incremental value to the future performance of the firm, as it has a positive association with future performance. Davis, Piger and Sedor (2012) examined the credibility of narratives in earnings press releases. They find that the tone of narratives is positively associated with future earnings indicating that narrative' predictability and that it is reliable in determining the organisations prospects.

Following this rationale, Davis et al. (2015) argue that the tone of conference call transcripts should be related to current and future performance; without them, it indicates that managers will tend towards impression management and have a self-serving bias, whether optimistically or pessimistically. Consequently, Alee and Deangelis (2015) examine the structure of voluntary narrative disclosures through tone dispersion in earnings conference calls to investigate if the structure of the transcripts complements aspects of managerial reporting. They found that not only was the structure of conference call transcripts associated with current and future performance, but that it was also associated with managers strategies to manipulate investors' perceptions. This indicates that the study of narratives in annual reports is not black and white, there is a mix of informative and misleading information that researchers have to keep in mind for research designs (Li, 2010a).

### *External Financing Impacts*

Ertugral et al. (2017) investigated the association between the cost of borrowing and the ambiguous tone of narratives in annual reports. Unlike previous studies that mainly rely on the frequency of positive and negative wordlists, they used Loughran and McDonald's (2011) uncertainty and weak modal wordlists to count the frequency of those words as a proxy for ambiguous tone. They found that ambiguity in annual reports was related to information hoarding, which created apprehension in the firm's creditors, thus increasing the cost of external financing. Moreover, they found that annual reports with ambiguous

language had a higher risk of stock price crashes, making this the main reason for creditors discomfort leading to stricter credit terms.

Atullah, Vivian and Xu (2018) assessed the relationship between optimistic tone and managerial debt conservatism. They addressed the “low-leverage puzzle”, showing that optimistic managers considered external financing to be costly<sup>6</sup>. Subsequently, managers used debt conservatively, which increased their cash holding and decreased their dividend payments.

The relationship between narratives and external financing would benefit from further research. For instance, given the flexibility of narrative in annual reports, it would be interesting to examine if managers might deliberately influence the tone of narratives to impact the perception of creditors.

#### *Other Impacts*

The tone of narratives can impact other areas, such as reputation and earnings forecast. Craig and Bernnan (2012) reported that the link between corporate report language and reputation must be made with caution, as the company’s size and visibility positively impact managerial optimism, which in turn impacts the firms’ reputation; thus, the relationship is not linear. Additionally, Rogers, Buskirk and Zechman (2011) examine the impact of optimistic tone on shareholders’ litigation. They found that most lawsuits targeted optimistic statements and that lawsuits of earning announcement were unusually optimistic. Barakat, Ashby and Fenn (2019) extended the study of narratives and litigation by utilising Loughran and Mcdonald’s (2011) wordlist and assessing whether the net positive and negative tone, litigious tone, and uncertain tone of risk announcements have a reputational impact on the firm. Like Ertugrul et al. (2017) they used additional wordlists from Loughran and McDonald (2011) by employing litigious and uncertainty words to assess the tone of narratives in more detail. They found that the net positive and negative tone and the litigious tone had unfavourable reputational effects, whereas the tone of uncertainty alleviated unfavourable reputational effects. Consequently, it is

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<sup>6</sup> ‘low leverage puzzle’ refers to the mystifying evidence that large US non-financial corporations employ debt with extreme conservatism (Graham, 2000; Strebulev, and Yang, 2013) .



determined that the tone of narratives can also be linked to litigation risk. Finally, Khrystyna and Levine (2019) found that forecasts derived from narratives can be as informative, if not better, than forecasts derived from financial disclosures such as analyst consensus forecast; they suggest that narratives are informative and should be used hand-in-hand with financial disclosures to improve earnings forecasts.

These other studies play a role in trying to understand how narratives can be beneficial or harmful in different aspects, such as reputation, litigation and financial forecasts. Although this section has reviewed the drivers and impact of narratives in corporate reports, the section only reviewed studies that measured the tone of narratives or followed a measurement technique of word frequencies. Another measurement technique focuses narratives readability, the next section will employ the same review structure of disseminating studies that examined the drivers and impacts of narratives from the perspective of readability.

### **2.5.2.2 Readability of Narratives in Corporate Reports**

Corporate reports cater to various readers: investors, creditors, analyst and other stakeholders. Not all readers are sophisticated enough to decipher complicated textual information. However, due to the complexity of standards, and in some cases, firms' operations, voluntary narrative explanations became more and more difficult to comprehend over time; hence the release of handbooks and guidance by the Securities of Exchange and Commission (SEC) and the Financial Reporting Council (FRC) to direct managers in the portrayal of narratives. The SEC's main goal is that investors should be able to read and understand corporate disclosures, aided by the release of the "Plain English" guide to help managers to write in a way that is understandable by the majority of readers (SEC, 1998). They recommend avoiding specific attributes like the passive voice, long sentences, unnecessary details and abstract words, among other things (Bonsall et al. 2017). Similarly, the FRC produced guidance for companies following the International Financial Reporting Standards to write clearly and concisely (FRC, 2015).

However, some managers take advantage of the notion that financial information is complex enough opportunistically, so they complicate narratives even more to conceal adverse news (Bloomfield, 2002; Li, 2008). The more readable narratives are, the easier

they are to comprehend. Readability (also referred to as textual complexity or transparency) is initially defined by one of the seminal papers as “the sum total (including the interactions) of all those elements within a given piece of printed material that affect the success a group of readers have with it. The success is the extent to which they understand it, read it at an optimum speed, and found it interesting” (Dale and Chall, 1949, p. 13). Therefore, the extent to which narratives in corporate reports are readable has a great impact on the communication quality between the firm and stakeholders that influence the market (Loughran and McDonald, 2014).

The measurement of readability is not clear cut; some researchers utilise available formulas that rely on clarity and complexity of words and sentences such as the Fog index (Lim, Chalmers and Hanlon, 2018) and the Flesch index (Linsley and Lawrence, 2007). However, other studies rely on the quantity or length of disclosure, such as word count (Li, 2008) and file size (Loughran and McDonald, 2014).

Loughran and McDonald (2014) argue against readability indices that rely on syllables and sentence lengths to measure reading ease. They point out that there are words in the business and management field that are considered complex by the indices, because they are three syllables or more, but are commonly used words that even non-sophisticated investors will understand, such as the word “company” or “telecommunication”. Consequently, disclosure size is recommended as a measurement of narrative readability, suggesting that lengthier reports are not cost-efficient to process, and thus daunt the reader (Li, 2008). Bonsall et al. (2017) address the Fog and Flesch index issues and created a new measure based on the “Plain English” attributes proposed by the SEC (1998) handbook calling it the “Bog Index”. The subsequent sub-sections address the drivers and impact of narrative’s readability.

#### ***2.5.2.2.1 Drivers of Corporate Report Narrative’s Readability***

Corporate operations are increasingly complex, having many diverse equity owners and global reach and influence; this can make narratives difficult to explain and even more difficult to understand. Thus, there have been various studies conducted on the readability of narratives in corporate reports, which this section will discuss. There is less research on readability than on narrative tone. The research studies into narrative readability have

been subgrouped as follows: financial and performance drivers (Frankel, Jennings and Lee, 2016; Cazier and Pfiffer, 2015), earnings management (Filzen and Peterson, 2015; Lo, Ramos and Rogo, 2017), and other drivers.

#### *Financial and Performance Drivers*

Research on the readability of narratives in corporate reports argues that managers can be incentivised to deliberately over complicate narratives to hide adverse performance. Courtis (1998) suggests when managers are faced with good news they will tend to write in a language that is easier to read than when they are faced with bad news, indicating that managers use the high or low readability of narratives to emphasise good news or conceal bad news. Consequently, Li (2008) examined this phenomenon, he found that when performance is low the readability of annual reports reduces and becomes more complicated; validating Courtis' (1998) argument that managers obfuscate adverse news with their writing styles.

Similarly, Clatworthy and Jones (2001) examined the readability of 120 chairman reports using the Flesch index and explored the association between readability and firm performance. They found no relationship, but other thematic structures within narratives of chairman reports were related to performance, suggesting manipulation by managers and the use of impression management. Similarly, Merkle (2014) primarily focused on the tone of narratives in R&D reports; he found no significant association between readability and R&D disclosures in annual reports. His findings suggest that R&D disclosures are generally informative and do not represent obfuscation behaviour.

That does not mean that there are no associations between narratives of corporate reports and readability of narratives. Li (2008) attempted to establish the association between two types of readability measures (fog index and length of the report) and readability determinants. He found that performance among other determinants (such as volatility, geographical segments and the firm's age) is negatively associated with the readability of the full text of annual reports and the MD&A section. He argued that, since there is a negative association, there was management incentive to hide adverse performance through narratives that are difficult to read.

However, Bloomfield (2008) discussed Li's (2008) study stating that the mere negative association between readability and performance, as well as the lack of performance persistence, does not provide enough evidence to suggest that managers are obfuscating bad news deliberately. There are other explanations: when performance declines or is poor, managers tend to write more to provide more explanation to investors about their declined results; more simply, bad situations are difficult to explain. For that reason, more studies have emerged to attempt to tackle the inconclusive arguments around the notions of obfuscation and the readability of narratives.

Cazier and Pfeiffer (2016) try to answer the question "why are 10-K filings so long?" They found that structural components are feeding into the narratives of annual reports and are driven by three main determinants: (i) complex operations; (ii) SEC's requirements that may cause redundancy, due to the repeated information in different sections; (iii) and residual disclosure. Residual disclosure is the component of narratives that is not related to either regulation or firms' operations and is considered irrelevant to shareholders. They found that the majority of the length in 10-k filings is driven by residual disclosures, indicating that there is a higher level of managerial discretion in how firms report narratives and their response to compulsory requirements.

Since there are various measures of readability, which essentially represent the same thing, the result in terms of its association with firm performance deviates from one study to another, leading to inconclusive results. It could be interesting to expand on the existing literature not only to compare different measures of readability but to create a holistic measure, to take into account the size, length and the reading ease of narratives at the same time.

### *Earnings Management Drivers*

The overall rationale for the occurrence of earnings management and for there being incentives for managers to manipulate earnings is that there is significant flexibility in measurement choice under accounting standards. Equally, narratives contain flexibility which allow managers to portray narratives which are in line with their predetermined targets or use narratives to hide that their earnings have missed the target. For example, Filzen and Peterson (2015) found that managers deliberately make annual reports difficult

through increasing the length of annual reports in order to meet or beat analyst expectations (an incentive that causes managers to engage in earnings management). In turn, financial analysts relied more on management's guidance than they did annual reports, particularly when the reports are complex. They found that complicating narratives in annual reports were used as a substitute for earnings management in some instances.

Lo, Ramos and Rogo (2017) on the other hand, expanded this area of research by examining the direct effects of earnings management on readability; they also looked at managers' discretionary practices, particularly the use of discretionary accrual and expense manipulation, and whether it influenced annual report readability. They found that firms that manage earnings through accruals and discretionary expenses to meet or beat the prior year's performance tended to have less readable narratives in the MD&A sections. Their results confirm the obfuscation argument: managements complicate narratives deliberately to conceal their earnings management practices or adverse news.

Earnings management is an interesting topic which has been thoroughly established in accounting literature. What is interesting is its similarity and connection with narratives, as it contains high levels of management discretion. The papers do not discuss whether the relationship between earnings management and narratives might benefit investors or mislead them. According to Jiraporn et al. (2007), not all earnings management practices are used to misinform investors, but some are there to bridge the information gap between insiders and outsiders. Therefore, it would be interesting to understand how earnings management and narrative readability impact on agency costs or information asymmetry.

#### *Other Drivers*

Although one of the major drivers of readability is the firm's performance, there are other reasons that may influence the readability of narratives in corporate reports. Lang and Stice-Lawrence (2015) conducted a global study of the textual complexity of annual reports using different measures such as the length of disclosures and readability; they found that narrative complexity was associated with regulation and the pressure for transparent disclosures. They found that after the adoption of IFRS, non-US firms had

more transparent disclosures and their annual reports were comparable with US 10-k reports.

Hooghiemstra, Kuang and Qin (2017) found that CEO's would intentionally reduce the readability of remuneration reports to obfuscate information and influence the level of "Say on pay" voting dissent from shareholders. They indeed found that "say on pay" incentivises CEO's to make narratives in remuneration reports difficult to read. However, this incentive decreases when there are more institutional investors: if obfuscating practice through decreased readability is used in the presence of institutional shareholders, their actions can backfire as the voting dissent can increase.

Finally, Lim, Chalmers and Hanlon (2018) investigated business strategy as a determinant of readability. They argue that if business strategy determined product domains, technology and organisational structure, which subsequently impacted their operational complexity, uncertainty and information asymmetry, then it should influence annual reports' narrative readability as well. They found that firms which had a more innovative business strategy had less readable annual reports, as opposed to firms with a more efficiency-oriented business strategy.

Research on more creative aspects (such as remuneration and business strategy) that may drive managers to reduce or increase readability is minimal, and most of the studies are focused on performance measures.

#### ***2.5.2.2.2 Impacts of Corporate Report Narrative's Readability***

There are consequences and impact for annual reports that are complex due to readability or length of the document. Readability can impact performance measures (Li, 2008), capital market implications (Brochet, Naranjo and Gwen, 2016) and analyst followings (Guay, Samuels and Taylor (2016).

#### ***Earnings Quality***

Li (2008) established that readability and length of the annual report document and the MD&A section had consequences for earnings persistence. He found that when good earnings are transitory and when bad earnings are persistent, they are associated with

narratives that are difficult to read; this indicated that these actions were deliberate, driven by managers wanting to conceal bad news. On the other hand, Bloomfield (2008) argued that such a relationship does not necessarily indicate management's deliberate act of concealment but might be due to other issues.

Among recent literature, Li (2008) is the only researcher that focuses on the impact of readability and how it can be used to cover the adverse performance of the firm, although Bloomfield's (2008) argument should be balanced against this, to assess the motivation of low readability. Jiraporn et al. (2007) employs the agency cost and suggests that when there is a positive association between earnings management and firm value, it is a sign that the manager's main concern is to reduce information asymmetry. The same can be applied to readability and the various measures of narratives to address this issue of opportunism.

#### *Capital Market and Analyst Following*

Miller (2010) investigated the impact of reporting complexity and its impact on investors' trading behaviour. They found that firms with annual reports that were long and less readable decreased overall trading with both small and large investors. They examined the notion that annual reports that are difficult to read are costly to process, resulting in traders (especially small traders) not initiating a trade in response to management disclosures. They did not find a definitive answer as to whether an increase in information was beneficial or harmful for investors, however, they did emphasise that more information may not always be good as it is difficult and costly to process.

Lee (2012) expanded on this area of research to investigate the quarterly reports and how the readability of narratives can affect the stock price efficiency (the rapidity at which stock price reflects performance news). They found that the less readable and longer quarterly reports were, the slower it was for earnings information to be reflected in the stock price. Consequently, given that not all investors are sophisticated enough financially to understand annual reports, they demand more analyst following as they rely on analyst reports more than annual reports (Lehavy, Li and Merkley, 2011; Lang and Stice-Lawrence, 2015).

In a more recent study, Boubaker, Gounopoulos and Rajiba (2019) examined the impact of annual report readability on stock price liquidity. They show the negative consequence of low readability on the capital market. They found overall narratives that are difficult to read reduces that stock liquidity. This is due to the fact that when investors find it difficult to process and analyse information in annual reports, they become unwilling to trade deterring stock liquidity in the process.

Brochet, Naranjo and Gwen (2016) found that there are capital market consequences due to the language barriers from foreigners in non-US firms. By examining transcripts of conference calls of non-US firms, they found that these firms are less likely to adhere to SEC's recommendations for "Plain English" and are more likely to use erroneous expressions. As a result, the market reacts negatively to non-English speaking and foreign firms when there are English speaking analysts participating in the call. Brochet, Naranjo and Gwen (2016) found that when disclosures are verbal language barriers may influence the transparency of the message and consequently negatively impact the market reaction.

There are mostly negative consequences to the narratives of corporate reports that are less readable. Guay, Samuels and Taylor (2016) examined how to mitigate complex narratives by employing voluntary disclosures. They found that when managers acknowledged the readability of annual reports (using readability measures and length of annual reports), they increased the level of management forecasting and alleviated the negative effects of complex reports. They also found that the relationship was stronger when there were external monitors and a decrease in liquidity, whereas it was weaker when performance was poor and earning management existed. This provides evidence that narratives that are difficult to read, whether it is done to deliberately obfuscate information, or used non-deliberately due to operational complexity, is not clear cut. Therefore, researchers should not assume that the use of narrative is always opportunistic nor that it always provides incremental information.

From an experimental perspective, Rennekamp (2012) assessed the market reaction towards disclosure readability. He found that easier to read narrative disclosures resulted in stronger reactions from small investors. They concluded that small investors reacted to good news more strongly than they would towards bad news, as bad news was more



difficult to understand and process. They also suggested that, from a psychological perspective, easier to read narratives subconsciously made investors trust and rely on the information put forward. *Other Impacts*

In addition, recent literature has attempted to stretch the studies conducted on readability into new areas to fill the gaps. Hu, Liu and Zhu (2018) examined whether annual report readability matters to ‘credit default swap’ market participants. They found that the easier annual reports are to read, the higher is the credit default swap spread. They also found that readability may be associated with credit risk. Furthermore, Baxamusa, Jalal and Jha (2018) found that not only do firms suffer from negative market reaction because of their annual report’s readability, but the readability of their partners’ annual reports is also impactful: the readability of the firm's strategic allies can affect the market reaction of their firm.

### **2.5.2.3 Other Types of Content Analysis**

The SLR has mainly retrieved papers that consider “tone” or “readability” measures. It has also found that for each type of measure, scholars have researched the drivers and impact of the use of narratives. However, there were studies that considered the drivers and impacts of narratives that neither focused on tone nor readability. For example, Leung, Parker and Courtis (2015) examined impression management through minimal narrative disclosure (MND); this was measured with a checklist of all voluntary disclosures. It suggested that firms with low scores were following a concealment impression management strategy by not disclosing as much information, in other words using “minimal narrative disclosure”. They found that firms with adverse performance and at risk of financial distress exhibited signs of MND behaviour, validating the obfuscation hypothesis by Courtis (1998) that suggests that firms with bad news (or poor performance) are more likely to obfuscate information through narratives.

Boesso and Kumar (2007) examined the drivers behind the communication of voluntary disclosures in the MD&A: they developed 42 types of voluntary information that can be discussed voluntarily, such as employee wages, product life cycle, and R&D projects, among others. They found that additional voluntary narrative information is included not only for investor’s needs, but also to emphasise the role of management to stakeholders;

they discussed the potential importance of discussing intangible assets and market complexity. All these aspects influenced the quality and quantity of voluntary disclosures discussed in MD&A's. The two studies mentioned above provide a fruitful methodological contribution for different ways to assess narratives in corporate reports and to view them from a different perspective.

## **2.6 SLR Discussion and Future Research**

Literature extracted for this SLR highlights the importance of narratives in annual reports, including that it has an impact on managers and investors' decision process. Overall, the focus of the literature has been on whether information portrayed by management is informative or misleading; this has been measured largely by considering whether narratives accurately reflect financials and whether the narratives are reflected positively or negatively by the stock price. There are studies that took it beyond the examination of financials and the impact of the capital market: some studies reported that managers tended to manipulate narratives in line with their earnings management practices (Huang, Teoh and Zhang; Lo, Ramos and Rogo, 2017). Overall, the evaluation of drivers and impacts of narratives in corporate reports seems fragmented. Based on this SLR, areas that require more attention in future research is discussed in three sections (i) empirical gaps, (ii) methodological perspective gaps, and (iii) research design gaps.

### **2.6.1 Empirical Perspective Gaps**

Two extensively investigated areas are the relationship of narratives with financial data and performance, and their impact on the capital market.

First, comparing the literature that examined the tone and readability of narratives, more attention has been given to tone than readability. Intriguingly, research that examined tone tended to focus on different associations than the research discussing complexity. The two areas clearly fall under the same subject whilst measuring different things. Studies which discussed tone and the impact of earnings management focused on the incentives that drive earnings management, finding that narratives were in line with earnings manipulation practices. What they failed to examine, however, was the direct relationship between earnings management and the tone of narratives. This was

conducted in relation to readability by Lo, Ramos and Rogo (2017), in which they found that narratives readability is directly related to income-increasing earnings management. Furthermore, among the section “Other Drivers,” there were limited studies that studied the relationship between tone and financial distress or bankruptcy (Smith and Taffler, 2000). This area is very interesting and there is a lack of research addressing this, either from the perspective of tone or readability. The extreme fraud cases of WorldCom and Enron brought to the world’s attention that narratives can represent a false picture of a company. For example, Enron in the year 2000 had narratives in their annual reports that were hugely hyped up (optimistic) directly before their collapse:

“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” Jack et al. (2013, p.111).

This is an infamous example of how a financially distressed firm was motivated to mislead investors. Future research might use different approaches to examine these patterns further: new case-study research or empirical studies could apply z-score or distance-to-default to measure financially distressed firms and how they present their narratives in terms of different measures of tone (positive, negative, ambiguous, or litigious) and readability.

Notably, although the relationships between firm performance and narratives in annual reports has been extensively researched, the SLR shows that extant research mainly focuses on the narrative tone rather than readability. With the exception of Li’s (2008) which was the only paper that examined the relationship between current performance and its consequences on performance persistence, concluding that managers obfuscated adverse results. As stated in section 2.5.2.2.1, even his study

was challenged, suggesting that although an inverse relationship is presented between performance and readability, it is not enough to conclude that the reason behind the relationship is a concealment of poor performance (Bloomfield, 2008). Further research could address the contention between Li (2008) and Bloomfield (2008), and whether the relationship between current performance and performance persistence is enough evidence of the obfuscation of adverse results. Consequently, research is can provide further examination and establish how readability impacts firm value. According to Jiraporn et al. (2008) if managers are disclosing discretionary financial information with the sole purpose to maximise shareholders' wealth, then there should be a positive relationship between discretionary financial disclosure and firm value. Therefore, a negative relationship would be a validation and an indication of the use of impression management as a tool to conceal poor performance.

### **2.6.2 Methodological Perspective Gaps**

From a methodological perspective, the study mainly focuses on improving readability measures. There are many debates around the different methods of measuring narratives readability (Loughran and McDonald, 2014; Bonsall et al., 2017). However, the methods do not pertain to the evolution of a readability formulae as in the differences between the fog index, Flesch index and the Bog index, which mainly focuses on different ways to measure how narratives are difficult to read. Conversely, Loughran and McDonald (2014) develop a different measure suggesting that the file size of corporate reports reflects readability. They argue that the larger the size of corporate reports the more difficult and costlier it is to process. Li (2008) used the word count as a measure of corporate report length, whilst Loughran and Mcdonald (2014) recommended that file size and length of document was pertinent, suggesting that managers not only deliberately make narratives difficult to read but also increase the size or make the document lengthier to increase the processing time and cost.

What is interesting is that the fog index measures readability in terms of the sentence structure and words; file size considers the whole size of the document or the number of pages which can serve the same purpose; the word count solely takes into account the

number of words that pertains to non-numerical narratives<sup>7</sup>. Given that the measures are different and may have different results, it would be useful to take a closer look at a holistic measure that could combine all three aspects to measure readability of narratives. Future research could develop a composite index to aggregate the individual measures of narrative's readability. This methodological improvement would be beneficial as it could help reduce measurement error, and overcome issues related to precision, reliability and accuracy (Kaufmann and Kraay, 2007; Maggino and Zumbo, 2012; Balakrishnan, Core, and Verdi, 2014).

### **2.6.3 Research Framework Gaps**

The SLR shows that most of the papers that research the drivers and impact of narratives in annual reports use a single theory to examine the association between one area and another or conduct a case study or experiment. Lo, Ramos and Rogo (2017) were able to evolve this framework by applying the fraud triangle. They took into account three components: (i) readability of narratives that can determine the attitude of managers; (ii) earnings management, which represents an opportunity for managers to manipulate earnings; (iii) and the strategic incentive in which firms are meeting or beating the prior year's earnings, which is considered as an incentive for managers to engage in earnings management. By taking a closer look at the three components, their study was able to gain an understanding of how those three components influence each other.

This form of research is also known as "triangulation". According to Denzin (1978, p.291), the definition of triangulation is "the combination of studies in the study of the same phenomenon". Hopper and Hoque (2006) argue that there are three types of triangulation: theoretical triangulation, in which a study considers different theories to reach a conclusion around a research problem; data triangulation, which combines qualitative and quantitative means to solve a research question; and investigator triangulation, which employs different researchers in the same study. Given that research around narratives in corporate reports is not fully developed, applying a triangulation

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<sup>7</sup> File size is measured as the size of annual reports from the Edgar system which only includes narratives and financial statements but no diagrams or imagery. However, the limitation of page count is that it includes images and tables.

framework would help further develop the area of research and contribute to resolving inconclusive results.

## **2.7 Conclusion**

This study aims to review recent literature on the motives and consequences of narratives in corporate disclosures. To review the existing literature and ensure reliability and replicability an SLR was applied: keywords were identified, search strings generated, and an inclusion and exclusion criteria was created in order to best answer the review questions.

This SLR synthesises the research discussing why narratives are written the way they are (motivation), and how they influence surrounding factors (the impacts and consequences). The focus of existing research is on examining the association between qualitative accounting (narratives in corporate reports) and quantitative accounting (financial data in financial statements). The difficulty that arises is in the mechanisms behind conducting a study to examine the association between quantitative and qualitative variables. Existing literature contains two main methods for quantifying narratives in annual reports: a method used to measure the readability of narratives and a method used to measure the tone of narratives. Those two methods explore and deconstruct the writing style of narratives in corporate reports.

The SLR continues to address the main objective of this paper, which are the review questions: *“What does literature tell us about the drivers behind narratives in corporate reports? What are the impacts of narratives in corporate reports?”* The literature was organised into subgroups examining the drivers and impacts, which in turn then discussed the two writing styles (readability and tone of narratives).

It was found that the main driver behind the writing style of narratives in annual reports was financial data and specifically financial performance, whether narratives were used to benefit users or mislead the reader. Research has examined the relationship between narratives and financial performance for a long time, especially since narratives are supposed to convey current performance and future outlook. As for impact, the capital market had the most significant impact on the way narratives were written. Again, this

area has been addressed thoroughly by scholars, as the users of annual reports will use all information within corporate disclosures, quantitative or qualitative, to make their investment decision, which will then reflect in the stock price. There are many other areas addressed in terms of drivers and impacts of narratives in corporate reports, such as earnings management drivers or external financing impacts.

The SLR contributes to knowledge in three distinct ways. First, among the different literature reviews conducted in the area of narratives in accounting, it is the first paper as far as it is known to have conducted a review using a systematic methodology. Secondly, this review is the most up to date literature review, reviewing existing studies up to 2019. Thirdly, by critically discusses existing literature and identifies possible research gaps. Gaps identified are empirical, methodological and research design. Accordingly, this study provides an opportunity for accounting scholars to take the challenge and address the gaps in future research.

Based on the findings from this SLR, two empirical studies are conducted in this thesis to address the overarching research questions: “*What are the drivers of narratives in corporate reports? What are the impacts of narratives in corporate reports?*” The two empirical studies address the gaps found regarding the drivers and consequences of narratives in corporate reports; specifically, the thesis is mainly concerned with corporate annual reports as a means for managers to communicate specific narratives. Each chapter addresses a writing style: chapter 3 focuses on the readability of narratives - how current performance determines the readability of narrative, as well as the consequences of narratives’ readability on performance persistence and firm value. Chapter 4 concentrates on the tone of narratives, and how the intentions and incentives of earnings management drive the tone of narratives to be optimistic or pessimistic.

Overall, the thesis addresses the overarching research question, by finding that current firm performance and earnings managements are among the drivers of narratives in corporate annual reports, and that narratives in corporate annual reports can impact the persistence of the firm’s performance and the firm-value.

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## **Chapter 3 — The Impact of Firm Performance on Readability and Ambiguity of Annual Report Narratives and the Consequences**

### **Abstract**

This study examines the relationship between current financial performance and narratives in the corporate annual report. It analyses how readability and ambiguity might be used to obfuscate information as an impression management technique, and the implications and consequences of narratives on performance persistence and firm value. It finds that narrative disclosures that are less readable are negatively associated with firm performance, suggesting that firms use impression management to obfuscate adverse information. The research also finds evidence, through readability measures, that impression management practices reduce performance persistence. Finally, the study finds that the use of less readable and more ambiguous language in annual report narratives has an unfavourable impact on the firm's value.

**Keywords:** *Impression management; corporate annual reports; readability; narratives; ambiguity.*

### **3.1 Introduction**

Corporate annual reports are fundamentally about information: accountants collect hundreds of financial transactions and combine them to produce reports such as the income statement and balance sheet. The corporate annual report also contains a large number of unstructured narratives that explain the quantitative aspect of firm performance. Management use the narrative section of the annual report to provide shareholders and other stakeholders with information regarding the prospects of the company.

Narratives are important (Pratt, 2002) and are an indispensable part of the annual report (Canniffe, 2003). Narrative disclosures are important channels through which managers communicate contextual financial information to stakeholders. As Lee (1982) points out, financial information may not be useful unless it is adequately communicated through narratives. According to the US Securities and Exchange Commission (1987), suggest that the quantitative section of financial statements are brief and may not be sufficient for users to analyse the company's earnings quality or predict future performance, ascertaining the need for narratives to provide further explanations of the financial statements. narratives of annual reports are interesting to researchers as they show how much management reveals to readers and how they communicate their disclosures (Li, 2010).

Impression management is a term used in accounting literature to describe the deliberate action by management to purposely make textual financial information harder to process and comprehend in order to influence the perception of stakeholders (e.g., Leventis and Weetman, 2004; Merkl-Davies and Brennan, 2007; Merkle-Davies, Brennan and McLeay, 2011). Courtis (1998) refers to this as the "obfuscation hypothesis", explaining this as "management's tendency to manipulate or arrange prose to enhance 'good news' with writing that's easier to read, and mask 'bad news' with more difficult writing" (Courtis, 1998, 461). Li (2008) also found that firms with lower performance engaged in report obfuscations to lessen the adverse reaction of stakeholders. Understanding information contained in the narrative section of the annual reports is important for financial accounting research for two key reasons. Firstly, narrative disclosures may demonstrate the use of impression management, which might represent a firm's

opportunistic behaviour. When this occurs, management tend to explain their current performance by deliberately providing biased information, particularly when they are experiencing disappointing results, to influence and shape investors and other stakeholders' perceptions about the organisation (Bloomfield, 2002).

Secondly, narratives can reveal anticipated future corporate performance. Prior literature has shown that managers might use more future-oriented words when performance is poor to reassure investors of the potential to improve performance in the future (Merkley, 2014). For example, Asay et al. (2018) used a controlled experiment to examine the relationship between reporting goals and firm performance and showed that firms with poor performance use more causal explanations that focused on future performance to reassure investors of the likelihood of improving forthcoming performance. Therefore, examining corporate narratives can provide useful information about the future performance of firms.

By contrast, management may use discretionary narratives intended to offer useful information to stakeholders. Smith and Taffler (2000) found that corporate narratives provide predictive information of firm failure, suggesting that narratives provide valuable information. Merkley (2014) provides evidence that managements adjust narrative research and development disclosures regarding changes in current performance to provide relevant information. Thus, understanding the information in corporate narratives can reveal useful information on reporting bias in management communication (e.g. Clatworthy and Jones, 2003; Leventis and Weetman, 2004; Merkl-Davies and Brennan, 2007). This offers incremental information that can facilitate understanding of the factors that have an impact on current and future performance which are not explicitly clear from the financial statements, thereby lowering information asymmetry (e.g. Zhang, Aerts and Pan, 2019) and in turn, affecting the value of a firm (e.g. Fosu et al., 2016).

Motivated by the contradictory evidence on narratives in annual reports, this study investigates the potential impact of the use of narratives on financial disclosure using two separate analyses. First, the paper examines the potential link between narratives in the corporate annual reports and current firm performance. Second, this study investigates whether the quality of narrative disclosures provide relevant information or whether there is evidence of potential obfuscation. By examining the impact of narratives' readability

(using readability and ambiguity as measures of narrative's quality) on performance persistence and firm value. Narrative characteristics used in this study include readability measures (number of pages, word count, and fog index) and the ambiguity measure (frequency of uncertain and weak modal words). For simplicity, this study refers to both readability measures and the ambiguity measure as "readability".

This study is based on data from the United Kingdom (UK) FTSE all-share, non-financial firms. Using UK narrative disclosures is instructive for three reasons. First, although existing empirical studies have examined the relationship between narratives and financial characteristics of companies (e.g. Bloomfield, 2002; Li, 2010, Bushee et al., 2018), these studies mainly focused on the United States (US), with paucity of evidence from other countries. Since the UK market is considered the largest in the European Union (EU) and among the top global capital markets (World Bank, 2018), the relationship between quantitative financial information and narratives in the UK context deserves more attention. Second, the UK Companies Act 2006 insists on firms incorporating certain explanations within their annual reports: interpretation and explanations on issues related to current performance, principle risks, key performance indicators, and that firms offer meaningful information on future business performance and prospects (Companies Act, 2006). Since the UK settings provide different regulations from the US<sup>8</sup>, this study offers a unique opportunity to identify whether narratives in annual reports for listed firms in the UK represent impression management, particularly in relation to information concealment in management communication or incremental information regarding current and future performance.<sup>9</sup> This study thus provides wider evidence of the association between quantitative financial information and narratives. Since not all narratives are audited and immediately verifiable, (Athanasakou and Hussainey, 2014), it is unclear whether the information contained in the narratives are valuable to investors and other stakeholders.<sup>10</sup> The UK setting provides a unique context that allows the

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<sup>8</sup> The UK follows international financial reporting standards (IFRS) and the US follows US generally accepted accounting principles (US GAAP) (Vand der Meulen, Gaeremynck and Willekens, 2007).

<sup>9</sup> See Security and Exchange Commission (SEC) 1989, 2002 for US regulation relating to narratives.

<sup>10</sup> Financial Reporting Council (2018) requires some narratives (e.g., strategic report, the directors' report and, where prepared, the separate corporate governance statement) in the annual report to be audited.

analysis of the relationship between narratives and accounting information in the annual reports.

This study makes three important contributions to the accounting literature. First, it contributes to the discourse about readability in financial disclosure literature. The paper documents that annual report readability, measured by the number of words, pages and readability index, is negatively associated with firm performance. The study also finds a negative relation between ambiguous language and current performance. These findings suggest that management of firms with weak performance use unclear words and long sentences to obfuscate information, which is consistent with the impression management argument (Merkl-Davies and Brennan, 2007; Guay, Samuels and Tayler, 2016).

Second, this paper contributes to the methodological developments in the measurement of variables by providing a new empirical readability score to measure impression management. A key feature of this study is the construction of a composite index aiming to capture the effect of firm performance on the readability of the overall narratives of annual reports. In contrast to existing research that uses one or two measures of annual reports readability (e.g., Curtis, 1998, Li, 2008; Miller, 2010; Lawrence, 2013; Loughran and McDonald, 2014), four measures are used to capture the readability of narratives: a more traditional measure (fog index), the contemporary measures (word count and the number of pages) and the three measures combined into a composite index used as the fourth proxy. The index reflects the probable causal factor in explaining the link between readability of annual reports and current performance. A larger index value represents a lower readability of narrative. The index reduces measurement error as it overcomes issues regarding precision, reliability and accuracy (Balakrishnan, and Verdi, 2014). The aggregate proxy ensures a parsimonious measure of the readability index (Maggino and Zumbo, 2012).

