

Market Reaction to the Positiveness of Annual Report Narratives

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Abstract

This paper focuses on narratives published by UK companies, defined here as the content of annual reports excluding financial statements and notes to accounts. We endeavour to gauge the tone of these narratives by recording the frequency of positive words appearing in the text. We show that the extent of positiveness is related to market reaction around the disclosure date. This conclusion is maintained even after controlling for the financial figures that are reported simultaneously and company-specific characteristics. Consequently, narratives should not be perceived as mere impression management tools, but also as conduits for disseminating price-sensitive information.

JEL codes: M41; G12; G14

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1. Introduction

Recent academic studies have paid increasing attention to the market impact of the tone inherent in corporate narratives (Frankel, Mayew, & Sun, 2010; Davis & Tama-Sweet, 2012; Huang, Teoh, & Zhang, 2014). Previous literature examined, amongst others, corporate press releases (Ahern & Sosyura, 2014), quarterly earnings announcements and conference calls (Francis, Schipper, & Vincent, 2002; Demers & Vega, 2010; Price, Doran, Peterson, & Bliss, 2012; Davis, Piger, & Sedor, 2012). Notwithstanding the advances made in this area of research, relatively little attention has been paid to the narratives of annual reports as a whole. The extant content analysis of annual reports has been predominantly restricted to relatively short subsections, such as company presidents' letters to shareholders (McConnell, Haslem, & Gibson, 1986; Abrahamson & Amir, 1996; Swales, 1988; Smith & Taffler, 2000). A study by Loughran and McDonald (2011), who linked the tone of full 10-K forms to filing period returns, constitutes a notable exception. This gap in the literature is significant, as a growing body of work suggests that the language used in the qualitative part of annual reports plays a role in framing the quantitative section of the documents (Hoskin, Hughes, & Ricks, 1986; Anilowski, Feng, & Skinner, 2007). Although both qualitative and quantitative information are often released concurrently, recent research has employed statistical techniques to separate the influence of these two different modes of representation (Francis *et al.*, 2002; Demers & Vega, 2010). We use the same methodological approach in this paper. A better understanding of the potential impact of the narratives in annual reports will not only help us to understand this aspect of corporate communications, but also shed more light on the overall impact of these documents on markets.

While we acknowledge the contribution made by Loughran and McDonald (2011), our research expands their work by examining annual reports published by UK rather than US companies. Due to the different regulatory frameworks, one should not expect that the results

reported in Loughran and McDonald (2011) will be applicable also in the UK context. Notably, the accuracy and complexity of communications may be dissimilar under principles- and rules-based standards (Nelson, 2003). Schleicher and Walker (2010) also note that disclosure-related litigation is significantly less common in the United Kingdom than in the United States, while Frost and Pownall (1994) and Davies (2009: 311) remark on the SEC's greater stringency in monitoring and enforcing annual and interim reporting rules. During the 2005-2014 period, there were 1,300 SEC enforcement actions related to issuer reporting and disclosure (SEC, 2015). In the UK, on the other hand, the laws against fraudulent misstatements and misleading reporting do not appear to be sufficiently deterrent (Ferran, 2009: 343) and the definition of fraud is narrower than in the US (Davies, 2007: 44). If legal considerations were paramount to reputational issues, one would expect that UK managers would be more inclined to manipulate the tone