Finally, this study is the first to empirically examine the relationship between readability and firm value, which indicates investor's valuation of the firm (Hassanein, Zalata, and Hussainey, 2015). As Jiraporn et al. (2008) suggest, if managers are disclosing discretionary financial information with the sole purpose of maximising shareholders wealth, then there should be a positive relationship between discretionary financial disclosure and firm value. Therefore, a negative relationship is a validation and an

indication of the use of impression management as a tool for self-serving benefits. This study finds a negative relationship between both readability and ambiguity measures with firm value. The findings indicate that managers use readability and ambiguous language in their narratives as an impression management technique to obfuscate information.

The remainder of the paper is organised as follows: Section 3.2 presents the literature review and hypothesis development. Section 3.3 describes the research design. Section 3.4 contains the results and discussion of findings; Section 3.5 presents the conclusions.

## **3.2 Literature Review and Hypothesis Development**

### **3.2.1 Literature Review**

Corporate annual reports have been studied in various research strands. Corporate annual reports can be viewed as a marketing tool used to create the brand and promote products and services to the public (Dröge, Germain, and Halstead, 1990; Subramanian et al., 1993). However, corporate annual reports can also use texts, images and graphs to encourage the reader to make a favourable interpretation of their economic activity; this is known as “impression management” (Clatworthy and Jones, 2003; Merkl-Davies and Brennan, 2007, 2017; Beattie, Vivien and Dhanani, 2008). Management will inevitably use annual reports to communicate a particular message to the reader; how they chose to do this can be illuminating. Impression management is strategic managerial behaviour which seeks to present textual information in corporate documents to mislead the readers (Godfrey et al., 2003); it is aligned with agency theory, which describes how managements can behave opportunistically to provide biased information to present themselves and/or their companies in the best way possible (Merkle-Davies and Brennan, 2007; Bowen et al., 2005; Li, 2008; Bloomfield, 2002; Ertugrul et al., 2017; Beauchene, Li, and Li, 2019). Discretionary narrative disclosure comes in many different forms, not limited to the narratives within the corporate annual report. There are studies that focus on media news (Tetlock, 2007; Tetlock et al., 2008), corporate annual reports (Li, 2008, 2010a; Lehavy, Li and Merkley, 2011; Loughran and McDonald, 2011), earnings press releases (Davis and Tama-Sweet, 2012; Demers, Elizabeth, 2011; Huang et al., 2013) analyst reports (De Franco et al., 2011; Hsieh and Chun, 2011; Lehavy, Li and Merkley, 2011) and conference calls (Larcker and Zakolyukina, 2012).

One of the most common impression management techniques in the existing literature is readability, which is defined as the level of ease with which textual narratives can be read (Reed and Kershaw, 2016). Li (2008) measured readability in two forms: the first is the fog index, which posits that the higher the number of complex words included in the document (words with three or more syllables), the harder the document is to read. The second measure is the length of the annual report, which suggests that the longer a document is, the more daunting it is to process the information (Bloomfield, 2002). Therefore, the lengthier the document and more difficult it is to read, the more likely it is that managers are trying to obfuscate information.

Asay et al. (2018) assumed that managers in poor-performing firms had self-reinforcing motives to conceal bad news by making their reports difficult to read. Whereas, managers in strong performing firms would simplify information, making presented news clear and easier to read. By conducting an experiment consistent with their assumptions, they found that when self-serving motives were present, managers would conceal bad news by making it more difficult to read.

The concealment of bad information is a theme of research within impression management to test the obfuscation hypothesis (Bloomfield 2002; Li, 2008, Curtis et al., 2004; Ertugrul et al., 2017). De Souza et al. (2019) tested the obfuscation hypothesis by examining how managers intentionally reducing readability through three different proxies: the file size, word count and the number of pages in the annual report. They found that when firm performance was poor, managers communicated in a less readable style: the annual report document was larger in file size and longer in terms of word count and number of pages. Moreover, they found that less readable narratives in previous years impacted current performance negatively.

Curtis et al. (2004, pg.291) define obfuscation as “the type of writing that obscures the intended message”, suggesting that the manipulation of readability of narratives by managers as a form of impression management is one of the rigorous methods to detect obfuscation. They suggest that managements can deliberately create opaqueness in their annual reports to conceal unfavourable information. However, they were not able to distinguish between the malicious acts of opacity to mislead stakeholders or the non-

malicious type that suggests the use of less readable narratives to reduce investor's uncertainty. Li (2008) was able to address this issue by not only exploring the relationship between readability and firm performance, but also shedding light on the relationship between readability and future earnings or earnings persistence. He found that there was an inverse relationship between readability and firm performance, indicating that when firm performance decreases, managements typically communicate with a reduced readability in their textual narratives. There was also a negative impact on future earnings and earnings persistence, which indicated intentional obfuscation. On the other hand, Bloomfield (2008) argued that such a relationship does not necessarily indicate management's deliberate act of concealment.

Whether less readable narratives represents a deliberate act of concealment or not is not something which existing literature resolves conclusively (Merkle-Davies and Bernnan, 2007). However, narratives that are followed by a reduced persistence of the firm's performance or its value, can determine in retrospect whether the use of impression management in annual reports was to obfuscate performance or provide incremental information.

Further to readability, narratives in annual reports can be characterised by an ambiguous language that can impact the perception of readers (Loughran and McDonald, 2011). Ertugrul et al.'s (2017) examined the effect of annual report readability (using file size and fog index) and the narrative ambiguity for companies with strict loan contracts. They found that when firms used an ambiguous tone, and when annual reports were larger and harder to read, they were associated with relatively strict loan contracts. This was because when the tone of narratives was made ambiguous by counting the frequency of uncertainty and weak modal words, and when the written text was difficult to read, then creditors believed that these firms were risky, and this had the potential to result in a stock price crash. Their finding implies that shareholders have to bear two issues in this case, first they have to deal with non-transparent narratives in annual reports, and they will, non-directly, incur the cost of stricter loan contracts inflicted on the company they have invested in.

Loughran and McDonald (2013) examined the language used in narratives within the Securities and Exchange Commission (SEC) S-1 report for Initial Public Offering (IPO)



companies; they found that ambiguous language, measured by the frequency of uncertain and weak modal words within the form S-1 report, resulted in higher first-day returns, offer price revision, and increasing aftermarket volatility.

Likewise, Beauchene, Li and Li (2019) describe ambiguous language as a form of persuasion game. They assumed that both the sender and receiver were both utility-seekers trying to benefit from ambiguous communication devices. However, in the context of managers and stakeholders, due to information asymmetry, the management had the upper hand in benefiting from ambiguity. Jameson (2000) examined the narratives of mutual funds reports and found that mutual funds of top-returns were more direct and less ambiguous than that of mixed-return mutual funds. The nature and effect of ambiguous language used in annual reports has been studied minimally. This study, therefore, fills the gap by examining its relationship to firm performance and the impact of ambiguous language on performance persistence and investors valuation, unlike what has previously been conducted in this area of research.

According to the abovementioned literature, impression management techniques considered in this study include the different readability measures (fog index, number of pages, word count, and readability index), as well as the use of ambiguous language.

### **3.2.2 Hypothesis Development**

#### **3.2.2.1 The Impact of Current Performance on Readability and Ambiguity of Narratives**

Merkle-Davies and Brennan (2007) conclude in their literature review that there are two schools of thought on the presentations of narratives of annual reports. The first school of thought is that narratives of annual reports are used opportunistically for the firm's or the manager's self-serving purposes, as a form of impression management to obfuscate adverse information. The second school of thought is that narratives of annual reports are useful and provide incremental information to users of corporate annual reports.

Social psychology literature indicates that the signs of linguistic obfuscation in fraudulent scientific papers include narratives that are difficult to read and excessive use of jargon (Markowitz and Hancock, 2016). In financial contexts, Adelberg (1979, p187) noted that

“the placing of managers in complete control of the accounting communication process which monitors their performance breeds a situation wherein it is perfectly natural to expect that some managers would obfuscate their failures and underscore their successes”. Subramanian (1993) found that profitable firms have annual report narratives that are easier to read. Similarly, Baker and Kare (1992) found a strong association between lower profitability and narratives readability in presidents’ letters; stockholders struggling to comprehend the president's letter, might lead to misinterpretations. According to Bloomfield (2002), such obfuscation represents the incomplete revelation hypothesis, which assumes that if the information is costly to process, then it keeps the market from completely understanding the information<sup>11</sup>. Consistent with this argument, Bloomfield (2002) and Li (2008) found an inverse relationship between performance and readability, suggesting that when a firm’s performance is poor, there is a possibility that managers are inclined to obfuscate information. However, such a conclusion cannot be drawn without further analysis of the implication of readability. In a more recent study, Asay, Libby and Rennekamp (2018) conducted an experiment to assess the relationship between readability and firm performance. They found that the disclosure of adverse information was less readable only when the managers had a self-serving incentive.

Narrative ambiguity in annual reports is a relatively new area for research, but there is relative consistency for the findings that managers can use ambiguous language in a bid to obfuscate weaker performance (Loughran and McDonald, 2013; Ertugrul et al., 2017; Beauchene, Li, and Li, 2019). As Ertugrul et al. (2017) point out, ambiguity is when managers use uncertain and weak modal words within their annual reports. They found that both difficult to read narratives and ambiguity weakened the firm's position for creditors to provide them with better credit terms, as creditors worried about the uncertainty of the firm’s future.

In contrast, studies also highlight the notion that management’s narrative communication is value-relevant when their firms have sound financial performance (e.g., Lang and Lundholdm, 1993; Schrand and Walther, 2000; Bloomfield, 2008). Bloomfield (2008)

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<sup>11</sup> According to Courtis (1998), when managers want to obfuscate information, they would want to make the processing of narrative’s information costly. Costly in a sense that it is harder and take longer to interpret. One way to make narratives costly to process is by manipulating its readability.

discussed Li's (2008) results; he suggests that there is another explanation to the obfuscation argument. He explains that narratives are long and difficult to read because when firms incur losses, the situation becomes difficult to describe or managers need more narrative space to attribute bad news to causes other than bad management. Also, Merkley (2014) assessed the relationship of research and development (R&D) narratives with earnings persistence; he found that the tone of narratives was positively associated with earnings performance and that there was no significant association between readability and R&D disclosures. His findings suggest that R&D disclosures are generally informative and do not represent obfuscation behaviour. Bushee, Gow and Taylor (2018) found that linguistic complexity in conference call narratives was due to forecast analysts' complex questions: these questions were to provide additional information and not to obfuscate information, suggesting that linguistic complexity in conference calls reduces information asymmetry and is not a strategic tool to obfuscate information.

Therefore, it is concluded among existing literature that there is a negative association between narrative readability and firm performance. Theories explaining the readability suggest that the negative association is either deliberate, to obfuscate information, or not deliberate because the firm is in a complex situation (Merkle-Davies and Bernnan, 2007; Bloomfield, 2008). Hence, further analysis should be conducted to assess the relationship and implications. Nevertheless, to examine a possible obfuscation motive or incremental information motive, the first hypothesis establishes the relationship between readability and ambiguity with firm performance:

*H1: Readability and ambiguity measures of corporate annual reports are negatively associated with current financial performance.*

### **3.2.2.2 The Impact of Readability and Ambiguity of Narratives on Performance Persistence**

Since it is inconclusive whether readability in annual reports is opportunistic or not (Merkle-Davies and Brennan, 2007; Bloomfield, 2008), this study expands the research to go beyond its relationship with performance to test its implication on performance persistence. It will investigate the future implications of managers strategic narrative disclosures narratives in financial annual reports. Li (2008) suggests, that when managers

notice a current deterioration in earnings, they attempt to mask possible adverse future earnings and reducing performance persistence, by reducing readability of the language and burying bad news in a plethora of narratives. He also suggests that if profits in the current year are temporary or less persistent, then management has an incentive to strategically manipulate narratives in annual reports to ensure they are difficult to read. Whereas, if managers have better news about their future performance, then they will want to disclose their narratives transparently, reducing the cost of processing information so that they can distinguish themselves for their competitors.

According to Kang, Park and Han's (2018) rationale, if managers disclose narratives in annual reports in a biased way, then it will impact the usefulness of the reported information. The earnings persistence model is one way to measure the usefulness of information; it is a commonly used model to assess the ability of current performance to predict future performance (Dechow, Ge and Schrand, 2010). When managers have the best interests of stakeholders in mind, they want their disclosures to be informative and of quality, since a negative association between readability and ambiguity in annual reports narratives and firm performance is a possible sign of hiding adverse information (Li, 2008; Kang, Park and Han, 2018). With this in mind, the second hypothesis is:

*H2: Readability and Ambiguity measures of the annual report are negatively associated with performance persistence.*

### **3.2.2.3 The Impact of Readability and Ambiguity of Narratives on Firm Value**

Another implication of narratives readability is its effect on firm value. One way to examine if narratives are affecting investors' valuation is through the firm value (Hussanein, Zalata and Hussainey, 2019). According to Healy et al. (1999), informative disclosures enhance investors' perceptions of firms, which reflects on the firm's value. It was also found that there was a negative association between cost of capital and disclosure, and a positive association between disclosure and the firm's value, indicating investors are willing to invest when the cost of capital is reduced (Mangena et al., 2016).

Moreover, when narratives in corporate annual reports are more readable, it results in a reduction in information asymmetry between the firm and shareholders (Merkley, 2014). There is evidence that information asymmetry is costly, as cheaper external capital will

be difficult to raise due to adverse selection costs (Drobetz, Gruninger, and Hirschvogel, 2010; Fauver and Naranjo, 2010). Consequently, Fosu et al. (2016) suggest that there is a negative relationship between information asymmetry and firm value.

Ertugrul et al. (2017) found that decreased readability and increased ambiguity of narratives increased external costs: when narratives were harder to read and ambiguous, creditors applied stricter loan contracts, believing that the future of the company was uncertain. Hussanein, Zalata, and Hussainey (2019) found a positive relationship between forward-looking financial disclosure and investor valuation of firm value due to adequate disclosure. In an experimental study, Hwang and Kim (2017) investigated how readability (using the frequency of pervasive words) impacted the firm value of closed-end investment companies. They found that when firms write well, they will be paid well, as easier to read narratives increased the firm value of companies. This notion is in line with psychology literature that suggests that narratives that are harder to read weaken investors trust in the source of information, as well as maybe subconsciously causing stakeholders to negatively evaluate the firm and reducing favourability (Oppenheimer, 2006; Alter and Oppenheimer, 2008; Hwang and Kim, 2017). Taking all these things into account, this study predicts a negative association between the narratives' readability and ambiguity with firm value and produces the following hypothesis:

*H3: Readability and ambiguity measures of the annual report are negatively associated with firm value.*

### **3.3 Research Design**

#### **3.3.1 Sample Data**

This study focuses on publicly listed firms in the UK, specifically, data from FTSE all-share constituents on the London Stock Exchange with a sample period covering annual reports for fiscal years from 2006 to 2015. To avoid survival bias, the study includes both active firms and inactive firms up to 2015. Consistent with prior research (Hussanein, Zalata, and Hussainey, 2019), financial institutions and regulated industries are excluded, due to the differences in reporting regulations, in addition to observations with missing annual reports. Two types of data are used: qualitative data, which includes narratives within annual reports and quantitative data, which includes financial information. To

extract narratives, annual reports for each company were downloaded for the period stated above from Perfect Filing's database for every remaining firm-year; financial data was extracted from DataStream. The final sample for empirical analysis consisted of unbalanced panel data of 445 firms with 3840 firm-year observations.

### **3.3.2 Measurement of Key Dependent Variables**

Following the trend in existing literature (Li 2008; Loughran and McDonald, 2014; Ertugrul et al., 2017), narratives in the annual reports was measured using: (i) readability variables, such as number of pages, word count and fog index, and (ii) ambiguous language variables, such as the number of uncertain words.

Similar to most studies using textual analysis in accounting, a computer programme was developed to analyse the reports more reliably; the programme converted PDF files into text files. The study conducted two validation tests of the accuracy of the programme. First, the programme was tested against the Linguistic Inquiry and Word Count (LIWC) online programme, and it retrieved similar results<sup>12</sup>. Similarly, a small portion was tested against a manual count; it produced the same results. One limitation of the programme was its inability to identify the sections of all the annual reports that were uploaded: while some annual reports were prepared in a smart PDF file in which the sections had been hyperlinked, other PDF files were not hyperlinked, and the programme assumed it was all one section. Therefore, it was difficult to retrieve all the data from the report analysis section. However, this did not affect the main objective of the study.

### **3.3.3 Readability Measurement Models**

This study used four different measures of readability to capture the reading difficulty of annual reports narratives: fog index; the volume of the disclosure (word count of the annual report document, and the number of pages); and a combined readability index. These are described sequentially:

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<sup>12</sup> LIWC available online at: <https://liwc.wpengine.com/>

### 3.3.3.1 Fog Index

The fog index (Li, 2008) is a well-known formula created by Robert Gunning that measures reading difficulty. It counts the number of syllables per word and how many words per sentence. The measurement then retrieves a score that indicates which level of education a person might require to understand the writing style. A score of 18 and above is unreadable, 14-18 is difficult, 12-14 is ideal, 10-12 is acceptable, and 8-10 is childish. The formula used to measure the fog index is<sup>13</sup>:

$$Fog\ index_{it} = 0.4\left[\left(\frac{words}{sentences}\right) + 100\left(\frac{complex\ words}{words}\right)\right] \quad (3-1)$$

Where “words” are the number of words in the annual report, “sentences” are the number of sentences in the annual report, and “complex words” are the number of words that contain three syllables or more.

### 3.3.3.2 Size of Annual Reports

Loughran and McDonald (2014) suggest that the fog index is a weak measure of readability. They argue that the two components of the fog index are intricate to measure and that “complex words” is a poor measure for business documents. The fog index suggests that a word of three syllables or more is considered difficult to read. However, business communication texts use a variety of well-known words that contain three syllables or more, e.g. corporation, operations, and telecommunications. When testing the predictive power of the fog index, Loughran and McDonald (2014) found that it was insignificant in determining unexpected earnings and analyst dispersion.

Therefore, they propose the file size of 10K reports is an easier and more powerful method to measure the readability of narratives.<sup>14</sup> They propose that managers who are deliberately concealing mandatory performance information tend to hide these outcomes within longer documents, rather than using difficult-to-read language. Hence, the second

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<sup>13</sup> The natural logarithm of this variable is used in the regressions.

<sup>14</sup> In the US 10K reports are annual reports presented in the EDGAR database that solely consist of narratives and tabulated financial statements. All 10K’s are similar in terms of the font and tabulation of results, unlike the actual PDF document of annual reports which includes special fonts, figures and images.

and third measurement of narrative readability is the length of annual reports in the form of the total non-numeric word count and the total number of pages.<sup>15</sup>

$$\text{Word count} = \ln(\text{total nonnumeric words in the document}) \quad (3-2)$$

$$\text{No. Pages} = \ln(\text{total number of pages in the document}) \quad (3-3)$$

### 3.3.3.3 Readability Index

As mentioned above, the three main readability measures used in current studies are the linguistic reading difficulty (measured by the fog index), the length of the document (measured by word count), and the size of the document (measured by the number of pages). It is noted that although there are three different proxies for readability, they are not perfect and may vary in strength (Loughran and McDonalds, 2011; Li, 2008, 2010). Therefore, this study develops a composite index to aggregate the individual proxies as a way to reduce measurement error. This helps to overcome issues related to precision, reliability and accuracy (Kaufmann and Kraay, 2007; Maggino and Zumbo, 2012; Balakrishnan, Core, and Verdi, 2014).

Similar to Sydserff and Weetman (1999) and Brennan, Guillamon-Saorin and Pierce (2008), this paper constructs an Index based on three readability techniques of impression management (number of pages, word count and fog index); at least two proxies are required to create a composite index (Balakrishnan, Core, and Verdi, 2014). Indexical composite scores are given to each factor based on their measures with a decile rating of 10. Thus, each factor has a value between 1 and 10, and firms with higher word counts, pages and fog index tend to have higher scores. The index is constructed by combining the scores for each factor to give a total score, which is used in the analysis. The resultant index is referred to as the ‘Readability Index’<sup>16</sup>.

### 3.3.4 Ambiguity Measurement Models

Loughran and McDonalds (2011) identify the theme of narratives by counting the frequency of thematic words in annual report narratives and representing them as “tone”.

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<sup>15</sup> UK annual reports are only presented in the form of a PDF document. Comparing the file size of these documents will result in inconsistencies, as some file sizes are large due to images and font styles used and not due to the level of disclosure. Therefore, word counts, and number of pages are used as an alternative.

<sup>16</sup> Refer to appendix B for the construction of the readability index.



They have created word lists specifically tailored to the financial environment to describe themes, such as a positive tone, which is measured by counting the frequency of positive words, or negative tone, which is measured by counting the frequency of negative words. For this study, an “uncertainty word list” and “weak modal word list” are used to measure narrative ambiguity: the frequency of “uncertain” and “weak modal” words were counted within the narratives of annual reports (Ertugrlu et al. 2017). In this study the Loughran and McDonald’s financial dictionary of ‘uncertain’ and ‘weak modal’ words was used to measure ‘ambiguity’, which is a proxy for ambiguous language (for example the usage of words such as *approximate, assume, and indefinite*).

Using Ertugrul et al.’s (2017) formula, ambiguity is measured as the percentage of “uncertain” and “weak modal” words<sup>17</sup>:

$$Ambiguity_{it} = \frac{Uncertain\ Words_{it} + weak\ modal\ words_{it}}{Total\ Word\ Count_{it}} * 100 \quad (3-4)$$

In this formula, “uncertain words” and “weak modal words” mean their frequency within narratives of annual reports; the total word count is the total number of non-numerical words in annual reports.<sup>18</sup>

### **3.3.5 Readability and Ambiguity of Annual Reports Narratives and Current Performance**

The main variables of interest are the firm performance (discussed in this section), earnings persistence and firm value, (which are further discussed in section 3.3.6 and 3.3.7 respectively).

Firm performance is measured using return on assets (ROA), which is defined as the net income before extraordinary items scaled by total assets (Li, 2008; 2010). Other variables may influence narratives and impression management; as such, it is crucial to control for

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<sup>17</sup> The wordlists created by Loughran and McDonald (2011) are created using American spelling as it was mainly applied on US firms. Since my sample solely consists of UK firms, I have included all variations of both American and British spelling on words that may differ. For example, “randomize” and “randomise”.

<sup>18</sup> Uncertainty and weak modal word lists are listed in appendix C.

them. These include market to book ratio (MTB), return volatility (RetVol), liquidity, firm size, leverage, and firm age.

The control variables are categorised as: (i) risk measures (MTB, volatility, liquidity, and leverage), (ii) and firm characteristics (size and firm age). MTB is a control variable widely used to proxy for firm growth and is measured as market value of equity divided by the balance sheet value of equity. Returns volatility (RetVol) is measured as the standard deviation of returns over the last 12 months ending three months after the fiscal year-end. Liquidity is measured as the current ratio (current assets divided by current liabilities) and leverage is measured as long-term debt scaled by total assets. Each of these risk measures pose a threat to the stability of the company and potentially lead to an uncertain outlook (Bushee, Gow and Taylor, 2018; Huang, Teoh and Zhang, 2014; Li, 2008, 2010). Li (2008, 2010) noted that growth firms have better growth potential as well as investment opportunities; their potential for growth creates an uncertain future economic environment.

Volatility has to be controlled for, as the more volatile the operation, the less certain the future performance of the firm. Volatile firms have a higher asymmetry of information between managers and investors (Huang, Teoh and Zhang, 2014; Li, 2008, 2010). Low levels of liquidity and high levels of MTB, RetVol and leverage would arguably be more likely to be reported with poorer readability and ambiguous narratives in annual reports.

Firm characteristics may influence narratives in annual reports: namely size and age. Watts and Zimmerman (1986) suggest that the larger the firms' size, the higher the political costs it incurs. Therefore, it is predicted that there is a negative relationship between readability and ambiguity with size, as larger firms will be more cautious, using transparent narratives. However, De Souza et al. (2019) argues that larger firms are likely to have longer reports with higher word counts and lower readability due to their composite business, operating and financial activities. In terms of the age of a firm, Li (2008, 2010) suggests that young firms are more cautious when discussing the outlook of the company. Accordingly, a negative association between firm age and the readability and ambiguity measures of annual reports narratives is predicted, while the relationship of firm size is unknown due to mixed results. Finally, unobservable time-series and industry effects are controlled for, including year and industry dummies, and in all

regressions, the standard errors are clustered by firm and year to account for within-firm correlations. As such, the regression controls for cross-sectional operational complexities and differences that may influence impression management. Similarly, to Li (2008, 2010), the study uses an OLS multivariate regression clustering at firm and year level with industry and year fixed effects to minimise potential cross-sectional correlations<sup>19</sup>.

$$Y_{it} = \alpha_0 + \beta_1 ROA_{it} + \beta_2 MTB_{it} + \beta_3 RetVol_{it} + \beta_4 Liquidity_{it} + \beta_5 Size_{it} + \beta_6 Leverage_{it} + \beta_7 Age_{it} + \sum \beta_m Fixed Effect_m + \varepsilon_{it} \quad (3-5)$$

Where:

**Y<sub>it</sub>**= demonstrates one of the readability measures of annual reports narratives (Pages, Word\_Count, Fog index, RIndex, or Ambiguity)

**ROA**= proxy for firm performance measured as Net income before extraordinary items scaled by total assets

**MTB**= is the market to book ratio from DataStream

**RetVol**= standard deviation of returns over the last 12 months ending three months after the fiscal year-end

**Liquidity**= Current ratio (current assets divided by current liabilities).

**Size**= is the log of market capitalisation

**Leverage**= is total debt scaled by total assets

**Age**= is the log of 1 + number of years since the company started as per DataStream (base year)

**Fixed effect**: consists of the fixed industry and fixed year effects

### 3.3.6 The Readability and Ambiguity of Annual Reports Narratives and Performance Persistence

In addition to current performance, the readability and ambiguity of narratives may have future implications. Li (2008) found that when narratives are difficult to read, and when the annual report is lengthy, ROA is less persistent due to managers' incentives to hide current poor performance. Performance persistence is measured through the slope of the coefficient from the regression of future firm performance on current firm performance by using the following basic performance persistence model (Call et al., 2015; Li, 2019):

$$ROA_{it+1} = \alpha_0 + \beta_1 ROA_{it} + \varepsilon_{it} \quad (3-6)$$

Where:

**ROA<sub>t+1</sub>**= One-year future firm performance/two-year future performance

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<sup>19</sup> This regression specification is used on all regression models used in this study.

**ROA<sub>it</sub>** = proxy for current performance measured as Net income before extraordinary items scaled by total assets

To test hypothesis 2, the paper applies the baseline model of performance persistence to examine if impression management techniques (using Pages, Word\_count, Fog\_index, RIndex, or Ambiguity) will cause ROA to be transitory or persistent, by using the following regression (Li, 2008; Li and Mohanram, 2014; Call et al., 2015; Li, 2019):

$$ROA_{t+i} = \alpha_0 + \beta_1 ROA_{it} + \beta_2 X_{it} + \beta_3 ROA_{it} * X_{it} + absTACC_{it} + Div\_Dummy_{it} + \gamma Controls_{it} + \sum \beta_m Fixed\ Effect_m + \varepsilon_{it} \quad (3-7)$$

Where:

**ROA<sub>t+i</sub>**= One-year future performance/two-year future performance

**X<sub>it</sub>**= is one of the readability measures of annual reports narratives (Pages, Word\_Count, Fog index, RIndex, or Ambiguity)

**ROA<sub>it</sub>\*X<sub>it</sub>**= is the interaction variable of ROA with one of the readability measures of annual reports narratives (Pages, Word\_Count, Fog index, RIndex, or Ambiguity)

**ROA<sub>it</sub>** = proxy for current performance measured as Net income before extraordinary items scaled by total assets

**absTACC**= absolute value of total accruals, measured as change in current assets – change in cash – change in current liabilities + change in short-term debt – depreciation, all scaled by total assets

**Div\_Dummy**= Dummy variable that equals to 1 if the firm paid dividends and 0 otherwise

**Controls**: Consist of all firm control variables used in equation 5

**Fixed effect**: consists of the fixed industry and fixed year effects

Li (2008) recommends incorporating the absolute value of total accruals and a dummy variable for dividend payment as control variables when examining performance persistence. This is to account for a negative association between the absolute value of accruals and performance persistence (Sloan, 1996) and a positive relationship between dividends paid and performance persistence (Skinner, 2004). Furthermore, to determine whether impression management techniques impact performance persistence, the impression management measures interact with current ROA and the coefficient's sign of the interaction will determine the persistence of current performance (Li, 2008; 2019). A positive coefficient suggests that performance is persistent and that the narratives are informative; a negative coefficient suggests information is not persistent, and disclosures are not informative (Li, 2008; Kang, Park and Han, 2018).

### 3.3.7 Readability and Ambiguity of Annual Reports Narratives and Firm Value

This section assesses the relationship between readability and ambiguity of the narrative and the firm value, to capture the investor's valuation of the company. In accordance with previous studies (Hassanein, Zalata, and Hussainy, 2019; Ntim et al., 2012; Chin et al., 2006; Bebchuk, Cohen, and Farrell, 2009), the dependent variable used to measure firm value is the industry median adjusted Tobin's Q (TQ). The benefits of this version of firm value measurement are that it controls for industry bias and helps alleviate indigeneity issues (Bebchuk, Cohen, and Farrell, 2009; Brown and Caylor 2006). Similarly, to Hassanein, Zalata, and Hussainy (2019), the following fixed effect multivariate regression is developed:

$$TQ_{t+i} = \alpha_0 + \beta_1 X_{it} + \beta_2 ROA_{it} + \gamma Controls_{it} + \sum \beta_m Fixed Effect_m + \varepsilon_{it} \quad (3-8)$$

Where:

**TQ<sub>t+i</sub>**= A proxy for firm value using the industry median adjusted Tobin's Q ratio (IMADJTQ) (Hassanein, Zalata and Hussainey, 2018). Tobin's Q ratio is measured as the sum of total debt and market value of equity scaled by total assets. The market value of equity is measured as outstanding shares at year-end multiplied by mean of the monthly stock price. Finally, TQ<sub>t+i</sub> is measured as the subtraction of Tobin's Q from the median Tobin's Q in the firm industry in the observation year

**X<sub>it</sub>**= demonstrates one of the readability measures of annual reports narratives (Pages, Word\_Count, Fog index, RIndex, or Ambiguity)

**ROA<sub>it</sub>**= proxy for performance measured as Net income before extraordinary items scaled by total assets

**Controls:** Consist of all firm control variables used in equation 3-5

**Fixed effect:** Consists of the fixed industry and fixed year effects

By using the abovementioned models and accounting for all control variables, the next section analyses the results on the association between readability and ambiguity with firm performance. As well as, the association between readability and ambiguity with performance persistence and firm value.

## 3.4 Results

### 3.4.1 Descriptive Statistics

Table 3-1 reports the summary statistics for the sample. The mean (median) value of Ambiguity is 552 (486), which is equivalent to 1.06% (1.05%), suggesting that annual reports contain about 1% of ambiguous words. Ertugrul et al. (2017), and Loughran and McDonald (2011) found that annual reports contained 1.25% and 1.20% of ambiguous words respectively. The mean fog index is 15.66, which indicates that the narratives in annual reports are, on average, difficult to read. Comparing this with Li (2008) and Lim, Chalmers and Hanlon (2018), they found an average fog index of 19.39 and 19.46 respectively. This suggests that generally annual reports are difficult to read, and it validates Loughran and McDonald's (2014) point that annual reports are known for using common terminologies that fall under the "complex word" definition, which includes words with three syllables or more.

The descriptive statistics show that the sample may be skewed, particularly with Ambiguity, as it has a mean (median) of 552 (486), Word\_count 50789 (45859), and Size 2918.75 (455.29). Therefore, the natural logarithm is used for all empirical specifications.

**[Insert Table 3-1]**

Table 3-2 reports the correlation matrix for the variables used in the regression analysis. While examining the correlation matrix it is found that there are some highly correlated variables such as Size and Ambiguity ( $r=0.573$ ,  $p<0.01$ ) and Size and ROA ( $r=0.319$ ,  $p<0.01$ ); a highly negative correlation was found to exist between RetVol and ROA ( $r=-0.411$ ,  $p<0.01$ ), and Size and RetVol ( $r=-0.372$ ,  $p<0.01$ ). Therefore, the variance inflations factor (VIF) is used to test for possible multicollinearity. The un-tabulated VIF results range between 1.20 to 1.77 for all regressions, well below the accepted threshold of 10, indicating that multicollinearity is not a concern on all models (Kim et al., 2017). Accordingly, regression analysis proceeds in the following section with confidence.

**[Insert Table 3-2]**

## 3.4.2 Empirical Results

### 3.4.2.1 Readability and Ambiguity of Narratives in Annual Reports and Firm Performance

For hypothesis 1, Table 3-3 and 3-4 present the results of the regression estimates of the model (5) (corresponding t-value in parentheses) that link firm performance with all readability measures and ambiguity measure. Table 3-3 presents the impact of readability measures on firm performance, and Table 3-4 presents the impact of ambiguity on firm performance. The regression results include industry and year fixed effects and standard error clustered by firm and year.

The first measure of readability of an annual report is the number of pages (Pages). In Table 3-3, panel A, column (2), number of pages (Pages) is a dependent variable and ROA is negatively associated with Pages at the 1% level ( $\beta=-0.176$ ,  $t\text{-stat}=-3.46$ ). Likewise, in column (4), the analysis is repeated with Word\_Count as an alternative readability measure, and the regression results are qualitatively similar to those in columns (2). The result indicates that the coefficient on ROA is negative and statistically significant at the 1% level ( $t\text{-stat} = -5.37$ ). Column (6) shows the association between firm performance and fog index, it also produced similar results to previous readability measures. The study finds a negative relationship between the fog index and ROA significant at the 10% level ( $t\text{-stat} = -1.88$ ). Column (4) shows that the variable of interest (ROA) is negative and statistically significant at the 1% level ( $t\text{-stat} = -5.24$ ). The results are in line with the prediction made in hypothesis 1: there is an inverse association between readability measures and firm performance. According to Merkle-Davies and Bernnan (2007), this negative association can indicate that the firm is trying to obfuscate adverse information or that the deterioration in performance is due to a situation which is complex to explain.

To gauge economic significance, this paper follows Loughran and McDonald (2013), and measure the impact of the variable of interest (ROA) by multiplying the regression coefficient by the standard deviation of ROA<sup>20</sup>. It is found that one standard deviation

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<sup>20</sup> Coefficients and standard deviation is based on transformed data.

decrease in ROA increases pages, wordcount, fog index and readability index economically by 0.023 (-0.176\*0.131), 0.035 (-0.265\*0.131), 0.006 (-0.045\*0.131) and 0.083 (-0.641\*0.131), respectively. It is also found that a one standard deviation decrease in ROA increases ambiguity by 0.008 (-0.066\*0.131). The result is similar to Li (2008) who also found that the economic impact of performance on narrative's readability is significant statistically but not economically. However, Li (2008) also found that the economic significance of readability's consequences is greater than the driver of readability, in this case the driver is the firm's performance<sup>21</sup>.

To ensure robustness of the results, the regression was repeated using the readability index (RIndex) as the dependent variable. Among all dependent variables, the RIndex resulted in the highest adj-R<sup>2</sup> of (67.1%) suggesting the best fit compared to the other models in Table 3-3. Collectively, the findings in this section provide compelling evidence that there is an inverse relationship between RIndex and ROA, which suggests that financial performance reduces the textual readability of annual reports.

The inverse relationship between all readability measures and current firm performance indicates that firms with weaker performance have narratives that are difficult to read. However, the regression using model (3-5) does not differentiate between weaker and stronger performing firms. Therefore, the regressions are repeated by interacting ROA with a Loss or a Profit dummy variable. This is to check if the firm is making a loss or a profit to proxy for weaker and stronger performing firms (Shaw and Zhang, 2010). The results are presented in Panel B of Table 3-3. Column (2), (4) and (6) show the relationship of firm performance for profit-making firms and loss-making firms on the three readability measures (pages, word count and fog index). As in panel A, the results indicate that for firms making a profit, there is an inverse relationship between performance and readability<sup>22</sup>. However, there is no evidence of an association between readability and performance for loss-making firms. This indicates that for profit-making firms when their performance reduces their annual reports becomes lengthier (in terms of

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<sup>21</sup> The economic impact of readability consequences will be demonstrated through readability impact on firm value page 95.

<sup>22</sup> Except for the fog index which shows opposite results (a significant negative association between performance and the fog index for firms making a Loss and no association with performance of firms making a profit.) According to Loughran and McDonald (2014) in general business language is commonly "complex" as per the fog index's definition (three syllables or more) and is normally understood.



numbers of pages and word count), suggesting management utilise information-hoarding to obfuscate adverse news; alternatively, they may be providing incremental information (Bloomfield, 2008). It may be the case that profit-making firms care about their reputation and are therefore more willing to hide adverse news, whereas for loss-making firms the damage is already done, so there is less motivation to hide the damage.

Finally, consistent with the expected effects of control variables on narratives, the results are generally robust and stronger with the additional controls. For example, when controlling for volatility (RetVol), it is statistically significant at the 5% level or more for models (2), (4) and (8), (but not for model (6)), all of which have a positive association, suggesting that volatile firms are more likely to produce narratives that are difficult to read; this is consistent with Li's (2008, 2010) findings. There is also a positive and significant coefficient with firm Size at the 1% level in three of the four models, suggesting that larger firms are likely to have longer reports with more word counts, and a reduced readability score, due to their complex business, operations and financial activities; this is consistent with De Souza et al. (2019). Leverage is positively associated with readability measures in three of the four models, implying that firms with higher debt use a more difficult language (Bushee, Gow and Taylor, 2018).

### **[Insert Table 3-3]**

As for the association between ambiguity and firm performance, Table 3-4 presents the estimated results of the impact of ambiguous language in narrative disclosures and current firm performance. Similar to readability measures, in panel A, column (2) the result shows a statistically significant negative association between ROA and Ambiguity ( $\beta = -0.538$ ,  $t\text{-stat} = -7.00$ ). Moreover, there is an inverse relationship between performance and ambiguity for both profit-making firms and loss-making firms, shown in panel B, column (2), which is significant at the 5% and 1% level with a coefficient of -0.503 and -0.406 respectively. The results indicate that both when making a profit and incurring a loss, managers increase the use of ambiguous words when performance decreases, unlike the use of readability measures. For loss-making firms and profit-making firms when ROA decreases, even if the firm does not incur a loss, managers will most probably show their uncertainty, which explains the inverse relationship between ROA and ambiguity in both situations. This may indicate that firms would want to manage the perception of readers

by hiding their adverse performance with vague language (Ertugrul et al. 2017). The results confirm that ambiguous language is inherent in annual reports of firms regardless of weaker or stronger performance. Overall, the negative relationship between readability measures and ambiguity with current firm performance leads to the acceptance of hypothesis 1.

**[Insert Table 3-4]**

#### **3.4.2.2 Readability and Ambiguity of Narratives in Annual Reports and Performance Persistence**

In hypothesis 2, the paper investigates the association between readability and ambiguity in annual report narratives and the persistence of current performance. Similar to Li (2008) and Li (2019), the model (3-7) is used, which includes the interaction between ROA (as a measure of current performance) and each of the readability and ambiguity variables explained in Section 3.3.3 (that is, Pages, Word\_Count, Fog index, RIndex, and Ambiguity). The regression estimates include industry and year fixed effects; they are clustered by firm and year. According to Li (2008) and Li (2019), interaction between ROA and any of the readability measures indicates whether readability decreases the persistence of current performance on future performance. In order to validate that the readability measures reduce performance persistence, a significant negative coefficient of the interaction variable is expected.

Table 3-5 reports the regression of the current performance and readability measures on the readability and ambiguity variables, and their interaction with one and two-year future performances<sup>23</sup>. It is found that performance with lengthier annual reports is less persistent. In three of the eight model specifications, the interaction term is negative and is statistically significant at the 10% level or more. For instance, the interaction term coefficients of Word\_count\*ROA in columns (3) is  $-0.215$  ( $t\text{-stat}=-3.11$ ). This suggests that current performance with higher narrative word\_counts in their annual report is less persistent.

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<sup>23</sup> The results on three- and four-year future performance are not statistically significant and therefore not reported.

Similarly, the results of the interaction variable of RIndex in columns (7) is qualitatively similar to that of column (3). The findings suggest that future firm performance will become smaller as the RIndex of the annual report increases. The same regression is run on the ambiguity measure (Table 3-5, panel B). However, there is no evidence that ambiguity reduces or enhances the persistence of current performance, as the results are not significant.

Surprisingly, the study finds a positive coefficient of the interaction variable of the fog index and current performance, suggesting that the “foggier” the narratives are, the more persistent is the performance of the company. This result best describes Bloomfield’s (2008) point of view: that a deteriorating performance is complex to explain but could still be informative. However, since three of the four readability measures shows that their implication causes a current performance to become less persistent, it could be because the fog index is a poorly specified measure within the financial context (Loughran and McDonald, 2014). According to Bonsall et al. (2017), the utility of the fog index is questionable, as it categorises words with more than three syllables as complex and words in the financial context commonly contain more than three syllables, whilst still being comprehensible by less sophisticated readers (e.g. company).

According to Atwood, Drake and Myers (2010) and Hanlon (2005), higher performance persistence indicates higher firm performance quality. Therefore, since lower readability of annual reports indicates a reduction of the performance persistence, it implies that an annual report’s readability may affect the performance quality of the firm. Also, the negative association between number of pages, word count, and readability index suggests that when narratives are difficult and costly to process, the current performance will become less persistent in the future. Moreover, according to Li (2008) and Kang et al. (2018), such a negative relationship shows the management’s opportunistic behaviour to obfuscate unwanted prospects. Since three of the five readability measures shows that it lowers firms’ performance persistence, hypothesis 2 is accepted.

**[Insert Table 3-5]**

### 3.4.2.3 Readability and Ambiguity of Narratives in Annual Reports and Firm Value

Hypothesis 3 examines annual reports readability and its impact on a firm's value. To capture investor's valuation, Tobin's Q was measured at three months after the fiscal year-end to ensure that both financial and narrative information is publicly available to users (Hassanein, Zalata, and Hussainey, 2019). To ensure robustness, Tobin's Q of six and nine months after the fiscal year-end were also examined but untabulated as they produced the same results. Table 3-6, Panel A, reports the multivariate results from the fixed effect regression equation (8). Columns (1) to (8) represent the impact of all four readability measures on firm value (Pages, Word\_Count, Fog\_index, and Rindex); they are statistically significant at the 1% level ( $p < 0.01$ ). Both the coefficients of Pages (column 2) and Word\_count (column 4) result in a significantly negative impact on firm value (t-stat = -3.90, and -4.81, respectively). However, column (5) and (6) shows that the Fog\_index as a measure of readability is significantly positive at the 1% level (t-stat= 4.37, and 4.02, respectively). Similar to hypothesis 2, this could be due to the fog index being a poorly specified measure in the financial context (Loughran and McDonald, 2014; Bonsall et al., 2017). For that reason, the paper provides an explanation of the composite index: RIndex in column (7) and (8) confirms a significantly negative association between readability and firm value at 1% level (t-stat= -5.06, and -4.61, respectively). This indicates that narratives that are difficult to read have negative consequences on the firm value. In addition to readability measures, Table 3-5 panel B, reports the result of the ambiguity measure on firm value. Both column (1) and (2) are negatively significant at the 1% and 5% level (t-stat= -2.86, and -2.69) respectively. Although ambiguity failed to find evidence regarding its consequences on performance persistence, it shows negative implications on firm value.

In economic terms, it is found that a one standard deviation increase in pages, wordcount, readability index, and ambiguity decreases firm value ( $TQ_3$ ) economically by 1.612 ( $-4.392 \times 0.346$ ), 1.656 ( $-3.864 \times 0.428$ ), 4.28 ( $-1.833 \times 2.335$ ), and 0.1153 ( $0.756 \times 0.153$ ) respectively. This shows that economic impact of the consequence of readability on firm value is greater than the impact of firm performance on readability. This is inline with the argument made by Li (2008).

According to Jiraporn et al. (2008), if managers are disclosing discretionary financial information with the sole purpose of maximising shareholders wealth, then there should be a positive relationship between discretionary financial disclosure and firm value. However, an inverse relationship is an indication of management's opportunistic behaviour. Also, according to Hwang and Kim (2017) in psychology literature, it shows that difficult to read narratives reduce investors' trust in the source of information they read, which may result in a negative evaluation of the firm. Therefore, the third hypothesis is accepted as there is a negative association between readability and ambiguity measures and firm value, further indicating and validating that the use of narratives that are difficult to read and ambiguous language are due to obfuscation purposes.

**[Insert Table 3-6]**

### **3.5 Conclusion**

This paper examines the relationship between the readability and ambiguity of annual report narratives and current firm performance to detect the use of impression management strategies. Using data from the FTSE all-share non-financial firms for a period of ten years from 2006-2015, the study examines the impression management practices and their impact on current firms' performance, particularly the use of difficult language in narratives of corporate annual reports. Additionally, the study tests the consequences of narratives that are difficult to read and are ambiguous on performance persistence and firm value.

First, this study assessed the impact of readability and ambiguity measures on current firm performance and found a negative association. The findings show that there is a negative relationship between readability and ambiguity measures and firm performance, consistent with the findings of Merkle-Davies and Brennan (2007) and Bloomfield (2008). They argue that the negative relationship between narratives and firm performance can either be deliberate to obfuscate adverse information or used to provide incremental information. To establish an implication, the study examined the impact of narrative's readability and ambiguity on performance persistence and firm value.

The study finds a negative association between readability (using number of pages, word count, readability index, ambiguity and fog index) and performance persistence and firm value. The evidence indicates that narratives that are ambiguous and difficult to read represents a decrease in information quality, suggesting that managers opportunistically complicate narratives to obfuscate adverse information. This is consistent with Li (2008), who used the fog index and the number of words as readability measures and found that difficult to read narratives decreased the performance persistence of firms in the US. This study differentiates from Li (2008), as it assesses the effect of additional readability measures (number of pages, ambiguity and readability index) on performance persistence in the UK.

Moreover, consistent with Hwang and Kim (2017), this paper provides evidence that narratives with lower readability weaken investors' trust in the information disclosed, resulting in weaker firm value. The findings of this paper go beyond prior studies in several ways. Firstly, this study uses a different measure of narrative readability by including the number of pages, readability index and ambiguity as a measure of readability and opacity in annual reports. Secondly, unlike Hwang and Kim (2017) who provide experimental results on closed-end investment companies in the US, this paper conducts an empirical study on publicly listed firms in the UK. Overall, the findings suggest that difficult to read narratives in annual reports are deliberately used by managers to obfuscate adverse information from stakeholders.

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**Table 3-1** Descriptive Statistics

Variable	N	Mean	SD	Median	Q1	Q3	Min	Max
<b>Ambiguity</b>	2821	552	312	486	347	679	0	3130
<b>Word_Count</b>	3334	50789	24423	45859	34888	61580	4686	270000
<b>Pages</b>	3017	116	41	108	88	136	23	339
<b>Fog_Index</b>	3334	15.66	2.49	16.11	13.51	17.50	4.61	45.86
<b>RIndex</b>	3098	9.39	2.02	9.00	8.00	10.00	4.00	22.00
<b>ROA</b>	3333	0.03	0.16	0.05	0.02	0.09	-2.95	0.89
<b>ROA<sub>t+1</sub></b>	2896	0.03	0.16	0.05	0.02	0.09	-2.95	0.89
<b>TQ<sub>t-0</sub></b>	3267	1.33	7.82	0.02	-1.23	2.05	-5.71	343.99
<b>TQ<sub>t-3</sub></b>	3273	1.38	8.80	0.02	-1.26	2.08	-6.53	397.63
<b>MTB</b>	3277	1.78	1.09	1.49	1.10	2.11	0.20	11.92
<b>RetVol</b>	3285	11.06	8.48	9.02	6.48	12.87	0.00	237.67
<b>Liquidity</b>	3321	1.82	3.23	1.36	0.95	1.87	0.07	111.36
<b>Size</b>	3226	2918.75	9520.42	455.29	147.81	1413.66	0.35	130000
<b>Leverage</b>	3334	0.21	0.19	0.19	0.05	0.31	0.00	1.72
<b>Age</b>	3371	26.13	21.21	20.67	10.45	42.03	0.02	116.08
<b>Div_Dummy</b>	3190	0.77	0.42	1	1	1	0	1
<b>absTACC</b>	3267	0.07	0.06	0.05	0.02	0.08	0	0.32

**Ambiguity** is the total number of uncertain and weak modal words (in accordance with Loughran and McDonalds (2011) word lists). **Word Count** total number non-numerical words of narratives in corporate annual reports. **Pages** total number of pages of the corporate annual report document. **Fog Index** is Gunning fog index that measures readability of narratives in corporate annual reports calculated as  $0.4[(\text{words/sentences}) + 100(\text{complex words/words})]$ . **RIndex** is the readability index measured as the index of the combined variables of fog index, word count and pages. **ROA** is current return on assets measured as net income before extraordinary items scaled by total assets. **ROA<sub>t+1</sub>** is one-year forward return on assets. **TQ<sub>t-0</sub>** is the current industry median adjusted Tobin's Q ratio. **TQ<sub>t-3</sub>** is three-month forward industry median adjusted Tobin's Q ratio. **MTB** is the market to book ratio measured as market value of equity divided by balance sheet value of equity. **RetVol** is return volatility calculated by standard deviation of returns over the last 12 months ending three months after the fiscal year-end. **Liquidity** Current ratio measured as current assets divided by current liabilities. **Size** is the market capitalization. **Leverage** is total debt scaled by total assets. **Age** is number of years since firm started trading (base year).

**Table 3-2 Correlation Matrix**

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
<b>1. Ambiguity</b>	1.000																
<b>2. Word_count</b>	0.804* (0.000)	1.000															
<b>3.Pages</b>	0.699* (0.000)	0.892* 0.000	1.000														
<b>4. Fog_index</b>	0.004 (0.826)	-0.035* (0.042)	-0.040* (0.029)	1.000													
<b>5. Rindex</b>	0.805* (0.000)	1.000* (0.000)	0.892* (0.000)	-0.043* (0.019)	1.000												
<b>6.ROA</b>	0.017 (0.363)	0.070* (0.000)	0.075* (0.000)	-0.082* (0.000)	0.062* (0.001)	1.000											
<b>7.ROA<sub>t+1</sub></b>	0.009 (0.648)	0.061* (0.001)	0.053* (0.007)	-0.084* (0.000)	0.047* (0.016)	0.481* (0.000)	1.000										
<b>8.TQ<sub>0</sub></b>	0.005 (0.780)	-0.018 (0.297)	-0.037* (0.045)	0.051* (0.004)	-0.027 (0.148)	0.108* (0.000)	0.088* (0.000)	1.000									
<b>9.TQ<sub>3</sub></b>	-0.002 (0.9020)	-0.020 (0.243)	-0.040* (0.031)	0.050* (0.004)	-0.029 (0.120)	0.106* (0.000)	0.095* (0.000)	0.988* (0.000)	1.000								
<b>10.MTB</b>	0.034 (0.071)	-0.001 (0.945)	0.005 (0.768)	0.095* (0.000)	-0.003 (0.877)	0.362* (0.000)	0.252* (0.000)	0.153* (0.000)	0.144* (0.000)	1.000							
<b>11.RetVol</b>	-0.098* (0.000)	-0.179* (0.000)	-0.180* (0.000)	0.059* (0.001)	-0.173* (0.000)	-0.411* (0.000)	-0.297* (0.000)	-0.009 (0.572)	-0.012 (0.489)	-0.212* (0.000)	1.000						
<b>12.Liquidity</b>	-0.013 (0.501)	-0.075* (0.000)	-0.093* (0.000)	0.143* (0.000)	-0.072* (0.000)	-0.061* (0.000)	-0.139* (0.000)	-0.109* (0.000)	-0.104* (0.000)	0.105* (0.000)	0.079* (0.000)	1.000					
<b>13.Size</b>	0.573* (0.000)	0.693* (0.000)	0.643* (0.000)	-0.087* (0.000)	0.700* (0.000)	0.319* (0.000)	0.196* (0.000)	0.080* (0.000)	0.068* (0.000)	0.233* (0.000)	-0.372* (0.000)	-0.066* (0.000)	1.000				
<b>14.Leverage</b>	0.139* (0.000)	0.193* (0.000)	0.160* (0.000)	-0.160* (0.000)	0.185* (0.000)	-0.132* (0.000)	-0.028 (0.131)	0.118* (0.000)	0.101* (0.000)	-0.1067* (0.000)	0.097* (0.000)	-0.308* (0.000)	0.138* (0.000)	1.000			
<b>15.Age</b>	0.129* (0.000)	0.161* (0.000)	0.165* (0.000)	-0.224* (0.000)	0.169* (0.000)	0.086* (0.000)	0.117* (0.000)	-0.028 (0.109)	-0.024 (0.168)	-0.086* (0.000)	-0.189* (0.000)	-0.136* (0.000)	0.112* (0.000)	-0.027 (0.119)	1.000		
<b>16.absTACC</b>	-0.055* (0.004)	-0.125* (0.000)	-0.143* (0.000)	0.081* (0.000)	-0.121* (0.000)	-0.129* (0.000)	-0.071* (0.000)	-0.034 (0.051)	-0.032 (0.069)	0.075* (0.000)	0.155* (0.000)	0.020 (0.241)	-0.146* (0.000)	-0.024 (0.169)	-0.198* (0.000)	1.000	
<b>17.Div_Dummy</b>	0.082* (0.000)	0.148* (0.000)	0.175* (0.000)	-0.173* (0.000)	0.161* (0.000)	0.323* (0.000)	0.262* (0.000)	-0.021 (0.224)	-0.019 (0.263)	0.051* (0.004)	-0.276* (0.000)	-0.224* (0.000)	0.278* (0.000)	0.022 (0.210)	0.278* (0.000)	-0.135* (0.000)	1.000

**1.Ambiguity** percentage of ambiguous words measured as the frequency of uncertain words and weak modal words (in accordance with Loughran and McDonalds (2011) word lists) divided by total words count\*100. **2.Word Count** is the log of total number of non-numerical words in corporate annual reports. **3.Pages** is the log of total number of pages of the corporate annual report document. **4.Fog Index** is Gunning fog index that measures readability of narratives in corporate annual reports calculated as  $0.4[(\text{words/sentences})+100(\text{complex words/words})]$ . **5.RIndex** is the readability index measured as the index of the combined variables of fog index, word count and pages. **6.ROA** is current return on assets measured as Net income before extraordinary items scaled by total assets. **7.ROA<sub>t+1</sub>** is one-year forward return on assets. **8.TQ<sub>0</sub>** is the current industry median adjusted (IMADJ) Tobin's Q ratio. **9.TQ<sub>t,3</sub>** is three-month forward industry median adjusted (IMADJ) Tobin's Q ratio. **10.MTB** is the market to book ratio. **11.RetVol** is return volatility calculated by standard deviation of returns over the last 12 months ending three months after the fiscal year-end. **12.Liquidity** Current ratio measured as current assets divided by current liabilities. **13.Size** if the log of market capitalization. **14.Leverage** is total debt scaled by total assets. **15.Age** is the log of 1 + number of years since the company started as per DataStream (base year). **16. absTACC** Absolute value of total accruals, measured as, change in current assets – change in cash – change in current liabilities + change in short-term debt – depreciation, all scaled by total assets. **17.Div\_Dummy** is a dummy variable 1 if the firm paid dividends and 0 otherwise. All variables winsorize at the 1% level.



**Table 3-3** Readability and Firm Performance

<b>Panel A: Relationship of Readability Measures and Firm Performance</b>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Pages	Pages	Word_Count	Word_Count	Fog_index	Fog_index	Rindex	Rindex
ROA	0.330*** (5.94)	-0.176*** (-3.46)	0.388*** (6.15)	-0.265*** (-5.37)	-0.052*** (-2.61)	-0.045* (-1.88)	0.881*** (5.63)	-0.642*** (-5.24)
MTB		-0.031*** (-6.19)		-0.043*** (-8.16)		0.011*** (4.52)		-0.095*** (-7.47)
RetVol		0.002* (1.66)		0.003*** (3.85)		0.000 (-0.27)		0.009*** (4.34)
Liquidity		-0.009** (-2.33)		-0.003 (-0.82)		-0.002 (-1.25)		-0.004 (-0.43)
Size		0.120*** (40.08)		0.168*** (50.31)		-0.008*** (-4.69)		0.393*** (49.64)
Leverage		0.135*** (4.81)		0.255*** (9.16)		-0.091*** (-5.65)		0.566*** (8.32)
Age		0.028*** (3.74)		0.024*** (3.11)		-0.042*** (-10.17)		0.064*** (3.55)
Fixed Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	3082	2924	3322	3164	3322	3164	3005	2854
adj. R-sq	0.182	0.548	0.213	0.66	0.117	0.158	0.213	0.671
<b>Panel B: Readability and Firm Performance for Loss and Profit-making Firms</b>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Pages	Pages	Word_count	Word_count	Fog_index	Fog_index	Rindex	Rindex
ROA*Profit	-0.314** (-2.98)	-0.684*** (-6.26)	-0.314** (-2.56)	-0.669*** (-5.98)	0.158*** (3.90)	0.094* (1.75)	-0.842*** (-2.85)	-1.662*** (-6.31)
ROA*Loss	0.689*** (8.39)	0.041 (0.65)	0.779*** (8.38)	-0.090 (-1.42)	-0.168*** (-6.14)	-0.105*** (-3.38)	1.856*** (7.93)	-0.198 (-1.26)
MTB		-0.013* (-1.99)		-0.028*** (-4.26)		0.006* (2.06)		-0.058*** (-3.63)
RetVol		0.002** (2.12)		0.004*** (4.15)		-0.000 (-0.46)		0.010*** (4.69)
Liquidity		-0.007* (-1.92)		-0.002 (-0.48)		-0.002 (-1.53)		-0.000 (-0.03)
Size		0.120*** (40.15)		0.168*** (50.19)		-0.001*** (-4.63)		0.392*** (49.50)
Leverage		0.120*** (4.28)		0.243*** (8.76)		-0.087*** (-5.39)		0.537*** (7.95)
Age		0.028*** (3.63)		0.023*** (3.04)		-0.042*** (-10.11)		0.063*** (3.47)
Fixed Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	3082	2924	3322	3164	3322	3164	3005	2854
adj. R-sq	0.197	0.554	0.225	0.662	0.125	0.160	0.226	0.673

**Table 3-3** examines the relationship between all readability measures and firm performance using model (5). Where, **Pages** is the log of total number of pages of the corporate annual report document. **Word Count** is the log of total number of non-numerical words in corporate annual reports. **Fog Index** is Gunning fog index that measures readability of narratives in corporate annual reports calculated as  $0.4[(\text{words/sentences}) + 100(\text{complex words/words})]$ . **RIndex** is the readability index measured as the index of the combined variables of fog index, word count and pages. **ROA** is current return on assets measured as Net income before extraordinary items scaled by total assets. **ROA\*Loss** is an interaction variable of ROA and a Loss dummy variable which is 1 if ROA is negative and 0 otherwise. **ROA\* Profit** is an interaction variable of ROA and a profit dummy variable which is 1 if ROA is positive and 0 otherwise. **MTB** is the market to book ratio. **RetVol** is return volatility calculated by standard deviation of returns over the last 12 months ending three months after the fiscal year-end. **Liquidity** Current ratio measured as current assets divided by current liabilities. **Size** is the log of market capitalization. **Leverage** is total debt scaled by total assets. **Age** is the log of 1 + number of years since the firm started trading (base year). t-statistics in parentheses clustered at firm and year level.

All variables are winsorized at the 1 percent level.

\*\*\*/\*\*/\* means significance at 0.01, 0.05, and 0.10 level, respectively

**Table 3-4** Ambiguity and Firm Performance

<b>Panel A: Relationship of Ambiguity and Firm Performance</b>		
	(1)	(2)
	<b>Ambiguity</b>	<b>Ambiguity</b>
<b>ROA</b>	0.145*** (2.94)	-0.538*** (-7.00)
<b>MTB</b>		0.001 (0.73)
<b>RetVol</b>		0.009*** (4.98)
<b>Liquidity</b>		0.005 (0.71)
<b>Size</b>		0.190*** (34.36)
<b>Leverage</b>		0.252*** (5.09)
<b>Age</b>		0.044** (3.15)
<b>Fixed Year</b>	Yes	Yes
<b>Fixed Industry</b>	Yes	Yes
<b>N</b>	2295	2657
<b>adj. R-sq</b>	0.175	0.495
<b>Panel B: Ambiguity and Firm Performance for Loss and Profit-making Firms</b>		
	(1)	(2)
	<b>Ambiguity</b>	<b>Ambiguity</b>
<b>ROA*Profit</b>	0.0181 (0.10)	-0.503*** (-2.79)
<b>ROA*Loss</b>	0.535*** (4.06)	-0.406*** (-3.65)
<b>MTB</b>		-0.014 (-1.22)
<b>RetVol</b>		0.008*** (4.40)
<b>Liquidity</b>		0.010 (1.58)
<b>Size</b>		0.188*** (33.34)
<b>Leverage</b>		0.258*** (5.21)
<b>Age</b>		0.047*** (3.32)
<b>N</b>	2807	2667
<b>adj. R-sq</b>	0.195	0.491

**Table 3-4** examines the relationship between the ambiguity measure and firm performance using model (5). Where, **Ambiguity** is Ambiguous tone measured as the frequency of uncertain words and weak modal words (in accordance with Loughran and McDonalds (2011) word lists) divided by total words count. **ROA** is current return on assets measured as Net income before extraordinary items scaled by total assets. **ROA\*Loss** is an interaction variable of ROA and a Loss dummy variable which is 1 if ROA is negative and 0 otherwise. **ROA\* Profit** is an interaction variable of ROA and a profit dummy variable which is 1 if ROA is positive and 0 otherwise **MTB** is the market to book ratio. **RetVol** is return volatility calculated by standard deviation of returns over the last 12 months ending three months after the fiscal year-end. **Liquidity** Current ratio measured as current assets divided by current liabilities. **Size** if the log of market capitalization. **Leverage** is total debt scaled by total assets. **Age** is the log of 1 + number of years since the firm started trading (base year). t-statistics in parentheses clustered at firm and year level.

All variables are winsorized at the 1 percent level.

\*\*\*/\*\*/\* means significance at 0.01, 0.05, and 0.10 level, respectively

**Table 3-5 Impact of Readability and Ambiguity on Performance Persistence**

Panel A: Impact of Readability on Performance Persistence								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ROA <sub>t+1</sub>	ROA <sub>t+2</sub>	ROA <sub>t+1</sub>	ROA <sub>t+2</sub>	ROA <sub>t+1</sub>	ROA <sub>t+2</sub>	ROA <sub>t+1</sub>	ROA <sub>t+2</sub>
<b>Fog Index</b>	-0.047*** (-2.74)	-0.075*** (-3.66)						
<b>Fog*ROA</b>	0.574*** (2.60)	0.798*** (2.95)						
<b>Word_Count</b>			0.001 (0.08)	0.007 (0.63)				
<b>WC*ROA</b>			-0.215*** (-3.11)	-0.122 (-1.15)				
<b>Pages</b>					-0.009 (-0.78)	-0.006 (-0.44)		
<b>PG*ROA</b>					-0.160* (-1.84)	-0.121 (-1.04)		
<b>Rindex</b>							-0.003 (-0.65)	0.001 (0.09)
<b>RI*ROA</b>							-0.0820*** (-2.81)	-0.041 (-0.90)
<b>ROA</b>	-1.166** (-1.96)	-1.869*** (-2.60)	2.717*** (3.66)	1.649 (1.48)	1.131*** (2.80)	0.890* (1.65)	0.382*** (8.83)	0.327*** (5.55)
<b>MTB</b>	0.028*** (10.19)	0.026*** (8.96)	0.027*** (9.38)	0.025*** (7.90)	0.031*** (11.34)	0.027*** (8.77)	0.030*** (11.15)	0.026*** (8.32)
<b>RetVol</b>	-0.002*** (-3.95)	-0.002*** (-4.02)	-0.002*** (-3.62)	-0.002*** (-3.70)	-0.002*** (-3.40)	-0.002*** (-3.60)	-0.002*** (-3.17)	-0.002*** (-3.44)
<b>Size</b>	0.001 (0.73)	0.001 (0.61)	0.004* (1.89)	0.001 (0.67)	0.004** (2.01)	0.003 (1.47)	0.005** (2.36)	0.002 (0.89)
<b>Age</b>	0.003 (0.72)	0.004 (0.96)	0.005 (1.25)	0.007 (1.58)	0.006 (1.44)	0.008* (1.78)	0.006 (1.40)	0.008* (1.74)
<b>Liquidty</b>	-0.005* (-1.89)	-0.004 (-1.46)	-0.005* (-1.84)	-0.004 (-1.60)	-0.005* (-1.92)	-0.003 (-1.18)	-0.004* (-1.76)	-0.003 (-1.26)
<b>Leverage</b>	-0.010 (-0.82)	-0.008 (-0.60)	-0.008 (-0.67)	-0.006 (-0.42)	-0.009 (-0.69)	0.005 (0.35)	-0.008 (-0.62)	-0.001 (-0.08)
<b>absTACC</b>	-0.025 (-0.61)	0.065 (1.62)	-0.018 (-0.45)	0.073* (1.76)	-0.034 (-0.80)	0.081* (1.91)	-0.033 (-0.77)	0.076* (1.75)
<b>Div_Dummy</b>	0.027*** (4.32)	0.023*** (3.27)	0.026*** (4.10)	0.022*** (3.05)	0.029*** (4.43)	0.023*** (3.10)	0.027*** (4.11)	0.023*** (3.11)
<b>Fixed Year</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Fixed Industry</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>N</b>	2464	2112	2675	2287	2675	2287	2409	2066
<b>adj. R-sq</b>	0.434	0.344	0.440	0.343	0.439	0.355	0.440	0.350

Table 3-5 continued

Panel B: Impact of Ambiguity on Performance Persistence		
	(1)	(2)
	ROA <sub>t+1</sub>	ROA <sub>t+2</sub>
Ambiguity	-0.007 (-1.17)	-0.001 (-0.12)
Amb*ROA	-0.073 (-1.31)	-0.021 (-0.30)
ROA	1.087** (2.12)	0.551 (0.88)
MTB	0.029*** (10.33)	0.025*** (7.77)
RetVol	-0.002*** (-3.16)	-0.002*** (-3.31)
Size	0.004** (1.99)	0.001 (0.58)
Age	0.006 (1.22)	0.008 (1.63)
Liquidity	-0.005* (-1.73)	-0.003* (-1.17)
Leverage	-0.008 (-0.62)	-0.000 (-0.02)
absTACC	-0.017 (-0.38)	0.092** (2.02)
Div_Dummy	0.029*** (4.03)	0.024*** (2.95)
Fixed Year	Yes	Yes
Fixed Industry	Yes	Yes
N	2249	1931
adj. R-sq	0.442	0.355

Table 3-5 shows the regression results of the effect of readability (Panel A) and ambiguity (Panel B) of narratives in annual reports on performance persistence using model (7). Where, ROA<sub>t+1</sub> and ROA<sub>t+2</sub> which represent future performance of one year and two years respectively. The variables of interest are RI\*ROA, Amb.\*ROA, WC\*ROA, PG\*ROA and Fog\*ROA. RI\*ROA is the interaction variable of readability index and ROA. Amb.\*ROA is the interaction variable of ambiguity and ROA. WC\*ROA is the interaction variables of word count and ROA. PG\*ROA is the interaction variables of number of pages and ROA. Fog\*ROA is the interaction variables of number of fog index and ROA. Ambiguity Ambiguous tone measured as the frequency of uncertain words and weak modal words (in accordance with Loughran and McDonalds (2011) word lists) divided by total words count. Fog Index is Gunning fog index that measures readability of narratives in corporate annual reports calculated as 0.4[(words/sentences)+100(complex words/words)]. Word Count is the log of total number of non-numerical words in corporate annual reports. Pages is the log of total number of pages of the corporate annual report document. RI is the readability index measured as the index of the combined variables of fog index, word count and pages. ROA is current return on assets measured as Net income before extraordinary items scaled by total assets. MTB is the market to book ratio. RetVol is return volatility calculated by standard deviation of returns over the last 12 months ending three months after the fiscal year-end. Liquidity Current ratio measured as current assets divided by current liabilities. Size if the log of market capitalization. Leverage is total debt scaled by total assets. Age is the log of 1 + number of years since the firm started trading (base year) absTACC Absolute value of total accruals, measured as, change in current assets – change in cash – change in current liabilities + change in short-term debt – depreciation, all scaled by total assets. Div\_Dummy is a Dummy variable that equals to 1 if the firm paid dividends and 0 otherwise. t-statistics in parentheses clustered at firm and year level.

All variables are winsorized at the 1 percent level.

\*\*\*/\*\*/\* means significance at 0.01, 0.05, and 0.10 level, respectively

**Table 3-6** The Impact of Readability and Ambiguity on Firm Value

Panel A: The Impact of Readability on Firm Value								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	TQ <sub>0</sub>	TQ <sub>3</sub>	TQ <sub>0</sub>	TQ <sub>3</sub>	TQ <sub>0</sub>	TQ <sub>3</sub>	TQ <sub>0</sub>	TQ <sub>3</sub>
Pages	-4.392*** (-4.29)	-4.655*** (-3.90)						
Word_count			-3.727*** (-5.31)	-3.864*** (-4.81)				
Fog_index					4.470*** (4.41)	4.598*** (4.04)		
Rindex							-1.753*** (-5.06)	-1.833*** (-4.61)
ROA	8.173* (1.93)	9.405* (1.95)	7.543* (1.86)	8.768* (1.90)	8.947** (2.08)	10.220** (2.09)	7.849* (1.82)	9.043* (1.84)
Ret_Vol	0.052 (0.6)	0.055 (0.55)	0.054 (0.64)	0.058 (0.59)	0.043 (0.52)	0.047 (0.49)	0.059 (0.66)	0.063 (0.61)
Liquidity	-0.573** (-2.41)	-0.657** (-2.33)	-0.538** (-2.48)	-0.613** (-2.39)	-0.512** (-2.40)	-0.587** (-2.33)	-0.554** (-2.37)	-0.637** (-2.30)
Size	0.570*** (5.01)	0.551*** (4.39)	0.697*** (6.07)	0.675*** (5.46)	0.117 (0.66)	0.074 (0.36)	0.713*** (5.63)	0.694*** (5.06)
Leverage	4.66*** (5.9)	4.381*** (5.19)	5.255*** (7.15)	4.968*** (6.38)	4.715*** (5.99)	4.404*** (5.22)	4.937*** (6.44)	4.634*** (5.70)
Age	0.07 (0.28)	0.109 (0.39)	-0.035 (-0.17)	-0.014 (-0.06)	0.045 (0.20)	0.068 (0.27)	0.061 (0.24)	0.099 (0.35)
Fixed year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2955	2955	3196	3196	3196	3196	2885	2885
adj. R-sq	0.073	0.066	0.072	0.064	0.064	0.057	0.073	0.066

Panel B: The Impact of Ambiguity on Firm Value		
	(1)	(2)
	TQ <sub>0</sub>	TQ <sub>3</sub>
Ambiguity	-0.746*** (-2.83)	-0.756*** (-2.69)
ROA	9.170* (1.91)	10.470* (1.92)
RetVol	0.053 (0.55)	0.058 (0.52)
Size	0.170 (0.80)	0.117 (0.48)
Age	0.027 (0.09)	0.077 (0.24)
Liquidity	-0.562** (-2.24)	-0.651** (-2.19)
Leverage	3.905*** (4.55)	3.582*** (3.92)
Fixed year	Yes	Yes
Fixed Industry	Yes	Yes
N	2697	2697
adj. R-sq	0.061	0.056

**Table 3-6** examines the relationship between readability (Panel A) and ambiguity (Panel B) on firm value using model (8). Where, **TQ<sub>0</sub>** A proxy for current firm value using the industry median adjusted Tobin's Q ratio (Hassanein, Zalata and Hussainey, 2018). Tobin's Q ratio is measured the sum of total debt and market value of equity scaled by total assets. Market value of equity is measured as outstanding shares at year end multiplied by mean of monthly stock price. Finally, **TQ** is measured as the subtraction of Tobin's Q from the median Tobin's Q in the firm industry in the observation year. **TQ<sub>3</sub>** Three-month forward Tobin's Q. Follows the same measurement of TQ<sub>t-0</sub> except for the measurement of market value. As it is measured as the multiplication of outstanding shares at year end by the monthly stock price 3 months after annual report date. **Ambiguity** Ambiguous tone measured as the frequency of uncertain words and weak modal words (in accordance with Loughran and McDonalds (2011) word lists) divided by total words count. **Fog Index** is Gunning fog index that measures readability of narratives in corporate annual reports calculated as  $0.4[(\text{words/sentences})+100(\text{complex words/words})]$ . **Word Count** is the log of total number of non-numerical words in corporate annual reports. **Pages** is the log of total number of pages of the corporate annual report document. **RI** is the readability index measured as the index of the combined variables of fog index, word count and pages. **ROA** is current return on assets measured as Net income before extraordinary items scaled by total assets. **MTB** is the market to book ratio. **RetVol** is return volatility calculated by standard deviation of returns over the last 12 months ending three months after the fiscal year-end. **Liquidity** Current ratio measured as current assets divided by current liabilities. **Size** if the log of market capitalization. **Leverage** is total debt scaled by total assets. **Age** is the log of 1 + number of years since the firm started trading (base year). t-statistics in parentheses clustered at firm and year level.

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All variables are winsorized at the 1 percent level.  
\*\*\*/\*\*/\* means significance at 0.01, 0.05, and 0.10 level, respectively

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## Appendix A List of Variables

Table A-1 Variable Definitions

<b>Narrative Measurement Variables</b>	
<b>Ambiguity</b>	Percentage of ambiguous words measured as the frequency of uncertain words and weak modal words (in accordance with Loughran and McDonalds (2011) word lists) divided by total words count*100.
<b>Fog index</b>	Gunning fog index measuring readability of narratives in corporate annual reports calculated as $0.4[(\text{words/sentences})+100(\text{complex words/words})]$ .
<b>Pages</b>	Log of total number of pages of the corporate annual report document.
<b>Word_Count</b>	Log of total non-numerical word count of narratives in corporate annual reports.
<b>RIndex</b>	Readability index measured as the index of the combined variables of fog index, word count and pages.
<b>Variables of Interest</b>	
<b>ROA</b>	Return on assets measured as Net income before extraordinary items scaled by total assets.
<b>ROA<sub>t+1</sub></b>	One year forward return on assets.
<b>TQ<sub>t-0</sub></b>	A proxy for current firm value using the industry median adjusted Tobin's Q ratio (Hassanein, Zalata and Hussainey, 2018). Tobin's Q ratio is measured the sum of total debt and market value of equity scaled by total assets. Market value of equity is measured as outstanding shares at year end multiplied by mean of monthly stock price. Finally, TQ is measured as the subtraction of Tobin's Q from the median Tobin's Q in the firm industry in the observation year.
<b>TQ<sub>t-3</sub></b>	Three-month forward Tobin's Q. Follows the same measurement of TQ <sub>t-0</sub> except for the measurement of market value. As it is measured as the multiplication of outstanding shares at year end by the monthly stock price 3 months after annual report date.
<b>LOSS</b>	Dummy variable 1 if ROA is negative and 0 otherwise.
<b>Control Variables</b>	
<b>MTB</b>	Market to book ratio, measured as market value of equity divided by balance sheet value of equity.
<b>RetVol</b>	return volatility calculated by standard deviation of returns over the last 12 months ending three months after the fiscal year-end
<b>Liquidity</b>	Current ratio measured as current assets divided by current liabilities.
<b>Age</b>	Log of 1 + the number of years since the firm started trading (base year).
<b>Leverage</b>	Total debt scaled by total assets
<b>Size</b>	Log of market capitalization
<b>Abs_TACC</b>	Absolute value of total accruals, measured as, change in current assets – change in cash – change in current liabilities + change in short-term debt – depreciation, all scaled by total assets.
<b>Div_Dummy</b>	Dummy variable that equals to 1 if the firm paid dividends and 0 otherwise.

## Appendix B The Construction of the Readability Index

**Table A-2** Readability Index Decile Measurement

<b>Pages</b>		<b>Fog_index</b>		<b>Word_count</b>	
Decile rank	score	Decile rank	score	Decile rank	score
35	1	5	1	27000	1
70	2	10	2	54000	2
105	3	15	3	81000	3
140	4	20	4	108000	4
175	5	25	5	135000	5
210	6	30	6	162000	6
245	7	35	7	189000	7
280	8	40	8	216000	8
315	9	45	9	243000	9
350	10	50	10	270000	10

Table A-2 shows the construction of the readability index, which is created as a composite index to aggregate the three readability proxies (Pages, Fog\_index and Word\_count). I have created a decile rank based on the minimum and maximum measure for Pages, Fog\_index and Word\_count to create a decile rank increment of 35, 5, and 27000, respectively. Each firm in the sample will get a score for each readability variable, which will then be added together to create the readability index.

For example, a firm that has a number of pages between 1-35 will get a score of 1 for pages, if they get a fog\_index between 10-14, they will get a score of 2 for the fog\_index, and if their annual reports consist of a word count between 81000 and 107999 they will get a score of 3. Their total score for the holistic readability index will be 6.



## Appendix C Uncertainty and Weak modal word list by Loughran and McDonald (2011)

Abeyance	Arbitrariness	Crossroads
Abeyances	Arbitrary	Depend
Almost	Assume	Depended
Alteration	Assumed	Dependence
Alterations	Assumes	Dependencies
Ambiguities	Assuming	Dependency
Ambiguity	Assumption	Dependent
Ambiguous	Assumptions	Depending
Anomalies	Believe	Depends
Anomalous	Believed	Destabilising
Anomalously	Believes	Deviate
Anomaly	Believing	Deviated
Anticipate	Cautious	Deviates
Anticipated	Cautiously	Deviating
Anticipates	Cautiousness	Deviation
Anticipating	Clarification	Deviations
Anticipation	Clarifications	Differ
Anticipations	Conceivable	Differed
Apparent	Conceivably	Differing
Apparently	Conditional	Differs
Appear	Conditionally	Doubt
Appeared	Confuses	Doubted
Appearing	Confusing	Doubtful
Appears	Confusingly	Doubts
Approximate	Confusion	Exposure
Approximated	Contingencies	Exposures
Approximately	Contingency	Fluctuate
Approximates	Contingent	Fluctuated
Approximating	Contingently	Fluctuates
Approximation	Contingents	Fluctuating
Approximations	Could	Fluctuation
Arbitrarily	Crossroad	Fluctuations

Hidden	Precautions	Reassessing
Hinges	Predict	Reassessment
Imprecise	Predictability	Reassessments
Imprecision	Predicted	Recalculate
Imprecisions	Predicting	Recalculated
Improbability	Prediction	Recalculates
Improbable	Predictions	Recalculating
Incompleteness	Predictive	Recalculation
Indefinite	Predictor	Recalculations
Indefinitely	Predictors	Reconsider
Indefiniteness	Predicts	Reconsidered
Indeterminable	Preliminarily	Reconsidering
Indeterminate	Preliminary	Reconsiders
Inexact	Presumably	Reexamination
Inexactness	Presume	Reexamine
Instabilities	Presumed	Reexamining
Instability	Presumes	Reinterpret
Intangible	Presuming	Reinterpretation
Intangibles	Presumption	Reinterpretations
Likelihood	Presumptions	Reinterpreted
May	Probabilistic	Reinterpreting
Maybe	Probabilities	Reinterprets
Might	Probability	Revise
Nearly	Probable	Revised
Nonassessable	Probably	Risk
Occasionally	Random	Risked
Ordinarily	Randomise	Riskier
Pending	Randomised	Riskiest
Perhaps	Randomises	Riskiness
Possibilities	Randomising	Risking
Possibility	Randomly	Risks
Possible	Randomness	Risky
Possibly	Reassess	Roughly
Precaution	Reassessed	Rumours
Precautionary	Reassesses	Seems

Seldom	Undesignated	Unusually
Seldomly	Undetectable	Unwritten
Sometime	Undeterminable	Vagaries
Sometimes	Undetermined	Vague
Somewhat	Undocumented	Vaguely
Somewhere	Unexpected	Vagueness
Speculate	Unexpectedly	Vaguenesses
Speculated	Unfamiliar	Vaguer
Speculates	Unfamiliarity	Vaguest
Speculating	Unforecasted	Variability
Speculation	Unforseen	Variable
Speculations	Unguaranteed	Variables
Speculative	Unhedged	Variably
Speculatively	Unidentifiable	Variance
Sporadic	Unidentified	Variances
Sporadically	Unknown	Variant
Sudden	Unknowns	Variants
Suddenly	Unobservable	Variation
Suggest	Unplanned	Variations
Suggested	Unpredictability	Varied
Suggesting	Unpredictable	Varies
Suggests	Unpredictably	Vary
Susceptibility	Unpredicted	Varying
Tending	Unproved	Volatile
Tentative	Unproven	Volatilities
Tentatively	Unquantifiable	Volatility
Turbulence	Unquantified	Destabilizing
Uncertain	Unreconciled	Randomize
Uncertainly	Unseasonable	Randomized
Uncertainties	Unseasonably	Randomizes
Uncertainty	Unsettled	Randomizing
Unclear	Unspecific	Rumors
Unconfirmed	Unspecified	
Undecided	Untested	
Undefined	Unusual	

## **Chapter 4 — The Impact of Earnings Management on the Tone of Narratives in Corporate Annual Reports**

### **Abstract**

This paper examines the impact of real and accrual-based earnings management practices on the tone of narratives in corporate annual reports. It utilises the fraud triangle by considering: (i) earnings management as the opportunity; (ii) tone of narratives as the attitude; (iii) and two strategic events as the incentives (meeting or beating the prior year's earnings and leverage increase). There are three main findings in this research. First, the study finds that there is a direct relationship between positive tone and accrual-based earnings management. Secondly, managers drive the tone of narratives in line with their real activities-based earnings management practices when they are meeting or beating the prior year's earnings. Finally, it finds that managers drive the tone of narratives in line with their income-decreasing accrual-based earnings management when leverage increases. The overall implication of the study is that, regardless of whether the management's discretionary practices are beneficial or harmful to stakeholders, the tone of narratives is biased towards their earnings management practices; whether they manage earnings downwards or upwards depends on the strategic situation they are in (meeting or beating prior year's earnings or the increase in leverage).

**Keywords:** *Corporate annual reports; tone; narratives; earnings management; accruals, real activities; meet or beat earnings; leverage*

## 4.1 Introduction

Quantitative information alone in corporate annual reports limits the ability of investors and other stakeholders to fully understand a firm's economic circumstances, future performance and overall plans. Narrative and contextual information “offer a mechanism to support the creation of a more commercially attractive and differentiated picture of the business which can lead to better investor understanding and improved stakeholder relationships.” (PricewaterhouseCoopers, 2007, p.4).

Firms use corporate narratives to “tell a story” about their performance (Sedor, 2002). As the Financial Reporting Council (2015) points out, narratives in annual reports (i) provide explanations of the financial statements to meet the needs of shareholders, (ii) motivate firms to be more innovative in drafting their reports, and (iii) stimulate increased vividness in the annual report. Accordingly, to satisfy investors needs and deliver information required by other stakeholders, the narrative content of annual reports has increased significantly over time (Francis, Schipper, and Vincent 2002; Landsman and Maydew, 2002; Brown and Tucker, 2011). In related literature, researchers argue that the tone of narratives (which is referred to as the careful use of rhetorical writings imbued into a narrative with the intention to achieve desired outcome(s)) may aid the dissemination of value-relevant corporate information (Yekini, Wisniewski and Millo, 2016; Bhardwaj and Imam, 2019). Since not all annual report narratives are audited (Athanasakou and Hussainey, 2014), they are not wholly subject to explicit disclosure rules (e.g., Financial Reporting Council, 2018) and hence managers have wide latitude in communicating firm performance to stakeholders.

In psychology literature, academics argue that the context equivalent options presented to individuals will affect their perception and change their attitude toward the options (Ajzen and Fishbein, 2000, Crano and Prislin, 2006). The key insight from their work is that the tone of narratives can be used to communicate value-relevant information or conceal outcomes to outwit the users of corporate information. Consistent with this view, Li (2010) documents a relationship between tone and current and future earnings, suggesting narratives in corporate annual reports are generally informative. Additionally, Davis and Tama-Sweet (2012) find that managers use net optimistic language to signal their expectations about the firm's future performance.

Conversely, existing literature finds that managers may intentionally twist information to strategically influence perceptions (Henry, 2008; Huang, Teoh, and Zhang, 2014). For instance, Huang, Teoh, and Zhang (2014) show that abnormal tone is positively related to strategic settings, indicating that management intentionally influence the tone of narratives to mislead stakeholders.<sup>24</sup> Enron serves as a good example to best explain this strategic manipulation of information using an optimistic tone: an excerpt from Enron's letter to shareholders in their annual report for the year 2000 prior to their collapse shows they use an optimistic tone by emphasising positive words (good news) as a strategic technique to conceal their actual financial status.

“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.” Jack et al (2013, p.111).

Enron utilised earnings management opportunistically (Jiraporn et al., 2008). Jack et al. (2013) highlight that managers manipulate the perceptions of shareholders using an optimistic tone, instead of providing them with useful value-relevant information, especially when they are aware of their own financial difficulties.

Given this mixed evidence, it is important to investigate whether the tone of narratives in corporate annual reports is associated with the management's choice of discretionary earnings. Thus, the study analyses how positive/negative tone in corporate disclosures is linked to income-increasing or income-decreasing accruals-based earnings management (AEM) and real activities-based earnings management (REM) practices.

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<sup>24</sup> Abnormal tone also known as tone management can be defined as “The choice of the tone level in qualitative texts that is incommensurate with concurrent quantitative information” (Huang, Teoh and Zhang, 2014, p.1083).

The motivation for this study is twofold. Firstly, since corporate annual reports consist largely of textual information, Beyer et al. (2010) suggest that examining the non-quantitative sections of corporate disclosures will likely increase our understanding of the linguistic choices of narrative disclosures and the resulting economic consequences. Secondly, the UK Financial Reporting Council's (2018) 'Guidance on the Strategic Report' requires that corporate disclosures be structured in a way which enhances the succinctness and clarity of information disclosed to provide stakeholders with a complete picture of the firm's economic circumstances. Since the tone in qualitative disclosures can influence information about firm fundamentals (Li, 2010; Huang, Teoh and Zhang, 2014), it should aid understanding as to whether the tone of corporate narratives can be a tool for managers to increase the understanding of the firm's economic circumstances, or whether it obscures information in line with earnings management practices.

Earnings management may occur when managers use discretion in reporting choices to influence economic events (Walker, 2003). As such, researchers argue that it can add to the information value of earnings by communicating private information to stakeholders (Demski, 1998; Arya, Glover and Sunder, 2003). Jiraporn et al. (2008) provide evidence that links higher earnings management to lower agency costs and suggest that earnings management is not detrimental. However, other studies argue that earnings management practices can adversely impact firms in the form of restatements, litigations, enforcement actions, and can even lead to the dismissals of executives (Kim, Kim and Zhou, 2017). Dechow and Sloan (1991) found that CEOs tend to lower research and development expenditure in their final year of employment, perhaps with the intention of increasing reported earnings. In such circumstances, managers can manipulate the narrative tone to conceal their behaviour. Hence, in firms where earnings management takes place, whether managers use tone to improve value-relevance or to conceal firm fundamentals is essentially an empirical question. Specifically, this paper examines whether AEM and REM drive the tone of corporate annual report narratives. Robust evidence of the effect on tone will be highly valuable to regulators in understanding the effectiveness of regulation, and to investors to accurately assess firm fundamentals.

The paper's primary analysis focuses on a sample of 445 publicly listed firms in the UK, which are constituents of the FTSE All-share, for the period 2006 to 2015. The UK setting

is important for three reasons. First, while most empirical studies focus on the US context (e.g., Li, 2010; Huang, Teoh and Zhang, 2014; Hope and Wang, 2018), this paper examines annual reports of UK listed firms. As a result of localised differences in regulatory disclosures as well as regulatory environments that are specific to different countries, results of US studies may not necessarily be transferable to the UK environment, as dissimilarity may arise under principles and rules-based standards (Nelson, 2003). Second, Davies (2007) points out that fraud is narrowly defined in the UK in comparison to the US, while Ferran (2009) notes that the UK laws against financial misstatement and accounting irregularities do not sufficiently deter, as compared to the US, who have greater stringency in enforcing and monitoring. Hence, the low litigation environment for UK firms (Schleicher and Walker, 2010) may motivate managers to manipulate the tone of annual report narratives. Third, the World Bank (2018) rated the UK market as among the top global capital markets. Since earnings management can be an issue in the quality of annual reports (Kim, Kim and Zhou, 2017), investigating whether managers use the tone of words to obscure or improve understanding of a firm's economic importance in the UK context warrants more attention. The study thus provides wider empirical evidence of the link between earnings management and narrative tone in corporate annual reports.

The results of this study offer robust evidence of the effects of earnings management on tone. First, we found that AEM is positively associated with tone. Further, to identify whether firms engaged in upward earnings management, the study tested the relationship between tone and occurrences of firms meeting or beating the prior year's earnings. The paper finds that tone is higher for firms that met or just beat the prior year's earnings, indicating that earnings management is a determinant of the tone of narratives in corporate annual reports. The results also suggest that income-increasing earnings management will lead to the usage of more positive and less negative words.

Next, we examined whether firms which meet or beat the prior year's earnings and practiced income-increasing earnings management had a positive relationship with tone. The empirical evidence showed that managers that engaged in upwards REM to meet or the beat prior year's earnings used a more positive tone, suggesting that managers tend to strategically influence the tone of narratives in line with their REM practices, but not



AEM. This is consistent with Graham, Harvey and Rajgopal's (2005) anecdotal evidence. They surveyed and interviewed over 400 managers and found that firms were likely to use REM to meet or beat earnings targets.

Finally, the paper examined the usage of earnings management when the firm's leverage increased. Unlike the meet or beat earnings incentive, positive tone was negatively associated with income-decreasing AEM and leverage-increase. The finding indicates that managers will strategically tend to drive the tone of narratives in agreement with their AEM behaviour when leverage increases. In conclusion, the study shows that earnings management practices drive the tone of narratives depending on the intention of management: either income-increasing earnings management drive the tone of narratives to sound optimistic (positive), or income-decreasing earnings management drive the tone of narratives to sound pessimistic (negative).

The study makes three important contributions to the literature in accounting and finance. Firstly, this is the first study that examines the link between REM and the tone of narratives.<sup>25</sup> Secondly, the paper expands on current understanding of the determinants of the tone of corporate report narratives. Li (2010) documents that firm performance is one of the determinants of the tone of forward-looking statements. The paper adds to Li's (2010) list of tone determinants by providing evidence that AEM is positively associated with the tone of narratives and suggests that it carries informational content of manager's textual disclosure choices. Lastly, the paper contributes to the studies that investigate the role of earnings management in the informativeness of annual report textual disclosures. Prior studies examine the link between earnings management and narratives using readability (Lo, Ramos and Rogo, 2017), grammatical structure of languages (Kim, Kim and Zhou, 2017), and abnormal tone (Huang, Teoh and Zhang, 2014). This paper differs substantially from these studies for the following reasons: (a) it uses actual tone (net of positive and negative words) which differentiate from abnormal tone; (b) in addition to the meeting or beating the prior year earnings as the incentive to manage earnings that is employed in prior research (Huang, Teoh and Zhang, 2014; Lo, Ramos and Rogo, 2017),

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<sup>25</sup> It is worth noting that Lo, Ramos and Rogo (2017) examine the effects of AEM and REM on readability, while this study focuses on the effects on the tone of narratives. Also, Itridis (2016) only focused on the direct relationship between AEM and pessimistic (negative) tone.

this study examines the use of earnings management when leverage increases, as it is considered an incentive for managers to either engage in income-increasing or income-decreasing earnings management; (c) we use the full annual report document compared to the use of management discussion and analysis (MD&A) (Lo, Ramos and Rogo, 2017). As Grimmer and Stewart (2013), and Yekini, Wisniewski and Millo (2016) point out, the content analysis of lengthier documents is more reliable because it is easier to identify the linguistic style as compared to shorter sections of annual reports.

The rest of the paper is organised as follows. Section 4.2 provides the literature review and hypothesis development. Section 4.3 discusses the research design, while section 4.4 presents the results and discussion. Section 4.5 concludes.

## **4.2 Literature Review and Hypothesis Development**

In this section, the paper will review existing literature on the tone of narratives in annual reports and literature on AEM and REM. The section will also shed light on the limited literature that touches on the association between earnings management and narratives in corporate disclosures. Based on the literature, an argument is developed to generate hypotheses to be tested in this study.

### **4.2.1 Tone of Narratives**

Narratives in the business field are researched among various strands. There are studies that focus on media news (Tetlock, 2007; Tetlock, Saar-Tsechansky and Macskassy, 2008), corporate annual reports (Li, 2010; Loughran and McDonald, 2011; 2013), earnings press releases (Davis and Tama-Sweet, 2012; Baginski et al., 2011; Huang, Teoh and Zhang, 2014), as well as conference calls (Hobson, Mayew and Venkatachalam, 2012; Larcker, Zakolyukina, 2012; Hope and Wang, 2018).

According to Sedor (2002), firms use the narratives in corporate annual reports to tell a story and send a message to users, in order to offer explanations of their outlook and performance. Recently, the narratives and the understanding of what narratives are portraying has gained significant attention. As suggested by Beyer et al. (2010), non-quantitative sections of corporate annual reports will improve the reader's comprehension of why managers make certain disclosures and the reason behind the resultant economic

consequences. One way to measure the understanding of narratives is through the tone (Henry, 2008; Li, 2010; Loughran and McDonald, 2011; Rogers, Buskirk, and Zechman, 2011; Huang, Teoh and Zhang, 2014).

Rogers, Buskirk and Zechman (2011, p.2161) consider that tone “is influenced by the choice of which outcomes to emphasise, as well as the manner in which management describes these outcomes.” Henry (2008) defines the tone of narratives as the “effect of communication”. Davis, Piger, and Sedor (2005) define the tone of positive narratives by the way it is measured, which is the “sum of words from praise, satisfaction and inspiration categories”. Generally speaking, narrative tone is measured using the frequency of optimistic and pessimistic words, which influence the overall narrative tone (Short and Palmer, 2008). Based on these definitions, this study defines tone as the effect that the narrative communication has on the reader’s positive and negative emotions. This is measured as the net positive and negative words used in the narratives of corporate annual reports. As Huang et al. (2014) suggest “it’s not what you say, it’s how you say it”.

Empirically, Davis and Tama-Sweet, (2012) found that an increase in positive tone in the earnings press release was positively related to the stock price. Li (2010) examined the relationship between the tone of forward-looking sentences within the narratives of management discussion and analysis sections and other financial content in the annual report. He established the tone of narratives by counting the frequency of positive and negative words, finding a significant association with accruals, firm size, growth, age, returns and earnings volatility, readability and complexity of operations, suggesting that narratives are written in line with the corporation’s status, and their listed financial characteristics determine the tone of narratives in the annual report.

Similarly, there are studies conducted in the UK (Abrahamson and Amir, 1996; Clatworthy and Jones, 2003; Schleicher and Walker, 2010; Yekini, Wisniewski and Millo, 2018). For example, Clatworthy and Jones (2003)’s UK study found that the chairman’s statement mainly focuses on the positive aspects of the firm performance and blames the negative aspects on the external environment. Abrahamson and Amir (1996) found that the negative tone of the chairman’s letter is inversely related to the performance measures. Yekini, Wisniewski and Millo (2018) examined the frequency of

positive tone in corporate annual reports in the UK and how the market reacted to these narratives. Using an event study methodology, they found that the positivity of the narratives in corporate annual reports were significantly associated with abnormal returns. This suggested that a positive tone increases the market stock price. They also suggest, like Li (2010), that the tone of narratives in the financial context is considered as a channel to announce price-sensitive information.

However, not all studies conclude that the use of narratives in corporate annual reports is an informative tool for investors; the considerable flexibility inherent in narrative reporting can create an agency problem and lead to bias in narrative disclosures. Clatworthy and Jones (2003) found that managers use the tone of narratives in annual reports in a self-serving manner: firms with both bad news and good news (measured as firm's performance) portrayed their narratives optimistically. Similarly, Schleicher and Walker (2010) and Schleicher (2012) found that firms biased the tone of narratives upwards in the outlook section of annual reports when their performance declined.

Huang, Teoh and Zhang (2014) also rely on earnings management methods to measure "abnormal tone".<sup>26</sup> Abnormal tone, also referred to as "tone management", can be defined as "the choice of the tone level in qualitative texts that is incommensurate with concurrent quantitative information" (Huang, Teoh and Zhang, 2014, p.1083). They measured abnormal tone using Li's (2010) forward-looking statement model, which captures determinants of tone such as, firm characteristics, performance, risk and complexity measures. They found that abnormal tone is associated with hyping the perception of investors for specific strategic events. For instance, meeting or beating thresholds, future earnings restatements, secondary equity offers and mergers and acquisitions. Their findings indicate that managers manipulate the tone of narratives intending to mislead investors about the firm's prospects. In addition, Hope and Wang (2018) found that

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<sup>26</sup> They create a model similar to the methodological system of abnormal accruals developed by Jones (1991).

managers may employ deceptive language in their earnings conference calls after they engage in manipulative activity that results in a big bath.<sup>27</sup>

#### **4.2.2 Earnings Management**

Before the rise of research examining the role and impact of narratives, studies were more inclined to investigate the manipulation of financials through earnings management. Healy and Wahlen (1999, p.368) define earnings management as “when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on the reported accounting numbers”.

This definition mainly focuses on contractual incentives for earnings management and generalises the idea that earnings management is practiced opportunistically to mislead stakeholders. Walker (2013, p.446) provided further emphasis due to the lack of a comprehensive definition, and defines it as “the use of managerial discretion over (within GAAP) accounting choices, earnings reporting choices, and real economic decisions to influence how underlying economic events are reflected in one or more measures of earnings”. This definition does not assume that all earnings management misleads investors, and it also recognises the different mechanisms of earnings management, as it suggests that discretion can be practised on accounting choices, reporting choices or real economic decisions.

Burgstahler and Eames (2006), in agreement with Walker (2006), suggest that earnings can be managed to become less informative and conceal privately held information to mislead stakeholders, or be more informative to signal privately held information. Adu, Holder, and Robin (2013) believe that managers use accruals to signal private information to investors, effectively satisfying the objective of financial reports, which is to provide useful information to investors and stakeholders.

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<sup>27</sup> Big bath in accounting is an income-decreasing discretionary accruals technique or large write-offs so that future results can look better (Walsh, Craig and Clarke, 1991).

Jiraporn et al. (2008) applied the agency theory to examine whether earnings management can be opportunistic (to take advantage of privately held information and mislead investors) or beneficial (to signal private information to investors to reduce asymmetry). They find that there is a negative relationship between earnings management and agency cost, suggesting that, on average, earnings management is beneficial, in that it signals private information to stakeholders. In addition, Arya, Glover and Sunder (2003) suggest that for a decentralised organisation, information is spread among people, and no one person knows everything. In such a case, it is believed that managed earnings convey more information than unmanaged earnings. Conversely, Healy and Wahlen (1999) believe earnings management is used to mislead stakeholders, which can weaken the value-relevance of accounting information, where its association with share price is impaired by earnings management (Marquardt and Wiedman, 2004).

Walker (2013) identifies a type of earnings management other than the flexibility of accounting choices, which he calls “real economic decisions” (also known as REM). Roychowdhury (2006, p.337) defines REM as “departures from normal operational practices, motivated by managers’ desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations”. According to Cohen, Dey and Lys (2008) REM has increased since the Sarbanes-Oxley Act: managers substituted their accruals earning management practices for real activities, due to the higher scrutiny from auditors. However, Gunny (2005) identified that engagement in REM has an undesirable effect on future performance. He also found that financial analysts can identify REM’s future implications, whereas, investors are not able to recognise it, which indicates that REM is not as detectable as AEM.

In more recent studies, researchers usually examine both types of earnings management (AEM and REM), mainly classifying whether there is a trade-off between the two or if they are complimenting each other. For example, Cohen and Zarwin (2010) found that firms use both AEM and REM to manipulate earnings during seasoned equity offering, switching between the two depending on the cost of employing one or the other. Specifically, they found that firms have traded-off AEM for REM after the enrolment of the Sarbanes-Oxley Act, which made AEM costlier to utilise. Similarly, Zang (2011)

found that managers moved between AEM and REM depending on their cost; the level of AEM was adjusted after the degree of REM's usage was realised. Finally, Enomoto, Kimura and Yamaguchi (2015) examined the trade-off between AEM and REM globally. They find that countries with strong investor protection are inclined to use REM rather than AEM; however, the degree of analyst following typically restricted engagement in REM.

### **4.2.3 Hypothesis Development**

#### **4.2.3.1 Tone and earnings management**

Walker (2013) defines earnings management as “the use of managerial discretion over (within GAAP) accounting choices, earnings reporting choices, and real economic decisions to influence how underlying economic events are reflected in one or more measures of earnings” (Walker, 2003, p.446). His definition is deliberately broad to show that not all earnings management is bad or used to mislead investors. For example, due to fraudulent corporate events like Enron and Worldcom, some researchers argue that earnings management is opportunistic and used to fulfil a specific incentive, such as to meet or beat benchmarks and management compensation (Jiraporn et al. 2008; Brown et al., 2015; Chan et al., 2015). As Athanasakou, Strong, and Walker (2009) show, to meet analyst's forecasts, managers tend to manage earnings through classification shifting and AEM to avoid severe market reactions to negative surprises. Brown et al. (2015) provide evidence that managers manage earnings through AEM and REM when they are at the borderline of their credit rating.

In contrast, prior literature also demonstrates that earnings management is beneficial and enhances the informativeness of earnings, rather than distorting its quality (Adut, Holder and Robin, 2013; Jiraporn et al. 2008; Arya, Glover and Sunder, 2003). Jiraporn et al. (2008) found that there was a negative relationship between earnings management and agency cost, suggesting that on average earnings manipulations are not used opportunistically and that it is probably more beneficial than opportunistic. Arya, Glover and Sunder (2003) argue that when transparency is reduced due to managers earnings manipulation, the reported earnings still conveys information, and even when the intention is to conceal information it could be beneficial to shareholders.

Like earnings management, the language and writing style of narratives in corporate annual reports is at the discretion of the firm, as long as they depict a true and fair picture of the business. Given its discretionary nature, there are current studies that attempt to link language with earnings manipulation. For example, Patelli and Pedrini (2015) found that companies that use complex, non-engaging language were associated with financial reporting aggressiveness. Hobson, Mayew and Venkatachalam (2012) found that vocal dissonance in the CEO's speech during conference calls, presentations, or roadshows could determine financial misreporting. Huang, Teoh and Zhang (2014) found that abnormal tone was associated with hyping the perception of investors in specific strategic events, such as meeting or beating thresholds. Lo, Ramos and Rogo (2017) found that managers that partake in AEM and REM had MD&A's that were difficult to read. Hope and Wang (2018) found that managers might use deceptive language in their earnings conference calls after they engaged in earnings manipulative activity, reducing information asymmetry between management and investors. Finally, Itridis (2016) found that tone pessimism was related to a restricted act of opportunism, whereas less AEM and firms that do not meet or beat analyst forecasts used more pessimistic language.<sup>28</sup>

Studies have been conducted on many forms of financial narrative measures but none of them have examined the relationship between earnings management and the level of optimism or pessimism in the narrative; this could identify whether the narratives hype up or play down investors' perceptions in relation to the firm's earnings management practices. However, all the studies agree that narratives in annual reports are associated with management's manipulative activities. Also, given the discretionary nature of both earnings management and tone of narratives, indicates that there can be a relationship between tone of narratives and earnings management. Consequently, based on the abovementioned arguments, the following hypothesis is provided:

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<sup>28</sup> This study differs from the above mentioned in a way that it not only uses AEM but REM as well, also it focuses on meeting or beating prior year's earnings and looks at the association of tone and earnings management during a strategic situation.



*H1: There is an association between earnings management (AEM and REM) and the tone of narratives.*

When managers decide to engage in earnings management, they are usually tempted to do so because of particular incentives. One incentive for managers to manage earnings is in order to meet or beat the prior year's earnings (Healy, 1985; Burgstahler and Dichev, 1997; Graham, 2005). It is argued that managers are incentivised to meet or beat earnings thresholds (avoid zero earnings, beat last year's earnings, or meet financial analysts' expectations) so that the manager or the firm can benefit and/or avoid being penalised by investors (Healy, 1985). For example, the CEO's bonuses can be negatively affected when they miss the prior year's earnings (Matsunaga and Park, 2001). It is argued that managers would want to meet the prior year's earnings because investors refer to earnings thresholds to evaluate the firm's performance and their ability to satisfy their responsibilities (Burgstahler and Dichev, 1997; Degeorge, Patel and Zeckhauser, 1999). Moreover, Graham, Harvey and Rajgopal's (2005) anecdotal evidence from interviews with CFOs found that managers prioritise meeting or beating thresholds to maintain their reputation and increase their stock prices. Arguably then, firms that just meet or beat last year's earnings are more likely to have engaged in earnings management (Lo, Ramos and Rogo, 2017).

Huang, Teoh, and Zhang (2014) examined whether an abnormal positive tone in narratives informed or misled investors in terms of whether the firm had met or beaten its thresholds. They found that abnormal tone was positively associated with different strategic settings, suggesting that managers manipulate the tone of narratives when incentivised. Lo, Ramos and Rogo (2017) found that firms with lower readability had a higher likelihood of having used AEM and REM to meet or beat the preceding year's earnings.

Zhang and Aerts (2015) examined the relation between meeting or beating thresholds and causal language intensity on earnings-related outcomes. They found that managers who failed to meet or beat the thresholds used more intensity in causal language to justify missing the thresholds. Managers may try to hide their opportunism with the tone that matches their intentions (Arslan-Ayaydin, Boudt and Thewissen, 2016). Itridis (2016) founds that firms who did not meet or beat analyst forecasts used more pessimistic

language (less positive tone). Schleicher and Walker (2010) and Davis and Tama-Sweet (2012) document that managers biased their tone when their performance declined.

Building on the above-mentioned studies, since firms are presumably managing earnings upwards to meet or beat the prior year's earnings (Lo, Ramos and Rogo, 2017), this study expects to find that managers opportunistically bias the tone upwards to meet or beat the prior year's earnings. Based on the above discussion, the following hypothesis is provided:

*H2: Firms with zero or a slight increase in the change of earnings is associated with the positive tone of narratives in corporate annual reports.*

#### **4.2.3.2 The Tone of Narratives and the Fraud Triangle**

Next, this paper examines narratives as the attitude component of the fraud triangle, as Li (2012) recommends for future research.<sup>29</sup> According to Cressey's (1953) for fraud/crime to be committed three elements must be present, and is referred to as the 'fraud triangle'. These components consist of the opportunity, pressure/incentive and attitude/rationalisation. The fraud triangle can be employed usefully by auditors, who can quantify the components and thus detect the possibility of fraud (Lokanan, 2015).

It can also be useful for research into narratives or the study of speech in accounting, as the text in corporate disclosures or verbal speech in conference calls can be considered the "attitude" component of the fraud triangle; thus, completion of the triangular elements for detecting fraud or bias is facilitated (Li, 2012; Lo, Ramos and Rogo, 2017). Li (2012) similarly concludes that employing the fraud triangle can be fruitful in examining managers' opportunistic bias in corporate narratives. Following Li's (2012) recommendation, Lo, Ramos and Rogo (2017) applied the three components of the fraud triangle to examine the association of readability and earnings management. Similarly,

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<sup>29</sup> Both fraud and earnings management involve the intentions of management to distort financial reports. However, there is a distinct difference between earning management and fraud, as fraud violates generally accepted accounting principles (GAAP), while earnings management does not (Dechow and Skinner, 2000). Perols and Lougee (2011) provide evidence that fraudulent firms usually manage earnings before committing fraud. Therefore, this study does not assume earnings management is fraud, but, due to its similarities and that earnings management occurs before fraud, the fraud triangle is utilised to develop hypothesis 3 and 4.

this paper applies the fraud triangle but uses the association of the tone of narratives and earnings management. The components are discussed below.

**Opportunity:** An essential component of the fraud triangle is for managers to have an opportunity to practice it: perpetrators will take advantage of the conditions available to them (Kelly and Hartley, 2010). In most cases, disorderly conduct or fraud is conducted when the risk of getting caught is low (Cressey, 1953). In accounting, there are several opportunities for managers to engage in earnings management, one of which is the flexibility for managers to choose and change estimates of accrual-based accounting under generally accepted accounting principles (GAAP). According to Subramanyam (1996) accruals are subject to discretion due to the flexibility rendered by GAAP, this discretion can improve the informativeness of earnings (by communicating private information) or deter informativeness (by taking opportunistic advantage of the flexibility). Therefore, accounting standards provide an opportunity for managers to engage in AEM, despite the controls in place to limit it. Consequently, managers not only engage in AEM as a form of earnings management, but likewise REM, especially when the usage of AEM is restricted due to extra controls or costs (Cohen and Zarwin, 2010; Zang, 2011). Accordingly, by utilising the fraud triangle, Lo, Ramos and Rogo (2017) argue that there is opportunity for the management to manipulate financials using AEM and REM.

**Attitude:** The second element of the fraud triangle has to do with attitude, also known as the management's rationalisation for their engagement in potentially unethical behaviour (Lo, Ramos and Rogo, 2017). Li (2012, p.398) suggests that utilising the triangle theory aids understanding, particularly in relation to cognitive dissonance in CEO's verbal speech, which can be related to the attitude component of the triangle theory. Lo, Ramos and Rogo (2017) applied the same concept to the readability of narratives in annual reports, applying the attitude component to the tone of narratives in annual reports. Similarly, this study employs the tone of narratives as the attitude component of the fraud triangle.

**Incentive:** For fraud perpetrators to commit unethical behaviour, they arguably face a specific financial or non-financial pressure that leads them to conduct fraudulent misconduct (Abdullahi and Mansor, 2015). According to Albrecht, Albrecht and Albrecht

(2008), financial pressures are the most common type of pressures incentivising firms. As Burgstahler and Dichev (1997) document, firms are incentivised to manage earnings in order to meet or beat the prior year's earnings. Anagnostopoulou and Tsekrekos (2016) found that leverage might impact earnings management practices: if creditors assert control or power or if managers need to avoid credit term penalties, earnings management practices can be engaged either upwards or downwards. These two incentives for earnings management provide the background for developing hypotheses 3 and 4 below.

### ***Meeting or Beating Earnings:***

Managers are incentivised to practice earnings management in order to meet or beat thresholds, including zero earnings, earnings changes or negative earnings surprises (Burgstahler and Dichev, 1997; Degeorge, Patel and Zeckhauser, 1999; Dichev and Skinner, 2002; Burgstahler and Eames, 2006; Roychowdhury, 2006; Athanasakou, Strong and Walker, 2009; Halaoua, Hamdi and Mejri, 2017; Lo, Ramos and Rogo, 2017). For example, Burgstahler and Dichev (1997) found the use of earnings management in the manipulation of cash flow in order to meet last year's earnings and avoid reporting losses. Athanasakou, Strong and Walker (2009) investigated whether managers would manage earnings to meet analysts' forecasts and avoid negative earnings surprises, finding that managers did tend to manage earnings in order to avoid severe market reactions.

Furthermore, Roychowdhury (2006) found that managers manipulated earnings through REM by increasing sales through overproduction to reduce the cost of goods sold and by reducing discretionary expenses to overstate earnings and avoid losses. Similarly, Gunny (2010) found firms engaged in REM to meet or beat zero earnings and the prior year's earnings.

Lo, Ramos and Rogo (2017) investigated the readability of corporate annual reports for firms that use income-increasing earnings management to meet or beat last year's earnings. They found that managers complicated the readability of narratives in order to hide income-increasing AEM and REM which was conducted to meet last year's earnings. Moreover, Arslan-Ayaydin, Boudt and Thewissen (2016) found that managers

used overly optimistic tones within the narratives of their earnings press releases when there were equity-based incentives.

Davis and Tama-Sweet (2012) investigated managers who had an incentive to meet or beat analysts' expectations and their use of a pessimistic tone, finding that they used language strategically when the information disclosed might affect the stock price. They found that firms that met or just beat analyst's expectations had a less pessimistic tone, suggesting that firms reduced the pessimistic language in earnings press releases when they believed that the information disclosed might affect stock prices and in order to reduce the market reaction.

Cohen, Dey and Lys (2008) found that managers substituted AEM with REM to meet or beat earnings benchmarks subsequent to the introduction of the Sarbanes Oxley Act. In a survey conducted by Graham (2005), managers were more likely to use REM than AEM to meet or beat earnings benchmarks, though there was empirical evidence of using AEM to meet or beat thresholds. Consequently, and due to the inconclusive evidence of the trade-off between AEM and REM, the fraud triangle is used to develop the hypothesis in which, (i) earnings management represents the opportunity, (ii) tone of narratives represents the attitude, and (iii) meeting and beating last year's earnings is seen as the incentive. The literature argues that firms manage earnings upwards to meet or beat the prior year's earnings (e.g., Burgstahler and Dichev, 1997; Lo, Ramos and Rogo, 2017). Similar to Lo, Ramos and Rogo (2017), this study predicts that managers who practice earnings management to meet or beat the prior year's earnings are associated with a positive (optimistic) tone of narratives in annual reports.

*H3: Firms (i) with zero or a slight increase in the change of earnings and (ii) which engage in income-increasing (decreasing) earnings management (AEM and REM) are associated with a positive (negative) tone of narratives in annual reports.*

### ***Leverage increase***

Other than meeting or beating earnings thresholds, leverage and leverage increase is considered as one of the incentives that leads managers to engage in earnings management (Jensen, 1986; DeFond and Jiambalvo, 1994; Jelinek, 2007; Van Tendeloo and Vanstraelen, 2008; Gombola, Ho and Huang, 2016). Two competing arguments arise

around the impact of leverage as an incentive for managers' earnings management behaviour. On the one hand, it is argued that an increase in leverage results in income increasing earnings management. Lazzem and Jilani (2018) investigated the influence of leverage increase and AEM, finding that managers drive AEM upwards when their leverage increases; this was consistent with the debt covenant violation. Furthermore, Butt (2016) finds that managers utilised AEM and REM to avoid debt covenant violation. Sweeney (1994) examined the debt covenant hypothesis and found a direct association between firms' debt to equity ratio and income-increasing earnings management.

According to Francis and Wang (2008 p.171), leverage increases indicate that the firm has an increased risk to potentially violate debt covenants; they proxy leverage increase as "a higher total debt to asset ratio", which is consistent with the debt covenant hypothesis.<sup>30</sup> On a similar note, Anagnostopoulou and Tsekrekos (2016) examined the impact of leverage on AEM and REM. They point out that the main motivation behind AEM and REM due to high leverage (or leverage increase) is to influence capital providers' perceptions. The reasons managers want to influence investors' perceptions are: to gain bargaining power (Watts and Zimmerman, 1986), debt covenant violation avoidance (DeFond and Jiambalvo, 1994; Sweeney, 1994), to maintain existing favourable credit terms (Ronen and Yaari, 2008) or to improve their perceived economic condition so that they can gain access to financial funds (Rodríguez-Pérez and van Hemmen, 2010).

There is a counter argument that suggests that an increase in leverage may result in an inverse relationship with earnings management (Jensen, 1986; Denis and Denis, 1993; Jelinek, 2007). Jensen (1986) created the control hypothesis, where he suggests that debt plays a beneficial role in encouraging managers to become more efficient. Therefore, an increase in leverage may increase levels of earnings management aggressiveness which may lead to becoming more conservative and decrease earnings, resulting in a negative association between earnings management and leverage (Denis and Denis, 1993; Jelinek, 2007, Zamri, Rahman and Isa, 2013). Another reason for a negative association argues that an increase in leverage may increase the risk of financial distress (Beneish and Press,

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<sup>30</sup> See also DeFond and Jiambalvo (1994) and Lazzem and Jilani (2018)

1995; Becker et al., 1998; Van Tendeloo and Vanstraelen, 2008). DeAngelo, DeAngelo and Skinner (1994) found that firms in financial distress managed their earnings downwards for credit term renegotiation purposes. In this case, it is expected that there is a negative association between firms with leverage increase and income-decreasing earnings management, which is represented in the regression as the interaction variable of income-decreasing AEM or REM and leverage increase ( $neg\_AEM/REM*lev\_in$ ); similarly, a positive tone in the narratives of annual reports would match the income-decreasing earnings management practices.

Grounded in the argument above, it is inferred that earnings management is associated with leverage increase, but due to the inconclusive results, no direction will be predicted. Also, based on the prediction that earnings management drives the tone of narratives in corporate annual reports, and utilising the fraud triangle, the study develops the following hypothesis regarding earnings management and leverage increase:

*H4: Firms (i) with an increase in leverage and (ii) engaging in income-increasing (decreasing) earnings management (AEM and REM) are associated with the positive (negative) tone of narratives in annual reports.*

## **4.3 Research Design**

### **4.3.1 Sample Data**

This study is conducted on the FTSE all-share constituents on the London Stock Exchange, with a sample period covering fiscal years 2006 to 2015. Both active and inactive firms up to 2015 are included in the study to avoid survival bias. Due to differences in reporting regulations, financial institutions (SIC 6000-6999) and regulated industries (SIC 4400-5000) are excluded due to differences in reporting regulations, as well as companies with missing annual reports. Two types of data will be used in this study: qualitative data, which includes narrative within annual reports and quantitative data, which includes financial information. To measure the tone of narrative in corporate annual reports, annual reports for each company were downloaded for the period stated above from perfect filing's database for every remaining firm year; financial information was extracted from DataStream. The final sample for empirical analysis consists of unbalanced panel data of 445 firms with 3126 firm-year observations.

#### **4.3.1.1 Measurement of Key Dependent Variables**

As in most studies using textual analysis in accounting the qualitative analysis was aided by a computer programme to quantify it. A computer programme was created that could analyse annual reports reliably. The programme accepts PDF files and converts them into text files. Two validation tests of the accuracy of the programme were conducted. First, the program was tested against the Linguistic Inquiry and Word Count (LIWC) online programme, and it retrieved related results<sup>31</sup>. Similarly, a small portion was tested against a manual count, and it produced the same results.

#### **4.3.1.2 Tone Measurement Model**

A text mining method was used to measure the tone of narratives in corporate annual reports, utilising financial dictionaries to analyse the qualitative narratives in annual reports through the frequency of words used (Henry, 2008; Loughran and McDonald, 2011). This requires a suitable list of positive words and negative words. Previous studies have used positive and negative words lists from Diction and General Inquirer (GI); these word lists have been criticised for not being specific to financial studies as they were word lists created for political communications and social psychology, respectively. For example, the word ‘beat’ in Diction and GI represents physical violence, whereas in the economic industry it is considered as a positive word representing an increase in profitability or competitive superiority (Henry, 2008). Henry (2008) published a list of finance-specific positive and negative words to measure narrative tone. However, it has been perceived as lacking by Loughran and McDonald (2011), where they expanded the negative words in the list to make it more comprehensive.

This study uses the comprehensive, finance-specific positive and negative words created by Loughran and McDonald (2011) to measure the tone of narratives. Given that the study researches UK companies, and the wordlist created were based on US companies, all words were scanned, and UK spellings of words were added to ensure that all relevant words were accounted for in the UK annual report narratives. Finally, instead of using

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<sup>31</sup> LIWC available online at: <https://liwc.wpengine.com/>



each dictionary (positive and negative) on its own, the study calculates the net tone (tone) by using Henry's (2008) formula, measured as:

$$Net\ Tone_{it} = \frac{Positive\ words_{it} - Negative\ words_{it}}{Positive\ words_{it} + Negative\ words_{it}} \quad (4-1)$$

Where positive words<sub>it</sub> is the frequency of positive words and negative words<sub>it</sub> is the frequency of negative words. The above equation creates a scale between -1 (being the minimum) and +1 (being the maximum), indicating that when the computed tone is numerically negative the corporate annual report has a negative tone (pessimistic), when it is numerically positive the corporate annual report has a positive tone (optimistic), and when it is 0 it suggests the corporate annual report has a neutral tone.

#### 4.3.1.3 Earnings Management

Existing literature uses discretionary accruals as the proxy for earnings management, considering it to be an important tool in detecting earnings management. This study employs an extensively used accruals model, the cross-sectional modified Jones model to measure discretionary accruals (Dechow, Sloan and Sweeney, 1995). The regressions are run for each 2-digit industry code to control for industry changes that may affect total accruals.

$$\frac{TACC_{it}}{TA_{it}} = \alpha_0 + \alpha_1 \left( \frac{1}{TA_{it}} \right) + \beta_1 \left( \frac{\Delta REV_{it} - \Delta REC_{it}}{TA_{it}} \right) + \beta_2 \left( \frac{PPE_{it}}{TA_{it}} \right) + \varepsilon_{it} \quad (4-2)$$

Where:

**TACC<sub>it</sub>** = total accruals ( $\Delta$ current assets –  $\Delta$ cash –  $\Delta$ current liabilities +  $\Delta$ short – term debt – depreciation)

**TA<sub>it-1</sub>** = lagged total assets

**$\Delta$ REV** = change in sales revenue

**$\Delta$ REC** = change in receivables

**PPE** = property plant and equipment

The measurement of discretionary accruals, also known as abnormal accruals, is the difference between total accruals and normal accruals.

$$DACC_{it} = TACC_{it} - NA_{it} \quad (4-3)$$

Where NA is normal accruals, it is also measured as the residual of regression (2), which is used in this paper as the proxy for AEM.

The study also considers REM as another type of earnings management. Roychowdhury (2006) developed three different types of REM measurements: the acceleration of sales, the reduction of discretionary expenses, and increasing production to lower the cost of goods sold. Similarly to Lo, Ramos and Rogo (2017) and Li (2019) this study specifically focuses on the reduction of discretionary expenses as a form of REM. This is for two reasons: firstly, according to Graham, Harvey and Rajgopal's (2005) survey conducted on financial executives, managers prefer the reduction of discretionary expenses, as it is most commonly used to increase earnings. Secondly, since the three different real activities have different implications for the profit margin and operating cash flows, the reduction of discretionary expenses is the cleaner measure. The reduction of discretionary expenses will temporarily inflate current earnings along with profit margins and cash flows from operating activities. On the other hand, other types of REM, like overproduction and the acceleration of sales through price discounts, will temporarily inflate current earnings while reducing profit margins and operating cash flows at the same time (Roychowdhury, 2006; Kothari, Mizik and Roychowdhury, 2015).

Consequently, to measure the abnormal reduction of discretionary expenses, the normal discretionary expenses will have to be measured first, as per Roychowdhury (2006):

$$\frac{DISEXP_{it}}{TA_{it-1}} = \alpha_0 + \alpha_1 \left( \frac{1}{TA_{it-1}} \right) + \beta_1 \left( \frac{Sales_{it-1}}{TA_{it-1}} \right) + \varepsilon_{it} \quad (4-4)$$

Where:

**DISEXP** = Actual discretionary expenses measured as the sum of selling and general administrative expenses, advertising expenses, and research and development expenses from Datastream.

**TA<sub>it-1</sub>** = lagged total assets

**Sales** = Sales revenue

Normal discretionary expenses are measured from the coefficient of the abovementioned regression. Therefore, abnormal reduction of discretionary expenses is measured by actual discretionary expenses minus normal production costs. It is also measured as the

residual of equation (4-4), which the paper uses as a proxy for REM. It is worth mentioning that, to inflate (deflate) earnings, managers will have to reduce (increase) expenses. So, unlike discretionary accruals, negative residuals are considered income-increasing earnings management and vice-versa. Therefore, to make it consistent with AEM, the residuals are multiplied by -1.

#### **4.3.1.4 Earnings Management Incentive**

As Lo, Ramos and Rogo (2017) mentioned, using earnings management models on their own is prone to measurement error. Therefore, the fraud triangle is utilised in order that an incentive for managers to partake in earnings management is included. Two widely used strategic situations are considered that will incentivise managers to manipulate earnings: the attempt to meet or beat the prior year's earnings and leverage increases (refer to Table A-1 in appendix A for the list of variables).

##### *Meeting or beating the prior year's earnings*

Research on meeting or beating earnings benchmarks fall into three categories: meeting or beating the prior year's earnings, zero earnings and analyst forecasts. The benchmark used in this study is firms that met or beat the previous year's earnings. Lo, Ramos and Rog (2017) present three reasons why this benchmark is superior: management discussion in annual reports are more likely to compare and contrast current earnings with the prior year's earnings; narratives in annual reports rarely refer to forecasted earnings; and zero or slightly positive earnings are sporadic.

Similarly to Burgstahler and Dichev (1997) and Huang and Teoh and Zhang (2014), meeting or beating the prior year's net income is measured by: current net income before extraordinary items scaled by total assets at time  $t$  subtracted by net income before extraordinary items scaled by total assets at time  $t-1$ . Burgstahler and Dichev (1997) found that the threshold for managers to manipulate earnings is when the increase in the change of ROA is between (£0 - £0.05). They also suggest that small changes are where managers are most likely to manipulate earnings. The small change constructed by Burgstahler and Dichev (1997) are an increase in ROA by 0.005, 0.01, and 0.015.

Moreover, Gunny (2010) constructs an interval of firms that miss and beat ROA changes between the intervals of (-0.01 and 0.01).

For robustness, the study considers three thresholds: meeting or beating the prior year's earnings by £0.01, £0.015 and £0.02. Therefore, three dummy variables were created where firms are given the value of 1 if their change in ROA is between (£0, £0.01), (£0, £0.015) and (£0, £0.02), and 0 otherwise (Burgstahler and Dichev, 1997; Lo, Ramos and Rogo, 2017).

#### *Leverage increase*

The other influence of earnings management discussed is leverage and leverage increase, where managers are incentivised to engage in earnings management. Like Jelinek (2007) and Lazzem and Jilani (2018), this study uses a dummy variable that equals 1 if the leverage of the firm has increased and 0 otherwise, because an increase in leverage incentivises managers to either engage in income-increasing or income-decreasing earnings management.

Leverage is measured, following Francis and Wang (2008), as the ratio of total debt to total assets. Leverage increase is identified as an incentive for managing earnings because if results show that leverage is associated with income-decreasing earnings management, it will validate the prediction that managers drive the tone of narratives in line with their intentions whether upwards (optimistic) or downwards (pessimistic).

#### **4.3.1.5 Regression Models and Control Variables**

The control variables are categorised as: (i) performance (ROA, Loss and MTB,) (ii) risk measures (volatility and liquidity), (iii) and firm characteristics (size, firm age, and strategic ownership) (refer to Table A-1 in the appendix A for the list of variables).

For performance control variables, following Li (2010) and Huang, Teoh and Zhang (2014), firm performance is measured using return on assets (ROA), defined as net income before extraordinary items scaled by total assets (Li, 2008; 2010). Loss is an indicator variable that equals 1 if ROA is negative, and 0 otherwise; firm growth (MTB) is controlled for by using the market to book ratio, measured as the market value of equity

divided by the balance sheet value of equity. Similarly, to Li (2010) and Huang, Teoh and Zhang (2014), performance measures are also considered as determinants of the narratives of corporate annual reports. This means that when ROA is higher and when the firm is making a profit, the narratives are expected to have more positive than negative words. Therefore, it is predicted that the tone of narratives will be positively associated with ROA and negatively associated with loss. As for firm growth, it is not a direct measure of performance, but it follows the same rationale as ROA: the greater the growth of the firm, the more positive the narrative tone will be, where it is expected to have a positive association with tone.

Risk measures are known to affect how narratives are written, and it is proxied as returns volatility (RetVol) and liquidity. RetVol is measured as the standard deviation of returns over the last 12 months, ending three months after the fiscal year-end. Liquidity is measured as the current ratio (current assets divided by current liabilities). The above mentioned are considered risk measures that pose a threat to the stability of the company, which may lead to an uncertain outlook (Bushee, Gow and Taylor, 2018; Huang, Teoh and Zhang, 2014; Li, 2008; 2010). For example, volatility leads to uncertain future performance, as well as higher information asymmetry between managers and investors (Huang, Teoh and Zhang, 2014; Li, 2008, 2010). Thus, risk measures are predicted to have a negative association with the tone of annual reports.

Also, there are firm characteristics that may influence narratives in annual reports. For example, Watts and Zimmerman (1986) suggest that the larger the firm's size, the higher the political cost it incurs. Therefore, it is predicted that there is a negative relationship between tone and size, as larger firms will be more cautious and transparent. As for firm age, it is expected to have a negative relationship with the tone of narratives, because the younger (older) the firm is, the more conservative (flexible) they are with their disclosed narrative information, due to potential litigation risk (Li, 2008; 2010b).

In addition, strategic investors (Strategic\_inv) are institutional investors with 5% ownership and above. This is supported by the governance literature, which points out that because institutional investors have superior information (Edmans, 2009), they can influence managerial decisions by monitoring their behaviour (Shi and Connelly, 2018). The increase in institutional investors' engagement can deter accounting manipulations

by monitoring the investee more closely, which may limit the amount of optimism in narratives as they will be written more conservatively, indicating a negative relationship between institutional ownership and the tone of narratives (Edmans, 2009). Finally, unobservable time-series and industry effects are controlled for by including year and industry dummies, and in all regressions the standard errors are clustered by firm and year to account for within-firm correlations.

Similar to Huang, Teoh and Zhang (2014), the study uses a logistic regression, because the dependent variable is a binary variable representing positive tone (the dependent variable equals to 1 if the net tone of narratives is positive and 0 otherwise). In addition, the regression is clustered at firm and year level with industry and year fixed effects, to minimise potential cross-sectional correlations<sup>32</sup>. Therefore, to examine the relationship between earnings management and the positive or negative tone of narratives, the following regression will be used:

$$\begin{aligned}
 Pos(Neg)\_Tone_{it} &= \alpha_0 + \beta_1 EM_{it} + \beta_2 ROA_{it} + \beta_3 Strategic\_Inv_{it} \\
 &+ \beta_4 Liquidity_{it} + \beta_5 Size_{it} + \beta_6 MTB_{it} + \beta_7 RetVol_{it} \\
 &+ \beta_8 Age_{it} + \beta_9 Loss_{it} + \sum \beta_m Fixed\ Effect_m + \varepsilon_{it}
 \end{aligned} \tag{4-5}$$

Where:

**Pos(Neg)\_Tone**= dummy variable that represents positive (negative) tone that equals to 1 if net tone is positive (negative) and 0 otherwise.<sup>33</sup>

**EM** = earnings management proxy measured as AEM or REM.

**ROA** = current return on assets measured as Net income before extraordinary items scaled by total assets.

**Strategic\_Inv** = Strategic investors that represent institutions that own 5% and above; it is measured as the natural logarithm of the percentage owned by institutions.

**Liquidity** = Current ratio (current assets divided by current liabilities).

**Size** = Natural logarithm of market capitalisation.

**MTB** = Market to book ratio, measured as the market value of equity divided by balance sheet value of equity.

**RetVol** = return volatility calculated by the standard deviation of returns over the last 12 months ending three months after the fiscal year-end

**Age** = Natural logarithm of 1 + the number of years since the firm started trading (base year).

**Loss** = a dummy variable of 1 if the return on assets is negative, and 0 otherwise.

<sup>32</sup> The regression specification used in model (4-5) is used on all subsequent regression models in this study.

<sup>33</sup> Depending on the regression specification, the dependent variable will either represent a dummy variable of positive tone or negative tone.

**Fixed Effect** = consists of the fixed industry and fixed year effects.

Also, to examine the relationship between tone and firms that are meeting or beating prior earnings, the study conducts the following regression:

$$Pos\_Tone_{it} = \alpha_0 + \beta_1 MBE_{it} + \beta_2 Neg\_ROA\_ch_{it} + \gamma Controls_{it} \sum \beta_m Fixed\ Effect_m + \varepsilon_{it} \quad (4-6)$$

Where:

**Pos\_Tone** = dummy variable that represents a positive tone that equals to 1 if the tone is positive and 0 otherwise.

**MBE** = meet or beat the prior year's earnings, measured as a dummy variable that equals to 1 to count for the three different thresholds (£0, £0.01), (£0, £0.015) and (£0, £0.02), and 0 otherwise.

**Neg\_ROA\_ch** = dummy variable that represents negative ROA changes and is equal to 1 if a change in ROA is negative and 0 otherwise.

**Controls** = All firm control variables used in equation (4-5).

**Fixed Effect** = consists of the fixed industry and fixed year effects.

This model (4-6) includes a dummy variable representing negative ROA changes (Neg\_ROA\_ch) to control for firms that did not meet or beat earnings changes and is used as a variable for comparison. Furthermore, to examine the effect of earnings management on the tone of narratives for firms that meet or beat the prior year's earnings, the following regression is used in accordance with Lo, Ramos and Rogo (2017):

$$pos\_Tone_{it} = \alpha_0 + \beta_1 pos\_EM_{it} + \beta_2 pos\_EM_{it} * MBE_{it} + \beta_3 neg\_EM_{it} * MBE_{it} + \beta_4 Neg\_ROA\_ch_{it} + \gamma Controls_{it} \sum \beta_m Fixed\ Effect_m + \varepsilon_{it} \quad (4-7)$$

Where:

**Pos\_Tone** = dummy variable that represents a positive tone that equals to 1 if the tone is positive and 0 otherwise.

**pos\_EM** = earnings management proxy measured as a dummy variable of income-increasing earnings management (for both AEM and REM) which equals 1 if earnings management is positive and 0 otherwise.

**pos\_EM\*MBE** = The interaction variable between income-increasing earnings management and meeting or beating last year's earnings, as explained in equation 5.

**neg\_EM\*MBE** = The interaction variable between income-decreasing earnings management (a dummy variable of income-decreasing earnings management which equals 1 if earnings management is negative and 0 otherwise) and the meeting or beating of last year's earnings, as explained in equation (4-5).

**Neg\_ROA\_ch** = dummy variable that represents negative ROA changes and is equal to 1 if a change in ROA is negative and 0 otherwise.

**Controls** = All firm control variables used in equation (4-5).

**Fixed Effect** = consists of the fixed industry and fixed year effects.

The model (4-7) follows model (4-6) where negative earnings is included as a variable for comparison. Also, both income-increasing and income-decreasing earnings management are considered, in order to examine the type of association. The prediction is that the managers drive the tone of narratives in line with their earnings management intentions. Therefore, if managers practice income-increasing (decreasing) earnings management, the tone will be positive (negative).

Finally, to examine the effect of earnings management on the tone of narratives for firms that increase their leverage, the following regression is used, following Lo, Ramos and Rogo's (2017) rationale:

$$\begin{aligned}
 pos\_Tone_{it} = & \alpha_0 + \beta_1 pos\_EM_{it} + \beta_2 pos\_EM_{it} * Lev\_inc_{it} & (4-8) \\
 & + \beta_3 neg\_EM_{it} * Lev\_inc_{it} + \beta_4 Lev\_dec_{it} \\
 & + \gamma Controls_{it} \sum \beta_m Fixed\ Effect_m + \varepsilon_{it}
 \end{aligned}$$

Where:

**Pos\_Tone** = dummy variable that represents a positive tone that equals to 1 if the tone is positive and 0 otherwise.

**pos\_EM** = earnings management proxy measured as a dummy variable of income-increasing earnings management (for both AEM and REM) which equals 1 if earnings management is positive and 0 otherwise.

**pos\_EM\*Lev\_inc** = The interaction variable between income-increasing earnings management and firms that increased their leverage (dummy variable that equals to 1 if leverage increases and 0 otherwise).

**neg\_EM\*MBE** = The interaction variable between income-decreasing earnings management (a dummy variable of income-decreasing earnings management which equals 1 if earnings management is negative and 0 otherwise) firms that increased their leverage (dummy variable that equals to 1 if leverage increases and 0 otherwise).

**Lev\_dec** = is leverage decrease, which is a dummy variable equals 1 if leverage decreases, and 0 otherwise.

**Controls** = All firm control variables used in equation (4-5).

**Fixed Effect** = consists of the fixed industry and fixed year effects.

This equation model (4-8) follows the same rationale as model (4-7) where leverage decrease (lev\_dec) is included to control for firms that decreased their leverage and to use this variable as a comparison. Moreover, income-increasing (pos\_EM) and income-



decreasing (neg\_EM) earnings management are considered to examine the type of earnings management practiced and its association with a positive tone.

## **4.4 Results**

### **4.4.1 Descriptive Statistics**

Table 4-1 reports the summary statistics for the sample. The earnings management measures are close to zero and the mean (median) value of AEM and REM are -0.01 (-0.01) and 0.00 (0.01), respectively. On average, the tone of narratives in annual reports is negative and close to zero with a mean of -0.01 and a median of 0.00. This suggests that narratives are mostly neutral but leaning towards a pessimistic tone, similarly to Loughran and McDonald's (2011) findings. However, this is inconsistent with Huang, Teoh and Zhang (2014) who assessed the narratives of earnings press releases and found that narratives were on average optimistic. This indicates that corporate annual report narratives are more conservative, and managers have more flexibility to hype up the language in earnings press releases than they can in annual reports (Huang, Teoh and Zhang, 2014).

Moreover, skewness in the sample statistics is detected. Particularly, Strategic Investors, size and age has a mean (median) of 20.16 (14.00), 3100 (460), and 23.26 (19.00), respectively. To address this issue, the natural logarithm of these variables will be used in all empirical specifications.

**[Insert Table 4-1]**

Table 4-2 reports the correlation matrix for the variables used in the regression analysis. The correlation matrix shows two variables have a higher correlation, RetVol and ROA ( $r=-0.435$ ,  $p<-0.01$ ), and RetVol and Loss ( $r=-0.417$ ,  $p<-0.01$ ), which may indicate multicollinearity. To test for multicollinearity, the variance inflation factor (VIF) is used. The untabulated results of the VIF are between 1.32 to 1.63 for all model specifications; this is below the acceptable threshold of 10, which suggest that multicollinearity is not an issue in all specifications (Kim et al., 2017).

**[Insert Table 4-2]**

## 4.4.2 Empirical Results

### 4.4.2.1 Impact of Earnings Management on Tone of Narratives

Hypotheses 1 and 2 predict that there is a positive association between positive tone of narratives and earnings management in all its forms (AEM, REM and firms that meet or just beat the prior year's earnings)<sup>34</sup>. Table 4-3, Panel A, presents the results for hypothesis 1: the association between earnings management (using REM and AEM) and positive tone of narratives in corporate annual reports. A logit model is used to examine the association. In columns (1) and (2), the dependent variable is a binary variable that equals to 1 if the net tone of narratives in annual reports is positive. It is predicted in H1 that the tone of narratives is in line with the intentions of managers to practice income increasing or income decreasing earnings management. Therefore, the study predicts that there will be a positive association between AEM and REM with a positive tone, and a negative association between AEM and REM with a negative tone.

As predicted, column (2) shows that there is a positive association between AEM and positive tone significant at the 5% level ( $\beta = 1.631$ ,  $t\text{-stat} = 2.18$ ). However, there is no evidence of managers using REM to drive the tone of narratives in line with their actions. To measure the economic significance, the marginal effect is computed for the variable of interest (AEM) following Loughran and McDonald (2013), and Huang, Teoh and Zhang (2014) by multiplying the marginal coefficient with the standard deviation of the variable of interest (AEM). It is found that a one standard deviation increase in AEM reduces the odds of narratives written in a positive tone by 2.69%.

This indicates that when managers use AEM to manage earnings, the tone is written in line with their intentions, as income increasing AEM results in a positive tone and income decreasing AEM results in a negative tone. This is consistent with Itridis (2016) who finds that firms that show less (more) AEM will have a pessimistic (optimistic) tone. Based on

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<sup>34</sup> According to (Burgstahler and Dichev, 1997; Lo, Ramos and Rogo, 2017), firms that have a zero or slight increase in change of earnings between the current year and prior year is taken as an indication that these firms have managed earnings to meet or beat the earnings change. Therefore, it is argued that the unreported performance that would have otherwise been reported should have been less, and a positive association with the tone of narratives is considered biased and in line with earnings management intentions.

the results, hypothesis 1 is partially accepted as only one type of earnings management is associated with the tone of narratives in annual reports.

**[Insert Table 4-3]**

Burgstahler and Dichev (1997) and Degeorge, Patel and Zeckhauser (1999) suggest that meeting or beating benchmarks represents a strategic setting in which managers manipulate earnings. They found that firms are more likely to manage earnings to meet or beat the prior year's earnings when their change of earnings using ROA is closer to zero and, more specifically, when it lies between (£0 - £0.05). To identify small changes, they used the thresholds of 0.005, 0.01 and 0.015. Moreover, Gunny (2010) constructs an interval of firms that miss and beat ROA changes between the intervals of (-0.01 and 0.01). For robustness reasons, three thresholds of a small positive increase in the change of ROA will be used for this study that is consistent with Burgstahler and Dichev (1997) and Gunny (2010), comprising of (£0 - £0.01), (£0 - £0.015), and (£0 - £0.02).

Table 4-3, Panel B presents the results for hypothesis 2, where it is found that a positive tone is positively associated with meeting and beating the prior year's earnings on all three thresholds (column (2) £0.01, column (4) £0.015 and column (6) £0.02) at the 5% level or more ( $\beta=0.294$ ,  $t\text{-stat}=2.22$ ,  $\beta=0.516$ ,  $t\text{-stat}=4.33$  and  $\beta=0.337$ ,  $t\text{-stat}=2.79$ , respectively). The results show that firms meeting or beating the prior year's earnings is different from firms that miss the ROA change threshold or report negative ROA changes (presented as the variable *Neg\_ROA\_ch*), as the results are inconclusive: only one threshold in column (4) is significant at the 5% level ( $\beta=0.322$ ,  $t\text{-stat}=3.33$ ) and column (2) and (6) are insignificant ( $\beta=0.018$ ,  $t\text{-stat}=0.19$ ,  $\beta=-0.065$ ,  $t\text{-stat}=-0.62$ , respectively). Economically, for firms that meet or beat prior years' earnings for the following thresholds (£0 - £0.01), (£0 - £0.015), and (£0 - £0.02), the magnitude of economic significance suggests that a one standard deviation of firms that meet or beat prior year's earnings increases the odds of narratives written in a positive tone by 2.44%, 4.94% and 3.4%, respectively. The results suggest there is a substantial economic magnitude of firms that met or just beaten prior year's earnings and annual report narratives written in a positive tone.

According to Li (2010) the tone of narratives is in line with the performance of the firm. Therefore, it is predicted that firms with negative earnings changes should be negatively associated with a positive tone as they are more likely to use negative words to explain the decrease in performance. However, there is no association between negative earnings changes and positive tone except for one threshold, with a positive association in column (4), as mentioned above. Although inconclusive, the negative association indicates managerial bias, as there is evidence that the decline is being hyped with a positive tone. Overall, it is found that managers primarily influence the tone of narratives upwards when they meet or beat the prior year's earnings — resulting in the acceptance of hypothesis 2.

The results of this study differ from Frankel, Mayew and Sun's (2010), who were not able to establish a relationship between the tone of conference calls and firms that meet or just beat financial analyst forecasts. This is because conference calls are spontaneous, and managers are unable to make strategic manipulations in spontaneous conversations (Hunag, Teoh and Zhang, 2014). Hunag, Teoh and Zhang (2014) found a significant association between the abnormal tone of earnings press releases and firms that meet or beat the prior year's earnings. The results of this study expand on previous research by finding an association between earnings management and the tone of narratives in corporate annual reports, suggesting that earnings management practices (whether opportunistic or beneficial) is complemented by the tone of narratives in corporate annual reports.

#### **4.4.2.2 Tone and Earnings Management to Meet or Beat Prior Year's Earnings**

According to Dechow, Sloan and Sweeny (1995) and Lo, Ramos and Rogo (2017) considering the direct impact between earnings management and tone of narratives (as in hypothesis 1) has its limitations, as the model behind AEM and REM suffer from measurement error and low power. Lo, Ramos and Rogo (2017) also suggest that only taking firms that meet or beat the prior year's earnings into consideration (as in hypothesis 2) can be misleading, as it may include firms that have met the threshold but did not practice earnings management.

Therefore, to clarify the limitations in hypothesis 1 and 2, it is essential to examine the type of earnings management (income-increasing or income-decreasing) used to

manipulate earnings to achieve the results that the management is keen to produce, in this case, to meet or beat the prior year's earnings. To do so, in hypothesis 3 earnings management (income-increasing or income-decreasing) is interacted with firms that meet or beat the prior year's earnings, in order to examine whether or not these firms are associated with a positive tone. According to Lo, Ramos and Rogo (2017) for firms that are trying to beat the prior year's earnings, it is most likely that they will be using income-increasing earnings management (represented as *pos\_AEM* and *pos\_REM*). Nevertheless, both income-increasing and income-decreasing earnings management are included in the model to control for the possible counter effect.

Table 4-4 presents the results: panel A reports the results for AEM, and Panel B reports the results for REM. It was previously discussed, with only partial acceptance of hypothesis 1, that only AEM drives the tone of narratives in corporate annual reports, rejecting the association of REM and tone. However, after utilising the fraud triangle and examining the association of earnings management with the tone of narratives during the strategic incentive to meet or beat prior year's earnings, panel B, columns (2), (4) and (6) provides evidence that managers do drive the tone of narratives in line with their REM practices. It shows a positive association between the interaction variable (*pos\_REM\*MBE*) and a positive tone at the 5% level or more, with coefficients of 0.502, 0.890 and 0.484, respectively. This shows that managers implementing income-increasing REM to meet or beat the prior year's earnings at the (£0, £0.01), (£0, £0.015) and (£0, £0.02) thresholds, will have narratives with a positive tone that are in line with their REM activities. However, the association between the interaction of *Neg\_REM\*MBE* is insignificant, suggesting that firms that have met or just beat last year's earnings and manage earnings downwards do not write their narratives in a tone that is in line with their earnings management practices.

Conversely, panel A does not show similar results for the association between firms which manage earnings using AEM to meet or beat last year's earnings and the tone of narratives. The result in panel A is inconclusive, as it only shows significance in column (4) for one of the thresholds (£0, £0.015) and is insignificant for the remaining thresholds. According to Graham, Harvey and Rajgopal's (2005) anecdotal evidence, managers are more inclined to manipulate earnings through real activities to meet or beat earnings

benchmarks than they would through AEM. Although there is evidence that managers use AEM to meet or beat earnings benchmarks (Burgstahler and Dichev, 1997; Athanasakou, Strong and Walker, 2009; Halaoua, Gilliam, Heflin and Paterson, 2015; Hamdi and Mejri, 2017), the elevated use of REM may suggest that managers use the tone of narratives in line with their REM activities to conceal their actions or blend the narratives with their manipulations. This is similar to Merkle-Davies and Bernnan's (2007) consensus, who suggested that the use of thematic content (positive and negative words) was considered as a concealment strategy.

Most papers focus on the concealment of financial performance (Clatworthy and Jones, 2003; Lougran and McDonald, 2011); this study provides evidence of the concealment of un-preferred financial practices (earnings management) that may deteriorate earnings quality (Jenkins, Kane and Velury, 2006; Li, 2019). In conclusion, the association between REM to meet or beat the prior year's earnings and tone of narratives results in the partial acceptance of hypothesis 2. This is because it is accepted that firms managing earnings through REM to meet or beat the prior year's earnings is associated with the tone of narratives in corporate annual reports, but it does not accept the association with AEM, as the results are inconclusive.

#### **[Insert Table 4-4]**

In addition, consistent with the predicted effects of control variables, the results are robust for the additional controls included. For example, as with Li (2010) and Huang, Teoh and Zhang (2014) tone is positively associated with ROA at the 5% level or more for all models. Also, loss is negatively associated with a positive tone at the 1% level. These control variables indicate that management report their narrative disclosures in accordance with their current profitability measures. Moreover, as predicted, there is a negative association between strategic investors and positive tone, indicating that institutional investors monitor the investee, resulting in managers writing more conservatively and limiting the hype or optimism in the tone of narratives.

#### **4.4.2.3 Tone and Earnings Management for Firms with Leverage Increase**

Hypothesis 4 follows the same rationale as hypothesis 3 but uses the increase in leverage as an incentive to manage earnings, examining whether or not firms drive the tone of

narratives in line with their earnings management practices. Similar to Hypothesis 3, to capture management utilisation of AEM and REM with the increase in leverage, the study uses an interaction variable: a dummy variable that suggests the utilisation of income-increasing or income-decreasing earnings management interacted with a dummy variable that represents an increase in leverage. Also, given the inconclusive argument of whether managers would manage earnings downwards or upwards during leverage increases, it is predicted that there is an association between positive tone and earnings management, but the association whether positive or negative is not clear.

Table 4-5 reports the results for hypothesis 4: columns (3) and (5) shows AEM and REM respectively of firms with leverage increase and the association with a positive tone of narratives in corporate annual reports. The study documents a negative association between (neg\_AEM \*lev\_in) and a positive tone at the 5% level ( $\beta=0.441$ ,  $t\text{-stat}=2.49$ ), with no evidence of the association with REM. Compared to leverage decrease (Lev\_dec), it is insignificant in all specifications except from column (3) where AEM is examined, which is negatively significant at the 5% level ( $\beta=0.358$ ,  $t\text{-stat}=2.34$ ); this indicates that when leverage decreases, firms are could be adopting conservative financial policies (Bigelli, Martin-Ugedo and Sanchez, 2014), which may lead to a more conservative tone. This provides a further indication that the main reason for the interaction variable being negatively associated with positive tone is the utilisation of income-decreasing earnings management when leverage increases.

This result shows that firms that manage earnings downwards due to leverage increase would have a negative tone that matches their earnings management practices. It also compliments the counter-argument of leverage increase that managers may manage earnings downwards either to limit earnings management (due to creditors acting as control factors that monitors firms decisions) or to practice income-decreasing earnings management (due to financial distress or contractual renegotiation) (Becker et al., 1998; Jelinek,2007).

Interestingly, REM during leverage increase, shown in column (5), is insignificant, although existing literature suggests that both AEM and REM are used complementarily when the incentive to manage earnings is due to leverage (Anagnostopoulou and Tsekrekos, 2016). The reason could be due to the fact that it is found that when leverage

is higher, AEM gets more scrutiny and REM is less detected (Franz and HassabElnaby, 2014; Butt, Chamberlain and Sarkar, 2016). For that reason, a possible justification for the insignificant result of REM with positive tone is that managers tend to match the tone of narratives in line with their AEM practices, in this situation to conceal their income-decreasing earnings management practices. However, this implication is not tested in this study and could be fruitful for future research. Consequently, hypothesis 3 is partially accepted as the study finds that firms that engage in income decreasing AEM (not REM) due to an increase in leverage are negatively associated with a positive tone of narratives in corporate annual reports.

[Insert Table 4-5]

#### **4.4.2.4 Further Analysis**

Three additional analysis are conducted to ensure that the results found are robust. For brevity, additional analyses are applied on earnings management hypotheses that are tied to an incentive, (i.e. H3 and H4) and only on results that were significant. Also, the model specification is the same, as each as each additional analysis models is fixed by year and industry and clustered by firm and year, as well as the inclusion of all control variables specified in section 4.3.1.5.

First, the main dependent variable in this research is a binary variable that represent positive tone, as the main objective of this study is to examine if intentions of earnings managers drive the direction of the tone in the same direction of earnings management (income-increasing or income-decreasing). This section examines whether the study is sensitive to the use of a continuous variable instead of the dummy variable already used. The binary dependent variable ‘positive tone’ is replaced with ‘net tone’, which is a continuous variable that ranges between -1 to 1 representing the tone of narratives by whether it is more negative or more positive. Frankel, Mayew and Sun (2010) similarly used tone as a continuous variable to examine conference calls but were unable to find an association<sup>35</sup>. Based on the results of H3 and H4, it is expected that REM for firms that

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<sup>35</sup> Frankel, Mayew and Sun (2010) conduct a study that includes the association of tone with firms the meet or beat analyst forecast expectations, and in their study they do not find a significant negative association, as they predicted, between the tone of conference calls and firms that meet or beat analyst forecasts.



meet or beat prior year's earnings and AEM during leverage increase is positively and negatively, respectively, associated with net\_tone.

Table 4-6 shows the results of REM for firms that meet or beat the prior year's earnings, and AEM during leverage increase. Since the dependent variable is a continuous variable an OLS multivariate regression is applied. Results show that pos\_REM to meet or beat the prior-year earnings is positively associated with the net tone of narratives in annual reports; this remains significant at the 10% level in column (1) ( $\beta=0.026$ ,  $t\text{-stat}=1.82$ ) and 1% level in column (2) and (3) ( $\beta=0.049$ ,  $t\text{-stat}=3.85$  and  $\beta=0.033$ ,  $t\text{-stat}=2.62$ , respectively). However, AEM during leverage increase is not association with net tone. For that reason, another additional analysis is conducted.

**[Insert Table 4-6]**

Second, to control for the persistence of tone, a lagged dependent variable is used as an independent variable to check if the variable of interest is remains significant (Lo, Ramos and Rogo, 2017). Table 4-7 presents the results of REM for meeting or beating the prior year's earnings and its association with a positive tone in column (1), (2) and (3), and AEM during leverage increase and its association with a positive tone in column (4). After adding the lagged dependent variable, the interaction variable of pos\_REM\*MBE remains significant for one of the three thresholds (£0, £0.015) at the 10% level with a coefficient of 0.492. Also, the interaction variable neg\_AEM\*lev\_inc that is negatively associated with positive tone when analysing the regression model (8) remains negatively significant at the 10% level with a coefficient of -0.452. Indicating that this additional analysis provides similar results to model (4-7) and (4-8) applied for the main analysis, with the exception of two thresholds.

**[Insert Table 4-7]**

The final additional test is to ensure that variables of interest are not sensitive to measurement variation. The two main variables of interests to meet or beat earnings (MBE), and leverage increase (Lev\_inc) will be replaced by similar variables measured differently. Firms that meet or beat earnings will be replaced with firms that miss earnings within the same thresholds used (£0.01, £0.015 and £0.02), because firms that slightly

miss earnings show evidence of earnings management similar to those that meet or just beat thresholds (Burgstahler and Dichev, 1997; Gunny, 2010). As for leverage increase, it will be calculated as long-term debt scaled by total assets as opposed to of total debt scaled by total assets applied in model (4-8).

Table 4-8 presents the results of firms that engage in REM and slightly miss last year's earnings benchmark in column (1), (2) and (3); in column (4) it shows the results for firms that engage in AEM due to leverage increase measured by long-term debt (LT\_lev\_inc). Similar to the outcome presented in H3 and H4 (sections 4.4.2.2 and 4.4.2.3, respectively), the results are similar as the interaction variable between REM and firms that miss the prior year's earnings (REM\*miss) in column (1), (2) and (3) is significantly associated with positive tone at the 5% level with coefficients of 0.502, 0.594 and 0.484, respectively. Moreover, AEM during leverage increase is robust for the change in the measurement method, as the interaction variable Neg\_AEM\*LT\_lev\_inc is negatively associated with positive tone at the 1% level, with a coefficient of -0.385.

**[Insert Table 4-8]**

## **4.5 Conclusion**

This study examines the impact of earnings management on the tone of narratives in corporate annual reports, to identify whether the tone of narratives reflect the firms' earnings management intentions or not. Using data from FTSE all-share non-financial firms for a period of ten years from 2006-2015, the study utilises the fraud triangle to examine the impact of earnings management (as the opportunity), tone (as the attitude) and two strategic events, meeting or beating the prior year's earnings and leverage increases (as the incentive).

Firstly, hypothesis 1 and 2 examined the relationship between the positive and negative tone of narratives and earnings management using REM, AEM and meeting or beating the prior year's earnings. It found that AEM is significantly positively (negatively) associated with positive (negative) tone. Also, according to Burgstahler and Dichev (1997), firms that meet or beat earnings thresholds are more likely to beat it due to earnings management. Testing this phenomenon, it was also found that there is a direct

relationship between firms that meet or beat the prior year's earnings and the tone of narratives. The findings generally imply that income-increasing earnings management will lead to the usage of more (less) positive (negative) words.

Due to possible measurement errors from AEM and REM measures (Lo, Ramos and Rogo, 2017), the impact of earnings management on the tone of narratives was re-examined using two strategic situations. Hypothesis 3 examines the impact of earnings management on meeting or beating the prior year's earnings and its association with a positive tone. It is found that firms that use income-increasing earnings management will drive the tone of narratives in-line with REM, but not AEM. This is consistent with Graham, Harvey and Rajgopal's (2005) survey evidence that suggests that although empirical results show that AEM is used to meet or beat thresholds, managers are more likely to use REM. This implies that since the use of REM is more prevalent in this strategic situation, managers are more likely to compliment these practices with a more positive narrative tone.

Hypothesis 4 examines the second strategic situation, in which firms tend to manipulate earnings when their leverage increases. It was found that positive tone is negatively associated with income-decreasing AEM and leverage-increase. This indicates that even when managers engage in income-decreasing earnings management, the tone of narrative becomes less positive (or more negative) similarly to the intentions of their earnings management practices. The overall implication is that, regardless of whether the management's discretionary practices are beneficial or harmful to stakeholders, the tone of narratives is biased towards their intended earnings management practices; whether they manage earnings downwards or upwards depends on the strategic situation they are in (to meet or beat earnings benchmarks or to increase leverage).

This study provides several contributes to the literature regarding the tone of narratives in corporate annual reports. It extends the understanding of the determinants of the tone of narratives in annual reports. As far as it is known, this is the first study that finds that association between REM and tone of narrative. Moreover, previous studies that examined the relationship of narratives and earnings management (Huang, Teoh and Zang, 2014; Lo, Ramos and Rogo, 2017) did not examine the role of leverage increase as a possible incentive for management to manage earnings, which this study extended on.

Future studies can expand this area of research by focusing on other financial narrative platforms, other forms of earnings management, different strategic situations and, more importantly, examine if the link between earnings management and tone of narratives is opportunistic for self-serving reasons or beneficial to stakeholders due to reductions in information asymmetry.

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**Table 4-1** Descriptive Statistics

<b>Variable</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Median</b>	<b>Q1</b>	<b>Q3</b>	<b>Min</b>	<b>Max</b>
<b>1. Tone</b>	3433	-0.01	0.17	0.00	-0.11	0.10	-1.00	1.00
<b>2. AEM</b>	2604	-0.01	0.20	-0.01	-0.04	0.02	-9.37	0.86
<b>3. REM</b>	1939	0.00	0.18	0.01	-0.09	0.11	-0.63	0.47
<b>4. ROA</b>	3342	0.04	0.16	0.05	0.02	0.09	-2.95	0.89
<b>5. Strategic_inv</b>	3433	20.16	19.84	14.00	5.00	30.00	0.00	129
<b>6. Liquidity</b>	3320	1.82	3.23	1.36	0.95	1.87	0.07	111.36
<b>7. Size (000's)</b>	3279	3100	10000	460.00	150.00	1400	0.443	120000
<b>8. MTB</b>	3209	2.86	12.84	2.12	1.21	3.50	-203.29	330.32
<b>9. RetVol</b>	3256	0.11	0.07	0.09	0.06	0.13	0.00	0.98
<b>10. Age</b>	3368	23.26	16.34	19.00	9.5	40.00	0.00	114.00

**Tone** is the net of positive and negative words. **AEM** is accrual earnings management measured as the Residual from modified Jones model regression. **REM** is real earnings management using Roychowdhury's (2006) model of Abnormal discretionary expenses measured as the residual of normal discretionary expenses. **ROA** is current return on assets measured as Net income before extraordinary items scaled by total assets. **Strategic\_inv** natural logarithm of the percentage owned by institutions. **Liquidity** Current ratio measured as current assets divided by current liabilities. **Size** log of market capitalization. **MTB** is the market to book ratio. **RetVol** is return volatility calculated by standard deviation of returns over the last 12 months ending three months after the fiscal year-end. **Age** is the log of 1 + number of years since the company started as per DataStream (base year).

**Table 4-2 Correlation Matrix**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
<b>1. Tone</b>	1.000																
<b>2. AEM</b>	0.075* (0.000)	1.000															
<b>3. pos_AEM</b>	0.051* (0.009)	0.696* (0.000)	1.000														
<b>4. REM</b>	-0.036 (0.119)	0.050* (0.013)	0.042* (0.036)	1.000													
<b>5. pos_REM</b>	0.006 (0.805)	0.049* (0.013)	0.061* (0.002)	0.723* (0.000)	1.000												
<b>6. MBE (£0, £0.01)</b>	0.103* (0.000)	0.037* (0.029)	0.011 (0.510)	0.052* (0.008)	0.023 (0.248)	1.000											
<b>7. MBE (£0, £0.02)</b>	0.142* (0.000)	0.060* (0.000)	0.023 (0.184)	0.051* (0.009)	0.017 (0.391)	0.750* (0.000)	1.000										
<b>8. MBE (£0, £0.03)</b>	0.144* (0.000)	0.053* (0.002)	0.035* (0.042)	0.052* (0.008)	0.019 (0.340)	0.638* (0.000)	0.850* (0.000)	1.000									
<b>9. Lev_inc</b>	0.017 (0.325)	0.070* (0.000)	0.022 (0.232)	0.040 (0.059)	-0.008 (0.719)	0.056* (0.001)	0.091* (0.000)	0.111* (0.000)	1.000								
<b>10. ROA</b>	0.371* (0.000)	0.089* (0.000)	0.080* (0.000)	-0.016 (0.407)	0.014 (0.475)	0.072* (0.000)	0.094* (0.000)	0.101* (0.000)	-0.090* (0.000)	1.000							
<b>11. Strategic_inv</b>	-0.093* (0.000)	0.001 (0.954)	0.024 (0.166)	-0.003 (0.887)	0.006 (0.752)	-0.045* (0.003)	-0.047* (0.002)	-0.053* (0.000)	-0.064* (0.000)	-0.014 (0.358)	1.000						
<b>12. Liquidity</b>	-0.135* (0.000)	0.120* (0.000)	0.099* (0.000)	-0.056* (0.005)	-0.047* (0.017)	-0.056* (0.000)	-0.069* (0.000)	-0.062* (0.000)	-0.230* (0.000)	-0.076* (0.000)	0.019 (0.197)	1.000					
<b>13. Size</b>	0.234* (0.000)	-0.005 (0.767)	-0.040* (0.024)	-0.050* (0.014)	-0.021 (0.305)	0.075* (0.000)	0.095* (0.000)	0.098* (0.000)	0.110* (0.000)	0.327* (0.000)	-0.125* (0.000)	-0.112* (0.000)	1.000				
<b>14. MTB</b>	0.080* (0.000)	0.006 (0.739)	-0.001 (0.979)	-0.082* (0.000)	-0.040 (0.052)	-0.023 (0.138)	-0.010 (0.532)	-0.005 (0.726)	-0.062* (0.000)	0.130* (0.000)	0.026 (0.057)	-0.028 (0.062)	0.158* (0.000)	1.000			
<b>15. RetVol</b>	-0.349* (0.000)	-0.052* (0.003)	-0.032 (0.071)	-0.001 (0.958)	-0.002 (0.919)	-0.092* (0.000)	-0.116* (0.000)	-0.113* (0.000)	-0.005 (0.757)	-0.435* (0.000)	0.053* (0.000)	0.100* (0.000)	-0.179* (0.000)	-0.100* (0.000)	1.000		
<b>16. Age</b>	0.068* (0.000)	0.026 (0.141)	0.032 (0.065)	0.079* (0.000)	0.042* (0.036)	0.071* (0.000)	0.083* (0.000)	0.081* (0.000)	-0.054* (0.001)	0.084* (0.000)	-0.050* (0.000)	-0.166* (0.000)	0.068* (0.000)	-0.019 (0.142)	-0.256* (0.000)	1.000	
<b>17. Loss</b>	-0.398* (0.000)	-0.083* (0.000)	-0.065* (0.000)	-0.020 (0.321)	-0.040* (0.040)	-0.119* (0.000)	-0.157* (0.000)	-0.163* (0.000)	0.056* (0.000)	-0.676* (0.000)	0.024 (0.098)	0.137* (0.000)	-0.300* (0.000)	-0.090* (0.000)	0.417* (0.000)	-0.144* (0.000)	1.000

**1.Tone** is the net of positive and negative words. **2.AEM** is accrual earnings management measured as the Residual from modified jones model regression. **3.Pos\_AEM** Accrual earnings management: Measured as the Residual from modified jones model regression.. **4.REM** is real earnings management using Roychowdhury's (2006) model of Abnormal discretionary expenses measured as the residual of normal discretionary expenses. **5. Pos\_REM** Positive real earnings management: A dummy variable of income-increasing REM (1 if REM is positive and 0 otherwise).. **6.MBE (£0, £0.01)** a dummy variable to measure firms that meet or beat last year's earnings (equal to 1 if firm's change in net income before extraordinary items scaled by lagged total assets from the last year is between 0 and 0.01, and 0 otherwise). **7.MBE (£0, £0.015)** a dummy variable to measure firms that meet or beat last year's earnings (equal to 1 if firm's change in net income before extraordinary items scaled by lagged total assets from the last year is between 0 and 0.015, and 0 otherwise). **8.MBE (£0, £0.02)** a dummy variable to measure firms that meet or beat last year's earnings (equal to 1 if firm's change in net income before extraordinary items scaled by lagged total assets from the last year is between 0 and 0.02, and 0 otherwise). **9. Lev\_inc** a dummy variable that equals 1 if leverage increases and 0 otherwise. **10.ROA** is current return on assets measured as Net income before extraordinary items scaled by total assets. **11. Strategic\_inv** natural logarithm of the percentage owned by institutions. **12. Liquidity** Current ratio measured as current assets divided by current liabilities. **13. Size** log of market capitalization. **14.MTB** is the market to book ratio. **15.RetVol** is return volatility calculated by standard deviation of returns over the last 12 months ending three months after the fiscal year-end. **16.Age** is the log of 1 + number of years since the company started as per DataStream (base year). **17.Loss** is a dummy variable of 1 if return on assets is negative, and 0 otherwise.

**Table 4-3 Impact of Earnings Management on Tone of Narratives**

<b>Panel A: Impact of AEM and REM with Tone of Narratives in Annual Reports</b>						
	<b>(1)</b>		<b>(2)</b>			
	<b>Pos_Tone</b>		<b>Pos_Tone</b>			
<b>REM</b>	0.504 (1.57)					
<b>AEM</b>			1.631** (2.18)			
<b>ROA</b>	1.582** (2.04)		1.684** (2.38)			
<b>Strategic_inv</b>	-0.203*** (-4.32)		-0.196*** (-4.94)			
<b>Liquidity</b>	-0.047 (-1.05)		-0.004 (-0.09)			
<b>Size</b>	0.081** (2.08)		0.074** (2.24)			
<b>MTB</b>	-0.016 (-1.23)		-0.007 (-0.66)			
<b>RetVol</b>	-7.070*** (-5.38)		-6.936*** (-5.99)			
<b>Age</b>	-0.436*** (-4.19)		-0.425*** (-4.45)			
<b>Loss</b>	-1.286*** (-5.83)		-1.254*** (-6.88)			
<b>Fixed Year</b>	Yes		Yes			
<b>Fixed Industry</b>	Yes		Yes			
<b>N</b>	1793		2469			
<b>pseudo R-sq</b>	0.187		0.187			
<b>Panel B: Impact of firms with zero or slight increase in earnings and the positive tone of narratives in annual reports.</b>						
	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>
	<b>Pos_Tone</b>	<b>Pos_Tone</b>	<b>Pos_Tone</b>	<b>Pos_Tone</b>	<b>Pos_Tone</b>	<b>Pos_Tone</b>
	<b>(£0, £0.01)</b>	<b>(£0, £0.01)</b>	<b>(£0, £0.015)</b>	<b>(£0, £0.015)</b>	<b>(£0, £0.02)</b>	<b>(£0, £0.02)</b>
<b>MBE</b>	0.505*** (4.48)	0.294** (2.22)	0.634*** (6.50)	0.516*** (4.33)	0.519*** (5.67)	0.337*** (2.79)
<b>ROA</b>		0.849 (1.44)		1.212** (2.00)		0.812 (1.37)
<b>Neg_ROA_ch</b>		0.018 (0.19)		0.322*** (3.33)		-0.065 (-0.62)
<b>Strategic_inv</b>		-0.163*** (-4.85)		-0.157*** (-4.71)		-0.162*** (-4.83)
<b>Liquidity</b>		-0.003 (-0.09)		0.009 (0.24)		-0.001 (-0.03)
<b>Size</b>		0.116*** (3.99)		0.110*** (3.79)		0.117*** (4.04)
<b>MTB</b>		-0.009 (-1.07)		-0.010 (-1.10)		-0.009 (-1.06)
<b>RetVol</b>		-5.831*** (-5.84)		-5.565*** (-5.55)		-5.715*** (-5.73)
<b>Age</b>		-0.461*** (-5.66)		-0.462*** (-5.67)		-0.465*** (-5.70)
<b>Loss</b>		-1.357*** (-8.23)		-1.349*** (-8.25)		-1.324*** (-7.97)
<b>Fixed Year</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Fixed Industry</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>N</b>	3306	3126	3321	3135	3306	3126
<b>pseudo R-sq</b>	0.060	0.157	0.066	0.160	0.063	0.157

**Pos\_Tone** A dummy variable that represents a positive tone that equals to 1 if the net tone is positive and 0 otherwise.  
**Neg\_Tone** A dummy variable that represents a negative tone that equals to 1 if the net tone is negative and 0 otherwise.  
**AEM** is accrual earnings management measured as the Residual from modified Jones model regression.  
**REM** is real earnings management using Roychowdhury's (2006) model of Abnormal discretionary expenses measured as the residual of normal discretionary expenses. **MBE** dummy variable equal 1 if it lies between one of

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the three thresholds (£0,£0.01; £0, £0.015; or £0, £0.02) and 0 otherwise. **Neg\_ROA\_ch** A dummy variable that represents negative ROA changes and is equal to 1 if the change in ROA is negative and 0 otherwise. **ROA** is current return on assets measured as Net income before extraordinary items scaled by total assets. **Strategic\_inv** natural logarithm of the percentage owned by institutions. **Liquidity** Current ratio measured as current assets divided by current liabilities. **Size** log of market capitalization. **MTB** is the market to book ratio. **RetVol** is return volatility calculated by standard deviation of returns over the last 12 months ending three months after the fiscal year-end. **Age** is the log of 1 + number of years since the company started as per DataStream (base year). **Loss** is a dummy variable of 1 if return on assets is negative, and 0 otherwise.

t-statistics in parentheses clustered at firm and year level.  
All variables are winsorized at the 1 percent level.  
\*\*\*/\*\*/\* means significance at 0.01, 0.05, and 0.10 level, respectively

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**Table 4-4** Impact of Earnings Management to Meet or Beat Prior Year's Earnings on Tone of Narrative

<b>Panel A: Relationship between positive tone and the use of AEM to meet or beat prior year's earnings.</b>						
	(1)	(2)	(3)	(4)	(5)	(6)
	Pos_Tone	Pos_Tone	Pos_Tone	Pos_Tone	Pos_Tone	Pos_Tone
	(£0, £0.01)	(£0, £0.01)	(£0, £0.015)	(£0, £0.015)	(£0, £0.02)	(£0, £0.02)
Pos_AEM	0.130 (1.37)	0.226** (2.21)	0.054 (0.56)	0.156 (1.48)	0.138 (1.38)	0.240** (2.23)
Pos_AEM*MBE	0.235 (1.17)	0.042 (0.19)	0.796*** (4.07)	0.543*** (2.69)	0.377** (2.20)	0.115 (0.61)
Neg_AEM*MBE	0.398** (2.11)	0.208 (1.06)	0.596*** (3.62)	0.381** (2.18)	0.513*** (3.23)	0.270 (1.59)
ROA	6.551*** (10.93)	1.759** (2.47)	6.874*** (11.26)	2.102*** (2.85)	6.351*** (10.55)	1.720** (2.41)
Neg_ROA_ch	-0.011 (-0.11)	0.081 (0.76)	0.337*** (3.30)	0.299*** (2.70)	-0.130 (-1.24)	0.021 (0.18)
Strategic_inv		-0.201*** (-5.05)		-0.199*** (-4.99)		-0.200*** (-5.05)
Liquidity		0.001 (0.02)		0.007 (0.17)		0.001 (0.03)
Size		0.072** (2.13)		0.066* (1.94)		0.073** (2.15)
MTB		-0.006 (-0.63)		-0.007 (-0.67)		-0.006 (-0.58)
RetVol		-6.937*** (-5.95)		-6.690*** (-5.74)		-6.859*** (-5.87)
Age		-0.435*** (-4.56)		-0.443*** (-4.61)		-0.441*** (-4.61)
Loss		-1.256*** (-6.84)		-1.231*** (-6.71)		-1.233*** (-6.69)
Fixed year	Yes	Yes	Yes	Yes	Yes	Yes
Fixed industry	Yes	Yes	Yes	Yes	Yes	Yes
N	2600	2468	2601	2469	2600	2468
pseudo R-sq	0.135	0.187	0.142	0.191	0.138	0.188
<b>Panel B: Relationship between positive tone and the use of REM to meet or beat prior year's earnings.</b>						
	(1)	(2)	(3)	(4)	(5)	(6)
	Pos_Tone	Pos_Tone	Pos_Tone	Pos_Tone	Pos_Tone	Pos_Tone
	(£0, £0.01)	(£0, £0.01)	(£0, £0.015)	(£0, £0.015)	(£0, £0.02)	(£0, £0.02)
Pos_REM	-0.125 (-1.15)	-0.180 (-1.51)	-0.141 (-1.26)	-0.226* (-1.82)	-0.188 (-1.64)	-0.244* (-1.95)
Pos_REM*MBE	0.706*** (3.10)	0.502** (2.09)	1.017*** (4.97)	0.890*** (4.13)	0.771*** (4.02)	0.484** (2.34)
Neg_REM*MBE	0.237 (0.93)	0.108 (0.39)	0.532* (2.41)	0.294 (1.27)	0.172 (0.83)	-0.079 (-0.35)
ROA	6.234*** (9.99)	1.715** (2.19)	6.588*** (10.30)	2.178** (2.66)	6.112*** (9.80)	1.724** (2.21)
Neg_ROA_ch	-0.040 (-0.36)	0.040 (0.33)	0.381** (3.23)	0.365** (2.83)	-0.127 (-1.06)	0.024 (0.18)
Strategic_inv		-0.206*** (-4.40)		-0.204*** (-4.33)		-0.204*** (-4.35)
Liquidity		-0.042 (-0.94)		-0.0369 (-0.82)		-0.043 (-0.97)
Size		0.079** (1.98)		0.0731 (1.84)		0.078* (1.97)
MTB		-0.016 (-1.15)		-0.0164 (-1.22)		-0.016 (-1.15)
RetVol		-6.743*** (-5.17)		-6.566*** (-4.97)		-6.720*** (-5.15)
Age		-0.446*** (-4.29)		-0.455*** (-4.36)		-0.444*** (-4.26)
Loss		-1.281*** (-5.81)		-1.238*** (-5.58)		-1.269*** (-5.74)
Fixed Year	Yes	Yes	Yes	Yes	Yes	Yes

<b>Fixed Industry</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>N</b>	1911	1793	1911	1793	1911	1793
<b>pseudo R-sq</b>	0.132	0.189	0.140	0.195	0.132	0.190

**Pos\_Tone** A dummy variable that represents a positive tone that equals to 1 if the net tone is positive and 0 otherwise. **Pos\_AEM** A dummy variable of income-increasing AEM (1 if AEM is positive and 0 otherwise). **Neg\_AEM** A dummy variable of income-decreasing AEM (1 if AEM is negative and 0 otherwise). **Pos\_REM** A dummy variable of income-increasing REM (1 if REM is positive and 0 otherwise). **Neg\_REM** A dummy variable of income-decreasing REM (1 if REM is negative and 0 otherwise). **MBE** dummy variable equal 1 if change in ROA lies between one of the three thresholds (£0,£0,01; £0, £0.015; or £0, £0.02) and 0 otherwise. **Neg\_ROA\_ch** A dummy variable that represents negative ROA changes and is equal to 1 if the change in ROA is negative and 0 otherwise. **ROA** is current return on assets measured as Net income before extraordinary items scaled by total assets. **Strategic\_inv** natural logarithm of the percentage owned by institutions. **Liquidity** Current ratio measured as current assets divided by current liabilities. **Size** log of market capitalization. **MTB** is the market to book ratio. **RetVol** is return volatility calculated by standard deviation of returns over the last 12 months ending three months after the fiscal year-end. **Age** is the log of 1 + number of years since the company started as per DataStream (base year). **Loss** is a dummy variable of 1 if return on assets is negative, and 0 otherwise.

t-statistics in parentheses clustered at firm and year level.

All variables are winsorized at the 1 percent level.

\*\*\*/\*\*/\* means significance at 0.01, 0.05, and 0.10 level, respectively

**Table 4-5** Impact of Earnings Management During a Leverage Increase and the Tone of Narratives

	(1)	(2)	(3)	(4)	(5)
	Pos_Tone	Pos_Tone	Pos_Tone	Pos_Tone	Pos_Tone
<b>Pos_AEM</b>		-0.047 (-0.40)	0.038 (0.30)		
<b>Pos_AEM*lev_inc</b>		0.277 (1.60)	-0.048 (-0.26)		
<b>Neg_AEM*lev_inc</b>		-0.075 (-0.47)	-0.441** (-2.49)		
<b>Pos_REM</b>				-0.100 (-0.75)	-0.170 (-1.17)
<b>Pos_REM*lev_inc</b>				0.224 (1.24)	-0.132 (-0.67)
<b>Neg_REM*lev_inc</b>				0.214 (1.14)	-0.174 (-0.83)
<b>Lev_inc</b>	-0.130 (-0.99)				
<b>Lev_dec</b>	-0.198 (-1.54)	-0.043 (-0.31)	-0.358** (-2.34)	0.029 (0.19)	-0.298 (-1.78)
<b>ROA</b>	0.611 (1.04)	6.666*** (10.93)	1.368 (1.93)	6.447*** (10.11)	1.681** (2.13)
<b>Strategic_inv</b>	-0.165*** (-4.90)		-0.213*** (-5.33)		-0.213*** (-4.49)
<b>Liquidity</b>	-0.021 (-0.55)		-0.023 (-0.58)		-0.075 (-1.55)
<b>Size</b>	0.121*** (4.13)		0.084** (2.48)		0.085** (2.11)
<b>MTB</b>	-0.010 (-1.17)		-0.007 (-0.65)		-0.015 (-1.13)
<b>RetVol</b>	-5.921*** (-5.87)		-6.937*** (-5.91)		-6.997*** (-5.26)
<b>Age</b>	-0.481*** (-5.82)		-0.446*** (-4.66)		-0.452*** (-4.28)
<b>Loss</b>	-1.424*** (-8.50)		-1.331*** (-7.19)		-1.288*** (-5.75)
<b>Fixed Year</b>	Yes	Yes	Yes	Yes	Yes
<b>Fixed Industry</b>	Yes	Yes	Yes	Yes	Yes
<b>N</b>	3079	2547	2427	1868	1762
<b>pseudo R-sq</b>	0.157	0.134	0.191	0.126	0.187

**Pos\_Tone** A dummy variable that represents a positive tone that equals to 1 if the net tone is positive and 0 otherwise. **Pos\_AEM** A dummy variable of income-increasing AEM (1 if AEM is positive and 0 otherwise). **Neg\_AEM** A dummy variable of income-decreasing AEM (1 if AEM is negative and 0 otherwise). **Pos\_REM** A dummy variable of income-increasing REM (1 if REM is positive and 0 otherwise). **Neg\_REM** A dummy variable of income-decreasing REM (1 if REM is negative and 0 otherwise). **Lev\_inc** A dummy variable that equals 1 if leverage (measured as total debt scaled by total assets) increases and 0 otherwise. **Lev\_dec** A dummy variable that equals 1 if leverage (measured as total debt scaled by total assets) decreases and 0 otherwise. **ROA** is current return on assets measured as Net income before extraordinary items scaled by total assets. **Strategic\_inv** natural logarithm of the percentage owned by institutions. **Liquidity** Current ratio measured as current assets divided by current liabilities. **Size** log of market capitalization. **MTB** is the market to book ratio. **RetVol** is return volatility calculated by standard deviation of returns over the last 12 months ending three months after the fiscal year-end. **Age** is the log of 1 + number of years since the company started as per DataStream (base year). **Loss** is a dummy variable of 1 if return on assets is negative, and 0 otherwise.

t-statistics in parentheses clustered at firm and year level.

All variables are winsorized at the 1 percent level.

\*\*\*/\*\*/\* means significance at 0.01, 0.05, and 0.10 level, respectively

**Table 4-6** Additional Analysis 1

	(1) Net Tone (£0, £0.01)	(2) Net Tone (£0, £0.015)	(3) Net Tone (£0, £0.02)	(4) Net Tone
<b>Pos_REM</b>	-0.006 (-0.89)	-0.005 (-0.60)	-0.011 (-1.40)	
<b>Pos_REM*MBE</b>	0.026* (1.82)	0.049*** (3.85)	0.033*** (2.62)	
<b>Neg_REM*MBE</b>	0.011 (0.62)	0.045*** (3.17)	0.002 (0.15)	
<b>Pos_AEM</b>				0.002 (0.20)
<b>Pos_AEM*lev_inc</b>				0.016 (1.37)
<b>Neg_AEM*lev_inc</b>				-0.015 (-1.35)
<b>Control Variables</b>	Yes	Yes	Yes	Yes
<b>Fixed Year</b>	Yes	Yes	Yes	Yes
<b>Fixed Industry</b>	Yes	Yes	Yes	Yes
<b>N</b>	1793	1793	1793	2427
<b>adj. R-sq</b>	0.262	0.270	0.264	0.272

**Net Tone** Net of positive and negative word. **Pos\_AEM** A dummy variable of income-increasing AEM (1 if AEM is positive and 0 otherwise). **Neg\_AEM** A dummy variable of income-decreasing AEM (1 if AEM is negative and 0 otherwise). **Pos\_REM** A dummy variable of income-increasing REM (1 if REM is positive and 0 otherwise). **Neg\_REM** A dummy variable of income-decreasing REM (1 if REM is negative and 0 otherwise). **MBE** dummy variable equal 1 if change in ROA lies between one of the three thresholds (£0,£0.01; £0, £0.015; or £0, £0.02) and 0 otherwise. **Lev\_inc** A dummy variable that equals 1 if leverage (measured as total debt scaled by total assets) increases and 0 otherwise. t-statistics in parentheses clustered at firm and year level.

All variables are winsorized at the 1 percent level.

\*\*\*/\*\*/\* means significance at 0.01, 0.05, and 0.10 level, respectively

**Table 4-7 Additional Analysis 2**

	(1) pos_Tone (£0, £0.01)	(2) pos_Tone (£0, £0.015)	(3) pos_Tone (£0, £0.02)	(4) pos_Tone
<b>Pos_REM</b>	-0.194 (-1.24)	-0.359** (-2.16)	-0.258 (-1.57)	
<b>Pos_REM*MBE</b>	0.149 (0.48)	0.492* (1.71)	0.232 (0.86)	
<b>Neg_REM*MBE</b>	0.211 (0.50)	-0.386 (-1.47)	-0.073 (-0.23)	
<b>Pos_AEM</b>				-0.163 (-1.02)
<b>Pos_AEM*lev_inc</b>				-0.096 (-0.40)
<b>Neg_AEM*lev_inc</b>				-0.452* (-1.83)
<b>lagged_pos_tone</b>	2.897*** (19.10)	2.902*** (18.97)	2.889*** (19.06)	2.769*** (21.65)
<b>Control Variables</b>	Yes	Yes	Yes	Yes
<b>Fixed Year</b>	Yes	Yes	Yes	Yes
<b>Fixed Inudstry</b>	Yes	Yes	Yes	Yes
<b>N</b>	1522	1522	1522	2072
<b>pseudo R-sq</b>	0.407	0.409	0.407	0.397

**Pos\_Tone** A dummy variable that represents a positive tone that equals to 1 if the net tone is positive and 0 otherwise. **Pos\_AEM** A dummy variable of income-increasing AEM (1 if AEM is positive and 0 otherwise). **Neg\_AEM** A dummy variable of income-decreasing AEM (1 if AEM is negative and 0 otherwise). **Pos\_REM** A dummy variable of income-increasing REM (1 if REM is positive and 0 otherwise). **Neg\_REM** A dummy variable of income-decreasing REM (1 if REM is negative and 0 otherwise). **MBE** dummy variable equal 1 if change in ROA lies between one of the three thresholds (£0,£0,01; £0, £0.015; or £0, £0.02) and 0 otherwise. **Lev\_inc** A dummy variable that equals 1 if leverage (measured as total debt scaled by total assets) increases and 0 otherwise. **Lagged\_pos\_tone** A dummy variable that represents a positive tone at t-1.

t-statistics in parentheses clustered at firm and year level.

All variables are winsorized at the 1 percent level.

\*\*\*/\*\*/\* means significance at 0.01, 0.05, and 0.10 level, respectively

**Table 4-8** Additional Analysis 3

	(1) pos_Tone - £0.01	(2) pos_Tone - £0.015	(3) pos_Tone - £0.02	(4) pos_Tone
<b>Pos_REM</b>	-0.180 (-1.51)	-0.238* (-1.96)	-0.244* (-1.95)	
<b>Pos_REM*Miss</b>	0.502** (2.09)	0.594*** (2.72)	0.484** (2.34)	
<b>Neg_REM*Miss</b>	0.108 (0.39)	-0.072 (-0.29)	-0.079 (-0.35)	
<b>Pos_AEM</b>				0.058 (0.47)
<b>Pos_AEM*LT_lev_inc</b>				0.003 (0.02)
<b>Neg_AEM*LT_lev_inc</b>				-0.385** (-2.16)
<b>Pos_ROA_ch</b>	-0.040 (-0.33)	-0.017 (-0.13)	-0.024 (-0.18)	
<b>LT_Lev_dec</b>				-0.291 (-1.94)
<b>Control Variables</b>	Yes	Yes	Yes	
<b>Fixed Year</b>	Yes	Yes	Yes	Yes
<b>Fixed Industry</b>	Yes	Yes	Yes	Yes
<b>N</b>	1793	1793	1793	2468
<b>pseudo R-sq</b>	0.189	0.191	0.190	0.189

**Pos\_Tone** A dummy variable that represents a positive tone that equals to 1 if the net tone is positive and 0 otherwise. **Pos\_AEM** A dummy variable of income-increasing AEM (1 if AEM is positive and 0 otherwise). **Neg\_AEM** A dummy variable of income-decreasing AEM (1 if AEM is negative and 0 otherwise). **Pos\_REM** A dummy variable of income-increasing REM (1 if REM is positive and 0 otherwise). **Neg\_REM** A dummy variable of income-decreasing REM (1 if REM is negative and 0 otherwise). **Miss** dummy variable equal 1 if ROA changes lies between one of the three thresholds (- £0,01; -£0.015; or -£0.02) and 0 otherwise. **LT\_Lev\_inc** A dummy variable that equals 1 if leverage (measured as long-term debt scaled by total assets) increases and 0 otherwise. **LT\_Lev\_dec** A dummy variable that equals 1 if leverage (measured as long-term debt scaled by total assets) decreases and 0 otherwise. **Pos\_ROA\_ch** A dummy variable that represents positive ROA changes and is equal to 1 if the change in ROA is positive and 0 otherwise.

t-statistics in parentheses clustered at firm and year level.

All variables are winsorized at the 1 percent level.

\*\*\*/\*\*/\* means significance at 0.01, 0.05, and 0.10 level, respectively

## Appendix A Variable Definitions

**Table A-1** List of Variables

<b>Narrative Measurement Variables</b>	
<b>Net Tone</b>	Net of positive and negative words. Measured as
	$Tone_{it} = \frac{Positive\ words_{it} - Negative\ words_{it}}{Positive\ words_{it} + Negative\ words_{it}}$
<b>Pos_Tone</b>	Positive tone: A dummy variable that represents a positive tone that equals to 1 if the net tone is positive and 0 otherwise.
<b>Neg_Tone</b>	Negative tone: A dummy variable that represents a negative tone that equals to 1 if the net tone is positive and 0 otherwise.
<b>Variables of Interest</b>	
<b>AEM</b>	Accrual earnings management: Measured as the Residual from modified jones model regression.
<b>Pos_AEM</b>	Positive accruals earnings management: A dummy variable of income-increasing AEM (1 if AEM is positive and 0 otherwise).
<b>Neg_AEM</b>	Negative accruals earnings management: A dummy variable of income-decreasing AEM (1 if AEM is negative and 0 otherwise).
<b>REM</b>	Real earnings management: Measured using Roychowdhury's (2006) model of Abnormal discretionary expenses measured as the residual of normal discretionary expenses.
<b>Pos_REM</b>	Positive real earnings management: A dummy variable of income-increasing REM (1 if REM is positive and 0 otherwise).
<b>Neg_REM</b>	Negative real earnings management: A dummy variable of income-decreasing REM (1 if REM is negative and 0 otherwise).
<b>MBE (£0, £0.01)</b>	Meet or beat earnings measured as a dummy variable to measure firms that meet or beat last year's earnings (equal to 1 if firm's change in net income before extraordinary items scaled by lagged total assets from the last year is between £0 and £0.01, and 0 otherwise).
<b>MBE (£0, £0.015)</b>	Meet or beat earnings measured as a dummy variable to measure firms that meet or beat last year's earnings (equal to 1 if firm's change in net income before extraordinary items scaled by lagged total assets from the last year is between £0 and £0.015, and 0 otherwise).
<b>MBE (£0, £0.02)</b>	Meet or beat earnings measured as a dummy variable to measure firms that meet or beat last year's earnings (equal to 1 if firm's change in net income before extraordinary items scaled by lagged total assets from the last year is between £0 and £0.02, and 0 otherwise).
<b>Neg_ROA_ch</b>	Negative ROA change: A dummy variable that represents negative ROA changes and is equal to 1 if the change in ROA is negative and 0 otherwise.
<b>Pos_ROA_ch</b>	Positive ROA change: A dummy variable that represents positive ROA changes and is equal to 1 if the change in ROA is positive and 0 otherwise.

<b>Lev_inc</b>	Leverage increase: A dummy variable that equals 1 if leverage (measured as total debt scaled by total assets) increases and 0 otherwise.
<b>Lev_dec</b>	Leverage decreases: A dummy variable that equals 1 if leverage (measured as total debt scaled by total assets) decreases and 0 otherwise.
<b>LT_Lev_inc</b>	Long-term leverage increase: A dummy variable that equals 1 if leverage (measured as long-term debt scaled by total assets) increases and 0 otherwise.
<b>LT_Lev_dec</b>	Long-Term leverage decreases: A dummy variable that equals 1 if leverage (measured as long-term debt scaled by total assets) decreases and 0 otherwise.

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**Control Variables**

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<b>ROA</b>	Return on assets: Measured as Net income before extraordinary items scaled by total assets.
<b>LOSS</b>	Loss: A dummy variable 1 if ROA is negative and 0 otherwise.
<b>MTB</b>	Market to book ratio: Measured as the market value of equity divided by balance sheet value of equity.
<b>RetVol</b>	Return volatility: Measured as the standard deviation of returns over the last 12 months ending three months after the fiscal year-end.
<b>Liquidity</b>	Measured as the current ratio (current assets divided by current liabilities).
<b>Age</b>	Firm Age: Measured as the natural logarithm of 1 + the number of years since the firm started trading (base year).
<b>Size</b>	Firm size: Measured as the natural logarithm of market capitalization
<b>Strategic_inv</b>	Strategic Investors: Represents the percentage of ownership of institutions that own more the 5% and is measured as the natural logarithm of the percentage owned by institutions.

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## Appendix B Positive Word List

Able	Attainment	Compliment
Abundance	Attainments	Complimentary
Abundant	Attains	Complimented
Acclaimed	Attractive	Complimenting
Accomplish	Attractiveness	Compliments
Accomplished	Beautiful	Conclusive
Accomplishes	Beautifully	Conclusively
Accomplishing	Beneficial	Conductive
Accomplishment	Beneficially	Confident
Accomplishments	Benefit	Constructive
Achieve	Benefited	Constructively
Achieved	Benefiting	Courteous
Achievement	Benefitted	Creative
Achievements	Benefitting	Creatively
Achieves	Best	Creativeness
Achieving	Better	Creativity
Adequately	Bolstered	Delight
Advancement	Bolstering	Delighted
Advancements	Bolsters	Delightful
Advances	Boom	Delightfully
Advancing	Booming	Delighting
Advantage	Boost	Delights
Advantaged	Boosted	Dependability
Advantageous	Breakthrough	Dependable
Advantageously	Breakthroughs	Desirable
Advantages	Brilliant	Desired
Alliance	Charitable	Despite
Alliances	Collaborate	Destined
Assure	Collaborated	Diligent
Assured	Collaborates	Diligently
Assures	Collaborating	Distinction
Assuring	Collaboration	Distinctions
Attain	Collaborations	Distinctive
Attained	Collaborative	Distinctively
Attaining	Collaborator	Distinctiveness
	Collaborators	Dream

Easier	Excellent	honour
Easily	Excelling	honourable
Easy	Excels	honoured
Effective	Exceptional	honouring
Efficiencies	Exceptionally	honours
Efficiency	Excited	Ideal
Efficient	Excitement	Impress
Efficiently	Exciting	Impressed
Empower	Exclusive	Impresses
Empowered	Exclusively	Impressing
Empowering	Exclusiveness	Impressive
Empowers	Exclusives	Impressively
Enable	Exclusivity	Improve
Enabled	Exemplary	Improved
Enables	Fantastic	Improvement
Enabling	favourable	Improvements
Encouraged	favourably	Improves
Encouragement	favoured	Improving
Encourages	favouring	Incredible
Encouraging	favourite	Incredibly
Enhance	favourites	Influential
Enhanced	Friendly	Informative
Enhancement	Gain	Ingenuity
Enhancements	Gained	Innovate
Enhances	Gaining	Innovated
Enhancing	Gains	Innovates
Enjoy	Good	Innovating
Enjoyable	Great	Innovation
Enjoyably	Greater	Innovations
Enjoyed	Greatest	Innovative
Enjoying	Greatly	Innovativeness
Enjoyment	Greatness	Innovator
Enjoys	Happiest	Innovators
Enthusiasm	Happily	Insightful
Enthusiastic	Happiness	Inspiration
Enthusiastically	Happy	Inspirational
Excellence	Highest	Integrity

Invent	Premiere	Satisfactorily
Invented	Prestige	Satisfactory
Inventing	Prestigious	Satisfied
Invention	Proactive	Satisfies
Inventions	Proactively	Satisfy
Inventive	Proficiency	Satisfying
Inventiveness	Proficient	Smooth
Inventor	Proficiently	Smoothing
Inventors	Profitability	Smoothly
Leadership	Profitable	Smooths
Leading	Profitably	Solves
Loyal	Progress	Solving
Lucrative	Progressed	Spectacular
Meritorious	Progresses	Spectacularly
Opportunities	Progressing	Stability
Opportunity	Prospered	stabilisation
Optimistic	Prospering	Stabilizations
Outperform	Prosperity	stabilise
Outperformed	Prosperous	stabilised
Outperforming	Prosper	stabilises
Outperforms	Rebound	stabilising
Perfect	Rebounded	Stable
Perfected	Rebounding	Strength
Perfectly	Receptive	Strengthen
Perfects	Regain	Strengthened
Pleasant	Regained	Strengthening
Pleasantly	Regaining	Strengthens
Pleased	Resolve	Strengths
Pleasure	revolutionise	Strong
Plentiful	revolutionised	Stronger
Popular	revolutionises	Strongest
Popularity	revolutionising	Succeed
Positive	Reward	Succeeded
Positively	Rewarded	Succeeding
Preeminence	Rewarding	Succeeds
Preeminent	Rewards	Success
Premier	Satisfaction	Successes

Successful	Revolutionized
Successfully	Revolutionizes
Superior	Revolutionizing
Surpass	Stabilization
Surpassed	Stabilize
Surpasses	Stabilized
Surpassing	Stabilizes
Transparency	Stabilizing
Tremendous	
Tremendously	
Unmatched	
Unparalleled	
Unsurpassed	
Upturn	
Upturns	
Valuable	
Versatile	
Versatility	
Vibrancy	
Vibrant	
Win	
Winner	
Winners	
Winning	
Worthy	
Favorable	
Favorably	
Favored	
Favoring	
Favorite	
Favorites	
Honor	
Honorable	
Honored	
Honoring	
Honors	
Revolutionize	

## Appendix C Negative Word List

Abandon	Absenteeism	Adverse
Abandoned	Abuse	Adversely
Abandoning	Abused	Adversities
Abandonment	Abuses	Adversity
Abandonments	Abusing	Aftermath
Abandons	Abusive	Aftermaths
Abdicated	Abusively	Against
Abdicates	Abusiveness	Aggravate
Abdicating	Accident	Aggravated
Abdication	Accidental	Aggravates
Abdications	Accidentally	Aggravating
Aberrant	Accidents	Aggravation
Aberration	Accusation	Aggravations
Aberrational	Accusations	Alerted
Aberrations	Accuse	Alerting
Abetting	Accused	Alienate
Abnormal	Accuses	Alienated
Abnormalities	Accusing	Alienates
Abnormality	Acquiesce	Alienating
Abnormally	Acquiesced	Alienation
Abolish	Acquiesces	Alienations
Abolished	Acquiescing	Allegation
Abolishes	Acquit	Allegations
Abolishing	Acquits	Allege
Abrogate	Acquittal	Alleged
Abrogated	Acquittals	Allegedly
Abrogates	Acquitted	Alleges
Abrogating	Acquitting	Alleging
Abrogation	Adulterate	Annoy
Abrogations	Adulterated	Annoyance
Abrupt	Adulterating	Annoyances
Abruptly	Adulteration	Annoyed
Abruptness	Adulterations	Annoying
Absence	Adversarial	Annoys
Absences	Adversaries	Annul
	Adversary	Annulled

Annuling	Bankruptcies	Burdens
Annulment	Bankruptcy	Burdensome
Annulments	Bankrupted	Burned
Annuls	Bankrupting	Calamities
Anomalies	Bankrupts	Calamitous
Anomalous	Bans	Calamity
Anomalously	Barred	Cancel
Anomaly	Barrier	Canceled
Anticompetitive	Barriers	Canceling
Antitrust	Bottleneck	Cancellation
Argue	Bottlenecks	Cancellations
Argued	Boycott	Cancelled
Arguing	Boycotted	Cancelling
Argument	Boycotting	Cancels
Argumentative	Boycotts	Careless
Arguments	Breach	Carelessly
Arrearage	Breached	Carelessness
Arrearages	Breaches	Catastrophe
Arrears	Breaching	Catastrophes
Arrest	Break	Catastrophic
Arrested	Breakage	Catastrophically
Arrests	Breakages	Caution
Artificially	Breakdown	Cautionary
Assault	Breakdowns	Cautioned
Assaulted	Breaking	Cautioning
Assaulting	Breaks	Cautions
Assaults	Bribe	Cease
Assertions	Bribed	Ceased
Attrition	Briberies	Ceases
Aversely	Bribery	Ceasing
Backdating	Bribes	Censure
Bad	Bribing	Censured
Bail	Bridge	Censures
Bailout	Broken	Censuring
Balk	Burden	Challenge
Balked	Burdened	Challenged
Bankrupt	Burdening	Challenges

Challenging	Complain	Confession
Chargeoffs	Complained	Confine
Circumvent	Complaining	Confined
Circumvented	Complains	Confinement
Circumventing	Complaint	Confinements
Circumvention	Complaints	Confines
Circumventions	Complicate	Confining
Circumvents	Complicated	Confiscate
Claiming	Complicates	Confiscated
Claims	Complicating	Confiscates
Clawback	Complication	Confiscating
Closed	Complications	Confiscation
Closeout	Compulsion	Confiscations
Closeouts	Concealed	Conflict
Closing	Concealing	Conflicted
Closings	Concede	Conflicting
Closure	Conceded	Conflicts
Closures	Concedes	Confront
Coerce	Conceding	Confrontation
Coerced	Concern	Confrontational
Coerces	Concerned	Confrontations
Coercing	Concerns	Confronted
Coercion	Conciliating	Confronting
Coercive	Conciliation	Confronts
Collapse	Conciliations	Confuse
Collapsed	Condemn	Confused
Collapses	Condemnation	Confuses
Collapsing	Condemnations	Confusing
Collision	Condemned	Confusingly
Collisions	Condemning	Confusion
Collude	Condemns	Conspiracies
Colluded	Condone	Conspiracy
Colludes	Condoned	Conspirator
Colluding	Confess	Conspiratorial
Collusion	Confessed	Conspirators
Collusions	Confesses	Conspire
Collusive	Confessing	Conspired

Conspires	Corrupted	Culpable
Conspiring	Corrupting	Culpably
Contempt	Corruption	Cumbersome
Contend	Corruptions	Curtail
Contended	Corruptly	Curtailed
Contending	Corruptness	Curtailing
Contends	Costly	Curtailment
Contention	Counterclaim	Curtailments
Contentions	Counterclaimed	Curtails
Contentious	Counterclaiming	Cut
Contentiously	Counterclaims	Cutback
Contested	Counterfeit	Cutbacks
Contesting	Counterfeited	Cyberattack
Contraction	Counterfeiter	Cyberattacks
Contractions	Counterfeiters	Cyberbullying
Contradict	Counterfeiting	Cybercrime
Contradicted	Counterfeits	Cybercrimes
Contradicting	Countermeasure	Cybercriminal
Contradiction	Countermeasures	Cybercriminals
Contradictions	Crime	Damage
Contradictory	Crimes	Damaged
Contradicts	Criminal	Damages
Contrary	Criminally	Damaging
Controversial	Criminals	Dampen
Controversies	Crises	Dampened
Controversy	Crisis	Danger
Convict	Critical	Dangerous
Convicted	Critically	Dangerously
Convicting	Criticism	Dangers
Conviction	Criticisms	Deadlock
Convictions	Criticize	Deadlocked
Corrected	Criticized	Deadlocking
Correcting	Criticizes	Deadlocks
Correction	Criticizing	Deadweight
Corrections	Crucial	Deadweights
Corrects	Crucially	Debarment
Corrupt	Culpability	Debarments



Debarred	Defects	Delinquents
Deceased	Defend	Delist
Deceit	Defendant	Delisted
Deceitful	Defendants	Delisting
Deceitfulness	Defended	Delists
Deceive	Defending	Demise
Deceived	Defends	Demised
Deceives	Defensive	Demises
Deceiving	Defer	Demising
Deception	Deficiencies	Demolish
Deceptions	Deficiency	Demolished
Deceptive	Deficient	Demolishes
Deceptively	Deficit	Demolishing
Decline	Deficits	Demolition
Declined	Defraud	Demolitions
Declines	Defrauded	Demote
Declining	Defrauding	Demoted
Deface	Defrauds	Demotes
Defaced	Defunct	Demoting
Defacement	Degradation	Demotion
Defamation	Degradations	Demotions
Defamations	Degrade	Denial
Defamatory	Degraded	Denials
Defame	Degrades	Denied
Defamed	Degrading	Denies
Defames	Delay	Denigrate
Defaming	Delayed	Denigrated
Default	Delaying	Denigrates
Defaulted	Delays	Denigrating
Defaulting	Deleterious	Denigration
Defaults	Deliberate	Deny
Defeat	Deliberated	Denying
Defeated	Deliberately	Deplete
Defeating	Delinquencies	Depleted
Defeats	Delinquency	Depletes
Defect	Delinquent	Depleting
Defective	Delinquently	Depletion

Depletions	Deterrences	Diminishing
Deprecation	Deterrent	Diminution
Depress	Deterrents	Disadvantage
Depressed	Deterring	Disadvantaged
Depresses	Deters	Disadvantageous
Depressing	Detract	Disadvantages
Deprivation	Detracted	Disaffiliation
Deprive	Detracting	Disagree
Deprived	Detriment	Disagreeable
Deprives	Detrimental	Disagreed
Depriving	Detrimentally	Disagreeing
Derelict	Detriments	Disagreement
Dereliction	Devalue	Disagreements
Derogatory	Devalued	Disagrees
Destabilization	Devalues	Disallow
Destabilize	Devaluing	Disallowance
Destabilized	Devastate	Disallowances
Destabilizing	Devastated	Disallowed
Destroy	Devastating	Disallowing
Destroyed	Devastation	Disallows
Destroying	Deviate	Disappear
Destroys	Deviated	Disappearance
Destruction	Deviates	Disappearances
Destructive	Deviating	Disappeared
Detain	Deviation	Disappearing
Detained	Deviations	Disappears
Detention	Devolve	Disappoint
Detentions	Devolved	Disappointed
Deter	Devolves	Disappointing
Deteriorate	Devolving	Disappointingly
Deteriorated	Difficult	Disappointment
Deteriorates	Difficulties	Disappointments
Deteriorating	Difficultly	Disappoints
Deterioration	Difficulty	Disapproval
Deteriorations	Diminish	Disapprovals
Deterred	Diminished	Disapprove
Deterrence	Diminishes	Disapproved

Disapproves	Discouraging	Dismally
Disapproving	Discredit	Dismiss
Disassociates	Discredited	Dismissal
Disassociating	Discrediting	Dismissals
Disassociation	Discredits	Dismissed
Disassociations	Discrepancies	Dismisses
Disaster	Discrepancy	Dismissing
Disasters	Disfavor	Disorderly
Disastrous	Disfavored	Disparage
Disastrously	Disfavoring	Disparaged
Disavow	Disfavors	Disparagement
Disavowal	Disgorge	Disparagements
Disavowed	Disgorged	Disparages
Disavowing	Disgorgement	Disparaging
Disavows	Disgorgements	Disparagingly
Disciplinary	Disgorges	Disparities
Disclaim	Disgorging	Disparity
Disclaimed	Disgrace	Displace
Disclaimer	Disgraceful	Displaced
Disclaimers	Disgracefully	Displacement
Disclaiming	Dishonest	Displacements
Disclaims	Dishonestly	Displaces
Disclose	Dishonesty	Displacing
Disclosed	Dishonor	Dispose
Discloses	Dishonorable	Dispossess
Disclosing	Dishonorably	Dispossessed
Discontinuance	Dishonored	Dispossesses
Discontinuances	Dishonoring	Dispossessing
Discontinuation	Dishonors	Disproportion
Discontinuations	Disincentives	Disproportional
Discontinue	Disinterested	Disproportionate
Discontinued	Disinterestedly	Disproportionately
Discontinues	Disinterestedness	Dispute
Discontinuing	Disloyal	Disputed
Discourage	Disloyally	Disputes
Discouraged	Disloyalty	Disputing
Discourages	Dismal	Disqualification

Disqualifications	Distracted	Downgraded
Disqualified	Distracting	Downgrades
Disqualifies	Distraction	Downgrading
Disqualify	Distractions	Downsize
Disqualifying	Distracts	Downsized
Disregard	Distress	Downsizes
Disregarded	Distressed	Downsizing
Disregarding	Disturb	Downsizings
Disregards	Disturbance	Downtime
Disreputable	Disturbances	Downtimes
Disrepute	Disturbed	Downturn
Disrupt	Disturbing	Downturns
Disrupted	Disturbs	Downward
Disrupting	Diversion	Downwards
Disruption	Divert	Drag
Disruptions	Diverted	Drastic
Disruptive	Diverting	Drastically
Disrupts	Diverts	Drawback
Dissatisfaction	Divest	Drawbacks
Dissatisfied	Divested	Dropped
Dissent	Divesting	Drought
Dissented	Divestiture	Droughts
Dissenter	Divestitures	Duress
Dissenters	Divestment	Dysfunction
Dissenting	Divestments	Dysfunctional
Dissents	Divests	Dysfunctions
Dissident	Divorce	Easing
Dissidents	Divorced	Egregious
Dissolution	Divulge	Egregiously
Dissolutions	Divulged	Embargo
Distort	Divulges	Embargoed
Distorted	Divulging	Embargoes
Distorting	Doubt	Embargoing
Distortion	Doubted	Embarrass
Distortions	Doubtful	Embarrassed
Distorts	Doubts	Embarrasses
Distract	Downgrade	Embarrassing

Embarrassment	Erred	Exculpate
Embarrassments	Erring	Exculpated
Embezzle	Erroneous	Exculpates
Embezzled	Erroneously	Exculpating
Embezzlement	Error	Exculpation
Embezzlements	Errors	Exculpations
Embezzler	Errs	Exculpatory
Embezzles	Escalate	Exonerate
Embezzling	Escalated	Exonerated
Encroach	Escalates	Exonerates
Encroached	Escalating	Exonerating
Encroaches	Evade	Exoneration
Encroaching	Evaded	Exonerations
Encroachment	Evades	Exploit
Encroachments	Evading	Exploitation
Encumber	Evasion	Exploitations
Encumbered	Evasions	Exploitative
Encumbering	Evasive	Exploited
Encumbers	Evict	Exploiting
Encumbrance	Evicted	Exploits
Encumbrances	Evicting	Expose
Endanger	Eviction	Exposed
Endangered	Evictions	Exposes
Endangering	Evicts	Exposing
Endangerment	Exacerbate	Expropriate
Endangers	Exacerbated	Expropriated
Enjoin	Exacerbates	Expropriates
Enjoined	Exacerbating	Expropriating
Enjoining	Exacerbation	Expropriation
Enjoins	Exacerbations	Expropriations
Erode	Exaggerate	Expulsion
Eroded	Exaggerated	Expulsions
Erodes	Exaggerates	Extenuating
Eroding	Exaggerating	Fail
Erosion	Exaggeration	Failed
Erratic	Excessive	Failing
Erratically	Excessively	Failings

Fails	Force	Frustrations
Failure	Forced	Fugitive
Failures	Forcing	Fugitives
Fallout	Foreclose	Gratuitous
False	Foreclosed	Gratuitously
Falsely	Forecloses	Grievance
Falsification	Foreclosing	Grievances
Falsifications	Foreclosure	Grossly
Falsified	Foreclosures	Groundless
Falsifies	Forego	Guilty
Falsify	Foregoes	Halt
Falsifying	Foregone	Halted
Falsity	Forestall	Hamper
Fatalities	Forestalled	Hampered
Fatality	Forestalling	Hampering
Fatally	Forestalls	Hampers
Fault	Forfeit	Harass
Faulted	Forfeited	Harassed
Faults	Forfeiting	Harassing
Faulty	Forfeits	Harassment
Fear	Forfeiture	Hardship
Fears	Forfeitures	Hardships
Felonies	Forgers	Harm
Felonious	Forgery	Harmed
Felony	Fraud	Harmful
Fictitious	Frauds	Harmfully
Fined	Fraudulence	Harming
Fines	Fraudulent	Harms
Fired	Fraudulently	Harsh
Firing	Frivolous	Harsher
Flaw	Frivolously	Harshes
Flawed	Frustrate	Harshly
Flaws	Frustrated	Harshness
Forbid	Frustrates	Hazard
Forbidden	Frustrating	Hazardous
Forbidding	Frustratingly	Hazards
Forbids	Frustration	Hinder

Hindered	Impasses	Inaccuracy
Hindering	Impede	Inaccurate
Hinders	Impeded	Inaccurately
Hindrance	Impedes	Inaction
Hindrances	Impediment	Inactions
Hostile	Impediments	Inactivate
Hostility	Impeding	Inactivated
Hurt	Impending	Inactivates
Hurting	Imperative	Inactivating
Idle	Imperfection	Inactivation
Idled	Imperfections	Inactivations
Idling	Imperil	Inactivity
Ignore	Impermissible	Inadequacies
Ignored	Implicate	Inadequacy
Ignores	Implicated	Inadequate
Ignoring	Implicates	Inadequately
Ill	Implicating	Inadvertent
Illegal	Impossibility	Inadvertently
Illegalities	Impossible	Inadvisability
Illegality	Impound	Inadvisable
Illegally	Impounded	Inappropriate
Illegible	Impounding	Inappropriately
Illicit	Impounds	Inattention
Illicitly	Impracticable	Incapable
Illiquid	Impractical	Incapacitated
Illiquidity	Impracticalities	Incapacity
Imbalance	Impracticality	Incarcerate
Imbalances	Imprisonment	Incarcerated
Immature	Improper	Incarcerates
Immoral	Improperly	Incarcerating
Impair	Improprieties	Incarceration
Impaired	Impropriety	Incarcerations
Impairing	Imprudent	Incidence
Impairment	Imprudently	Incidences
Impairments	Inability	Incident
Impairs	Inaccessible	Incidents
Impasse	Inaccuracies	Incompatibilities

Incompatibility	Inefficiently	Insolvency
Incompatible	Ineligibility	Insolvent
Incompetence	Ineligible	Instability
Incompetency	Inequitable	Insubordination
Incompetent	Inequitably	Insufficiency
Incompetently	Inequities	Insufficient
Incompetents	Inequity	Insufficiently
Incomplete	Inevitable	Insurrection
Incompletely	Inexperience	Insurrections
Incompleteness	Inexperienced	Intentional
Inconclusive	Inferior	Interfere
Inconsistencies	Inflicted	Interfered
Inconsistency	Infraction	Interference
Inconsistent	Infractions	Interferences
Inconsistently	Infringe	Interferes
Inconvenience	Infringed	Interfering
Inconveniences	Infringement	Intermittent
Inconvenient	Infringements	Intermittently
Incorrect	Infringes	Interrupt
Incorrectly	Infringing	Interrupted
Incorrectness	Inhibited	Interrupting
Indecency	Inimical	Interruption
Indecent	Injunction	Interruptions
Indefeasible	Injunctions	Interrupts
Indefeasibly	Injure	Intimidation
Indict	Injured	Intrusion
Indictable	Injures	Invalid
Indicted	Injuries	Invalidate
Indicting	Injuring	Invalidated
Indictment	Injurious	Invalidates
Indictments	Injury	Invalidating
Ineffective	Inordinate	Invalidation
Ineffectively	Inordinately	Invalidity
Ineffectiveness	Inquiry	Investigate
Inefficiencies	Insecure	Investigated
Inefficiency	Insensitive	Investigates
Inefficient	Insolvencies	Investigating



Investigation	Layoffs	Maliciously
Investigations	Lie	Malpractice
Involuntarily	Limitation	Manipulate
Involuntary	Limitations	Manipulated
Irreconcilable	Lingering	Manipulates
Irreconcilably	Liquidate	Manipulating
Irrecoverable	Liquidated	Manipulation
Irrecoverably	Liquidates	Manipulations
Irregular	Liquidating	Manipulative
Irregularities	Liquidation	Markdown
Irregularity	Liquidations	Markdowns
Irregularly	Liquidator	Misapplication
Irreparable	Liquidators	Misapplications
Irreparably	Litigant	Misapplied
Irreversible	Litigants	Misapplies
Jeopardize	Litigate	Misapply
Jeopardized	Litigated	Misapplying
Justifiable	Litigates	Misappropriate
Kickback	Litigating	Misappropriated
Kickbacks	Litigation	Misappropriates
Knowingly	Litigations	Misappropriating
Lack	Lockout	Misappropriation
Lacked	Lockouts	Misappropriations
Lacking	Lose	Misbranded
Lackluster	Loses	Miscalculate
Lacks	Losing	Miscalculated
Lag	Loss	Miscalculates
Lagged	Losses	Miscalculating
Lagging	Lost	Miscalculation
Lags	Lying	Miscalculations
Lapse	Malfeasance	Mischaracterization
Lapsed	Malfunction	Mischief
Lapses	Malfunctioned	Misclassification
Lapsing	Malfunctioning	Misclassifications
Late	Malfunctions	Misclassified
Laundering	Malice	Misclassify
Layoff	Malicious	Miscommunication

Misconduct	Mismanaged	Misunderstanding
Misdated	Mismanagement	Misunderstandings
Misdemeanor	Mismanages	Misunderstood
Misdemeanors	Mismanaging	Misuse
Misdirected	Mismatch	Misused
Mishandle	Mismatched	Misuses
Mishandled	Mismatches	Misusing
Mishandles	Mismatching	Monopolistic
Mishandling	Misplaced	Monopolists
Misinform	Misprice	Monopolization
Misinformation	Mispricing	Monopolize
Misinformed	Mispricings	Monopolized
Misinforming	Misrepresent	Monopolizes
Misinforms	Misrepresentation	Monopolizing
Misinterpret	Misrepresentations	Monopoly
Misinterpretation	Misrepresented	Moratoria
Misinterpretations	Misrepresenting	Moratorium
Misinterpreted	Misrepresents	Moratoriums
Misinterpreting	Miss	Mothballed
Misinterprets	Missed	Mothballing
Misjudge	Misses	Negative
Misjudged	Misstate	Negatively
Misjudges	Misstated	Negatives
Misjudging	Misstatement	Neglect
Misjudgment	Misstatements	Neglected
Misjudgments	Misstates	Neglectful
Mislabel	Misstating	Neglecting
Mislabeled	Misstep	Neglects
Mislabeled	Missteps	Negligence
Mislabeled	Mistake	Negligences
Mislabeled	Mistaken	Negligent
Mislead	Mistakenly	Negligently
Misleading	Mistakes	Nonattainment
Misleadingly	Mistaking	Noncompetitive
Misleads	Mistrial	Noncompliance
Misled	Mistrials	Noncompliances
Mismanage	Misunderstand	Noncompliant

Noncomplying	Obstructing	Overburdened
Nonconforming	Obstruction	Overburdening
Nonconformities	Obstructions	Overcapacities
Nonconformity	Offence	Overcapacity
Nondisclosure	Offences	Overcharge
Nonfunctional	Offend	Overcharged
Nonpayment	Offended	Overcharges
Nonpayments	Offender	Overcharging
Nonperformance	Offenders	Overcome
Nonperformances	Offending	Overcomes
Nonperforming	Offends	Overcoming
Nonproducing	Omission	Overdue
Nonproductive	Omissions	Overestimate
Nonrecoverable	Omit	Overestimated
Nonrenewal	Omits	Overestimates
Nuisance	Omitted	Overestimating
Nuisances	Omitting	Overestimation
Nullification	Onerous	Overestimations
Nullifications	Opportunistic	Overload
Nullified	Opportunistically	Overloaded
Nullifies	Oppose	Overloading
Nullify	Opposed	Overloads
Nullifying	Opposes	Overlook
Objected	Opposing	Overlooked
Objecting	Opposition	Overlooking
Objection	Oppositions	Overlooks
Objectionable	Outage	Overpaid
Objectionably	Outages	Overpayment
Objections	Outdated	Overpayments
Obscene	Outmoded	Overproduced
Obscenity	Overage	Overproduces
Obsolescence	Overages	Overproducing
Obsolete	Overbuild	Overproduction
Obstacle	Overbuilding	Overrun
Obstacles	Overbuilds	Overrunning
Obstruct	Overbuilt	Overruns
Obstructed	Overburden	Overshadow

Overshadowed	Persist	Preclude
Overshadowing	Persisted	Precluded
Overshadows	Persistence	Precludes
Overstate	Persistent	Precluding
Overstated	Persistently	Predatory
Overstatement	Persisting	Prejudice
Overstatements	Persists	Prejudiced
Overstates	Pervasive	Prejudices
Overstating	Pervasively	Prejudicial
Oversupplied	Pervasiveness	Prejudicing
Oversupplies	Petty	Premature
Oversupply	Picket	Prematurely
Oversupplying	Picketed	Pressing
Overtly	Picketing	Pretrial
Overturn	Plaintiff	Preventing
Overturned	Plaintiffs	Prevention
Overturning	Plea	Prevents
Overturns	Plead	Problem
Overvalue	Pleaded	Problematic
Overvalued	Pleading	Problematical
Overvaluing	Pleadings	Problems
Panic	Pleads	Prolong
Panics	Pleas	Prolongation
Penalize	Pled	Prolongations
Penalized	Poor	Prolonged
Penalizes	Poorly	Prolonging
Penalizing	Poses	Prolongs
Penalties	Posing	Prone
Penalty	Postpone	Prosecute
Peril	Postponed	Prosecuted
Perils	Postponement	Prosecutes
Perjury	Postponements	Prosecuting
Perpetrate	Postpones	Prosecution
Perpetrated	Postponing	Prosecutions
Perpetrates	Precipitated	Protest
Perpetrating	Precipitous	Protested
Perpetration	Precipitously	Protester

Protesters	Rationalizing	Reject
Protesting	Reassessment	Rejected
Protestor	Reassessments	Rejecting
Protestors	Reassign	Rejection
Protests	Reassigned	Rejections
Protracted	Reassigning	Rejects
Protraction	Reassignment	Relinquish
Provoke	Reassignments	Relinquished
Provoked	Reassigns	Relinquishes
Provokes	Recall	Relinquishing
Provoking	Recalled	Relinquishment
Punished	Recalling	Relinquishments
Punishes	Recalls	Reluctance
Punishing	Recession	Reluctant
Punishment	Recessionary	Renegotiate
Punishments	Recessions	Renegotiated
Punitive	Reckless	Renegotiates
Purport	Recklessly	Renegotiating
Purported	Recklessness	Renegotiation
Purportedly	Redact	Renegotiations
Purporting	Redacted	Renounce
Purports	Redacting	Renounced
Question	Redaction	Renouncement
Questionable	Redactions	Renouncements
Questionably	Redefault	Renounces
Questioned	Redefaulted	Renouncing
Questioning	Redefaults	Reparation
Questions	Redress	Reparations
Quit	Redressed	Repossessed
Quitting	Redresses	Repossesses
Racketeer	Redressing	Repossessing
Racketeering	Refusal	Repossession
Rationalization	Refusals	Repossessions
Rationalizations	Refuse	Repudiate
Rationalize	Refused	Repudiated
Rationalized	Refuses	Repudiates
Rationalizes	Refusing	Repudiating

Repudiation	Ridiculing	Shortage
Repudiations	Riskier	Shortages
Resign	Riskiest	Shortfall
Resignation	Risky	Shortfalls
Resignations	Sabotage	Shrinkage
Resigned	Sacrifice	Shrinkages
Resigning	Sacrificed	Shut
Resigns	Sacrifices	Shutdown
Restate	Sacrificial	Shutdowns
Restated	Sacrificing	Shuts
Restatement	Scandalous	Shutting
Restatements	Scandals	Slander
Restates	Scrutinize	Slandered
Restating	Scrutinized	Slanderous
Restructure	Scrutinizes	Slanders
Restructured	Scrutinizing	Slippage
Restructures	Scrutiny	Slippages
Restructuring	Secrecy	Slow
Restructurings	Seize	Slowdown
Retaliate	Seized	Slowdowns
Retaliated	Seizes	Slowed
Retaliates	Seizing	Slower
Retaliating	Sentenced	Slowest
Retaliation	Sentencing	Slowing
Retaliations	Serious	Slowly
Retaliatory	Seriously	Slowness
Retribution	Seriousness	Sluggish
Retributions	Setback	Sluggishly
Revocation	Setbacks	Sluggishness
Revocations	Sever	Solvencies
Revoke	Severe	Solvency
Revoked	Severed	Spam
Revokes	Severely	Spammers
Revoking	Severities	Spamming
Ridicule	Severity	Staggering
Ridiculed	Sharply	Stagnant
Ridicules	Shocked	Stagnate

Stagnated	Summoned	Threatens
Stagnates	Summoning	Threats
Stagnating	Summons	Tightening
Stagnation	Summonses	Tolerate
Standstill	Susceptibility	Tolerated
Standstills	Susceptible	Tolerates
Stolen	Suspect	Tolerating
Stoppage	Suspected	Toleration
Stoppages	Suspects	Tortuous
Stopped	Suspend	Tortuously
Stopping	Suspended	Tragedies
Stops	Suspending	Tragedy
Strain	Suspends	Tragic
Strained	Suspension	Tragically
Straining	Suspensions	Traumatic
Strains	Suspicion	Trouble
Stress	Suspicious	Troubled
Stressed	Suspiciously	Troubles
Stresses	Taint	Turbulence
Stressful	Tainted	Turmoil
Stressing	Tainting	Unable
Stringent	Taints	Unacceptable
Subjected	Tampered	Unacceptably
Subjecting	Tense	Unaccounted
Subjection	Terminate	Unannounced
Subpoena	Terminated	Unanticipated
Subpoenaed	Terminates	Unapproved
Subpoenas	Terminating	Unattractive
Substandard	Termination	Unauthorized
Sue	Terminations	Unavailability
Sued	Testify	Unavailable
Sues	Testifying	Unavoidable
Suffer	Threat	Unavoidably
Suffered	Threaten	Unaware
Suffering	Threatened	Uncollectable
Suffers	Threatening	Uncollected
Suing		Uncollectibility

Uncollectible	Underperformed	Unfavourable
Uncollectibles	Underperforming	Unfeasible
Uncompetitive	Underperforms	Unfit
Uncompleted	Underproduced	Unfitness
Unconscionable	Underproduction	Unforeseeable
Unconscionably	Underreporting	Unforeseen
Uncontrollable	Understate	Unforseen
Uncontrollably	Understated	Unfortunate
Uncontrolled	Understatement	Unfortunately
Uncorrected	Understatements	Unfounded
Uncover	Understates	Unfriendly
Uncovered	Understating	Unfulfilled
Uncovering	Underutilization	Unfunded
Uncovers	Underutilized	Uninsured
Undeliverable	Undesirable	Unintended
Undelivered	Undesired	Unintentional
Undercapitalized	Undetected	Unintentionally
Undercut	Undetermined	Unjust
Undercuts	Undisclosed	Unjustifiable
Undercutting	Undocumented	Unjustifiably
Underestimate	Undue	Unjustified
Underestimated	Unduly	Unjustly
Underestimates	Uneconomic	Unknowing
Underestimating	Uneconomical	Unknowingly
Underestimation	Uneconomically	Unlawful
Underfunded	Unemployed	Unlawfully
Underinsured	Unemployment	Unlicensed
Undermine	Unethical	Unliquidated
Undermined	Unethically	Unmarketable
Undermines	Unexcused	Unmerchantable
Undermining	Unexpected	Unmeritorious
Underpaid	Unexpectedly	Unnecessarily
Underpayment	Unfair	Unnecessary
Underpayments	Unfairly	Unneeded
Underpays	Unfavorability	Unobtainable
Underperform	Unfavorable	Unoccupied
Underperformance	Unfavorably	Unpaid



Unperformed	Unsuccessful	Victims
Unplanned	Unsuccessfully	Violate
Unpopular	Unsuitability	Violated
Unpredictability	Unsuitable	Violates
Unpredictable	Unsuitably	Violating
Unpredictably	Unsuited	Violation
Unpredicted	Unsure	Violations
Unproductive	Unsuspected	Violative
Unprofitability	Unsuspecting	Violator
Unprofitable	Unsustainable	Violators
Unqualified	Untenable	Violence
Unrealistic	Untimely	Violent
Unreasonable	Untrusted	Violently
Unreasonableness	Untruth	Vitiate
Unreasonably	Untruthful	Vitiated
Unreceptive	Untruthfully	Vitiates
Unrecoverable	Untruthfulness	Vitiating
Unrecovered	Untruths	Vitiation
Unreimbursed	Unusable	Voided
Unreliable	Unwanted	Voiding
Unremedied	Unwarranted	Volatile
Unreported	Unwelcome	Volatility
Unresolved	Unwilling	Vulnerabilities
Unrest	Unwillingness	Vulnerability
Unsafe	Upset	Vulnerable
Unsalable	Urgency	Vulnerably
Unsaleable	Urgent	Warn
Unsatisfactory	Usurious	Warned
Unsatisfied	Usurp	Warning
Unsavory	Usurped	Warnings
Unscheduled	Usurping	Warns
Unsellable	Usurps	Wasted
Unsold	Usury	Wasteful
Unsound	Vandalism	Wasting
Unstabilized	Verdict	Weak
Unstable	Verdicts	Weaken
Unsubstantiated	Vetoed	Weakened

Weakening	destabilising
Weakens	disfavour
Weaker	dishonour
Weakest	dishonourable
Weakly	dishonourably
Weakness	dishonoured
Weaknesses	dishonouring
Willfully	dishonours
Worries	jeopardise
Worry	jeopardised
Worrying	lacklustre
Worse	misdemeanour
Worsen	misdemeanours
Worsened	monopolisation
Worsening	monopolise
Worsens	monopolised
Worst	monopolises
Worthless	monopolising
Writedown	penalise
Writedowns	penalised
Writeoff	penalises
Writeoffs	penalising
Wrong	rationalisation
Wrongdoing	rationalisations
Wrongdoings	rationalise
Wrongful	rationalised
Wrongfully	rationalises
Wrongly	rationalising
balk	scrutinise
balked	scrutinised
criticise	scrutinises
criticised	scrutinising
criticises	unauthorised
criticising	underutilised
destabilisation	unfavourably
destabilise	unsavoury
destabilised	

## Chapter 5 — Conclusion

### 5.1 Summary of Research Findings

The over-arching objective of the thesis is to determine what drives narratives in corporate annual reports and what are the impacts/consequences of narratives in annual reports. After conducting a systematic literature review, the thesis presented two empirical studies on the two main writing styles found in existing literature, the readability of narratives and the tone of narratives (optimistic, pessimistic and ambiguous). It is important to understand the drivers and impacts of narratives because as far as it is known, narratives are not thoroughly audited as financials and are not immediately verifiable (Athanasakou and Hussainey, 2014). Therefore, it is essential to understand how beneficial or harmful can narratives be on investors and other stakeholders. Also, it is important to understand why managers write narratives the way they are written. The extent to which narratives are informative or misleading is not clear cut and is inconclusive in existing literature, suggesting that further analysis is always beneficial to understand this field of research (Merkl-Davies and Brennan, 2007; Li 2010a; Beatti, 2014).

Considering the motivation behind the argument, the thesis presents three distinct studies, including one literature review and two empirical studies. The empirical studies use data from the FTSE all-share non-financial firms for ten years from 2006-2015. Financial data retrieved from DataStream, whereas qualitative data (narratives of annual reports) were analysed from the PDF version of annual reports retrieved from Perfect Fillings. The annual reports are analysed using a computer-based program to quantify the qualitative data and get the needed proxies that measures readability and the tone of narratives. Each study conducted in this thesis has unique findings discussed below.

The first paper aims to understand the driver and impacts of narratives in corporate reports through a literature review. The literature review is conducted systematically by utilising the methodology presented by Tranfield, Denyer and Smart (2003). It starts by identifying keywords, generating search strings and creating an inclusion and exclusion criteria that best answers the review question (*What does the literature tell us about the drivers behind narratives in corporate reports? What are the impacts of narratives in corporate reports?*).

According to the resulted literature from the review, two competing arguments are found in literature, as narratives can either be used to provide incremental information to reduce the information asymmetry or to mislead investors. The literature also finds that narratives are measured using the readability (measuring the reading difficulty of narratives) or through the tone (level of optimism, pessimism or ambiguity). The SLR was able to answer the review question by identifying the following primary drivers of narratives in corporate reports; financial performance, internal and external control, earnings management. In addition to the drivers, the primary impacts of narratives of corporate reports are; the capital market, future performance, earnings quality, external financing impacts.

The second paper aims to empirically examine the driver and impact of narratives, by investigating the association between current performance and the readability of narratives (using readability measures and an ambiguity measure) to test the obfuscation hypothesis. The paper also moves on to examine the impact of readability and ambiguity of narratives on performance persistence and firm value. It is found that readability and ambiguity are negatively associated with firm performance, suggesting that firms use impression management to obfuscate adverse information. The research also finds evidence that impression management practices using readability measures reduce performance persistence. Finally, the study finds that the use of difficult to read narratives in annual reports has an unfavourable impact on the firm's value. These findings suggest that there is evidence (whether deliberate or not) of the obfuscation that can provide additional validation of the obfuscation hypothesis by examining the impact of both readability and ambiguity on firm value.

The third paper aims to investigate the association between REM and AEM practices on the tone of narratives (level of optimistic and pessimistic language used) in corporate annual reports. The fraud triangle is used to model the study by considering (i) earnings management as the opportunity (ii) tone of narratives as the attitude (iii) and two strategic events as the incentives. It is found that there is a direct relationship between AEM, and the tone of narratives in corporate annual reports. Furthermore, when examining if earnings management drives the tone of narratives for firms meeting or beating prior year's earnings, it is found that REM practices drive the tone of narratives upwards in

line with their income-increasing REM practices, but not AEM. However, during leverage increase as a strategic situation, it is found that AEM drives the tone of narrative downwards in line with their income-decreasing earnings management practices. The overall implication of the study is that regardless of whether the management's discretionary practices are beneficial or harmful to stakeholders, the tone of narratives is biased towards their intentions of earnings management practices.

## **5.2 Contribution to Knowledge**

Overall, the findings retrieved from the three individual papers presented in this thesis contribute to knowledge in two distinct ways. It contributes to knowledge theoretically and methodologically.

### *Theoretical Contribution*

The first theoretical contribution is derived from the SLR conducted in this thesis. The literature review contributed to knowledge as it is the most up to date review, as it scans literature up to the current year (2019). Moreover, based on the synthesis of the literature reviewed gaps and recommendation for future research was retrieved. The review was able to identify gaps empirically, methodologically, and recommends a new research design centered around the concept of triangulation that can retrieve fruitful new findings in the area of narratives in annual reports.

Secondly, the thesis contributes to the growing strand of research around the concept of narratives in corporate disclosures, and how these narratives relate to the financial data presented in the financial statements (Li, 2008, 2010b; Clatworthy and Jones, 2003; Merkley, 2014). First, the thesis expands on previous work conducted by Li (2008) on the relationship of readability with current firm performance, and the consequences of low readability on performance persistence, indicating that managers obfuscated adverse results by making narratives difficult to read. The notion behind the finding is challenged by Bloomfield (2008) arguing the findings are not enough to conclude on managers deliberate actions of reducing the readability of narratives in annual reports. The second paper in this thesis develops the argument by not only examining the consequences of readability on performance persistence but also examining how readability can impact

the firm value. According to Jiraporn et al. (2008) when managers' report discretionary financial information, the firm value is an indicator of whether this information is biased for self-serving reasons or used to maximise shareholders wealth. A positive association with firm value indicates that managers purpose for discretionary information is to maximise shareholders wealth. The thesis finds that there is a negative association between readability and firm value, suggesting that when narratives are harder to read the firm value decreases. This provides additional validation of Li's (2008) results, that other than the reduction of performance persistence that managers make narratives difficult to read when performance reduces.

In addition to the examination of readability, this thesis provides an insight into the use of ambiguous language, centering at its relationship with current performance and its consequences on performance persistence and firm value. Previous studies on ambiguity are limited but overall suggest that ambiguity in narratives is a sign of uncertainty which can drive stakeholders away (Loughran and McDonald, 2013; Ertugrul et al., 2017; Beauchene, Li, and Li, 2019). Beauchene, Li, and Li (2019) argue that ambiguity is considered a form of persuasion for the communicator to seek beneficial self-serving value. Therefore, this thesis takes the opportunity to examine ambiguity in the same way as readability, to look at its association with firm performance and its consequence on performance persistence and firm value. As far as it is known, this is the first study that examines the consequences of ambiguity in annual reports through its impact of performance persistence and firm value. This expands on previous papers that studied that role of ambiguity in accounting by examining how performance quality can be impacted and how investors value the firm when managers use ambiguous language. Which is different from previous, where Loughran and McDonald (2013) examined the impact of uncertain tone in IPO prospects, while Ertugrul et al. (2017) examined how creditors react to ambiguous language.

Finally, the thesis contributes to earnings management field of research, as it examines how earnings management drive the tone of narratives in corporate annual reports. Extant studies that shed light on earnings management and narratives including the use of readability measures (Lo, Ramos and Rogo, 2017), the grammatical structure of languages (Kim, Kim and Zhou, 2017), and abnormal tone (Huang, Teoh and Zhang,

2014). This thesis examines the association between narratives and earnings management in a substantially different way. First, actual tone of narratives is used (net of positive and negative words) which is different from Huang, Teoh and Zang's (2014) measure of abnormal tone. Second, the thesis not only directly links earnings management with the tone of narratives, but also examines the association of specific strategic events on the use of tone with earnings management practices. As far as it is known, it is the first paper to utilise the fraud triangle to examine if earnings management practices drive the tone of narratives in two strategic situations, meet or beat prior year's earnings and leverage increases. It is also the first paper as far as it is known to associate REM with the tone of narratives in corporate annual reports.

### *Methodological Contribution*

There are two primary methodological contributions presented in this thesis. First, unlike previous literature review conducted on narratives in accounting, as far as it is known, the thesis is the first to present a literature review on the topic of narrative in corporate reports conducted using a systematic methodology. The thesis disseminates and synthesises existing literature to answer a specific research question following the systematic literature review methodology of Tranfield, Denyer and Smart (2003), by conducting five essential steps to come up with gaps in research and opportunities to investigate in the future. The five steps include identifying keywords, creating search strings, screening results by developing a review protocol and inclusion and exclusion criteria, screening and quality appraisal of the literature found and reporting the findings (this includes data extraction, descriptive analysis and thematic analysis).

In addition to the systematic literature review, the thesis makes a second methodological contribution presented in the second paper (chapter 3) involving the readability index. The readability index is a composite index combining all three different measures of narratives readability proxies into one. Existing literature has managed to examine the different proxies of readability like the fog index and the word count, but the examination is usually independent of each other (e.g., Curtis, 1998, Li, 2008; Miller, 2010; Lawrence, 2013; Loughran and McDonald, 2014). An annual report can be opaque by being difficult to read, large in size and long in terms of word count. Therefore, it is

fruitful to examine the joint effect of the three proxies together through a composite index. The readability index is generated through the combination of the three readability proxies (fog index, number of pages, and word count) by using a decile rating of 10. The index reflects the probable causal factor in explaining the link between the tendency of the annual report's low readability and current performance. The larger an index value, the greater the reading difficulty of narratives. A composite index provides several benefits, as it reduces measurement error, and helps to overcome precision, reliability and accuracy issues (Kaufmann and Kraay, 2007; Maggino and Zumbo, 2012; Balakrishnan, Core, and Verdi, 2014).

### **5.3 Implications**

In addition to the contribution provided by this thesis, the findings also provide implication to auditors, users and policymakers. From a practical perspective, the findings in this thesis can be useful to auditors and users of corporate reports. Firstly, according to the financial reporting council (2018) auditors have a responsibility towards 'other information' which includes the qualitative information in annual reports like the narratives. However, there is a considerable variation among auditors in analysing 'other information'. The financial reporting council (2018) suggests that the reason behind the variation is due to the lack of prescription from the accounting standards. This lack of prescription does not by any means suggest that auditors are not performing their work adequately or that the narratives information disclosed by companies is inaccurate. However, the findings in this thesis suggest that narratives in annual reports are important and that it is critical for auditors to take narratives into consideration diligently. Also, by utilising a computer-based program to analyse content in narratives of corporate annual reports, it is evident that both the readability and the tone of narratives have a great impact on the prospect of the firm, and in turn users of the annual report.

Not only that, but according to the financial reporting council (2014) aggressive earnings management is considered as a fraud risk, which entails auditors to be extremely vigilant of irregular financial reporting. This thesis finds that earnings management practices are directly related to the tone of narratives in annual reports, as well as specific strategic situations where managers will most likely be engaging in earnings management. Therefore, it is essential and recommended that auditors not only focus on financials to



detect aggressive earnings management but possibly employing the fraud triangle as it can be useful to auditors to quantify the three components (including narratives) and detect the possibility of fraud (Lokanan, 2015).

Another practical implication is towards the users of corporate annual reports. According to the Financial Reporting Council (2014), one of the services of narrative in the annual reports is to provide further explanation of the financial statements to meet the shareholder's needs, motivate firms to be more innovative in drafting their reports. The findings in this thesis suggest that narratives' readability may impact future performance and firm value negatively, and that earnings management drives the tone of narratives. For that reason, users of narratives in annual reports from investors, financial analysts, and other stakeholders, should be alert towards the writing style of narratives. For example, high ambiguity and uncertainty in narratives should be absorbed with caution when basing financial investment decisions.

Finally, since narratives in annual reports are considered as an explanation of the underlying financials, adequate communication is of high importance to policymakers. The main aim of policymakers is to ensure that reported information by companies is effectively and efficiently transferred to investors. The findings show that flexibility in narratives in the way that adverse performance is concealed through ambiguity and readability, and that earnings management drive the tone of narratives written. It is important for policymakers to take these findings concerning the flexibility of narratives into consideration when updating or amending policies and regulations, either locally or from an international perspective.

## **5.4 Limitations**

Although the thesis can provide considerable contributions and implication, it comes with its limitations. First, the systematic literature review does have its benefits but is limited in certain areas. For example, for quality reasons, only peer-reviewed journal articles were selected, which may have restricted other relevant articles for the review. Also, the aim of the systematic literature review is to provide a holistic view of the studies conducted around all different drivers and impacts of narratives in corporate reports, therefore, it is

left for future research to look at one area in details for deeper knowledge. Nevertheless, the detailed search strategy was able to provide key studies in this research area.

In addition, there are limitations from a methodological perspective. Most of the studies that have conducted their research in the US were able to get qualitative information on the narratives in annual reports from an online database called Edgar. It is a clean form of narratives that are already converted in text form, and only contains the narratives and financial information. As it can easily be included in a data analyser like Diction to be analysed using computer-based content analysis. However, this system is not available for firms listed in the sample used in this thesis (UK FTSE All-share). To analyse narratives of annual reports, PDF versions of the annual reports was retrieved from Perfect Filing data base. The PDF files have found problematic as they cannot be analysed before they are converted to text files, and cleared from images and tables, then added into computer programs to be analysed. Some annual reports were non-convertible and thus, had to be discarded from the study. Also, specific sections such as the strategic report or chairman letter were difficult to separate to conduct sectional analysis, as the only way to separate the section is if they were created as sectioned PDF's and not as whole text document. Therefore, unlike studies conducted in the US, not all data is available to be included in the sample for UK firms, which reduced the sample size of this thesis.

## **5.5 Suggestion for Future Research**

The first paper consisting of the systematic literature review identified areas that are worthy of future research. However, this section will look at the two empirical studies conducted in chapter 3 and 4 to provide opportunities to expand on the current studies. First, the sample used in this thesis consists of only FTSE All-share companies in the UK. It is interesting to expand the same studies across other countries, and to conduct a comparative analysis between different regulatory systems, such as between US GAAP and UK GAAP, or emerged economy and an emerging economy, in addition to a global or European study focusing the use of ambiguity and the association of tone and earnings management as these areas are new to literature. Although data collection may seem difficult (to manually collect annual reports globally or from a specific region), but it can provide an additional contribution based on their major differences.

Secondly, chapter 3 focuses on how readability and ambiguity impact performance persistence and firm value to examine the obfuscation hypothesis. Although the findings show signs of obfuscation, they do not identify whether it is deliberate or not. Therefore, it is noteworthy to directly examine the intention of narratives' readability and ambiguity through its impact information asymmetry or agency cost, because if it reduces information asymmetry or increases agency cost, this can be a sign of management opportunism.

Third, chapter 4 examines the relationship of earnings management with the tone of narratives in annual reports using two strategic situations to meet or beat prior year's earnings and leverage increase. The two earnings management models examined AEM and REM. Since the findings suggest that each earnings management technique impact the tone of narrative differently, then it is interesting to examine how the third type of earnings management, 'classification shifting' created by McVay (2006) drive the tone of narratives in annual reports<sup>36</sup>. Not only that, but chapter 4 finds that different strategic situations impact the tone of narratives differently. It is fruitful to examine other types of strategic events in line with earnings management such as financial crisis, financial distress, mergers and acquisitions, CEO compensation, among others.

Finally, Graham, Harvey and Rajgopal's (2005) provide anecdotal evidence of the use of earnings management by surveying and interviewing over 400 executives, it was helpful for researchers to come up with new and interesting empirical topics by relying on a realistic decision making process provided by managers. The same methodology can be applied to get a glimpse of management perspective on the preparation of narratives in corporate reports, which can provide researchers with the means to structure their upcoming studies.

The topic of narratives in annual reports is a big and under-developed area of research. The contributions and recommendation for future research in this thesis call for scholars to make use of these research opportunities, to broaden up the field and come up with

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<sup>36</sup> Classification shifting is type of earnings management where managers manipulate the allocation of expenses from core expenses to special items, to inflate core earnings while bottom line earnings stay the same (McVay, 2006).

findings that provide practical and regulatory implications to develop the accounting profession.

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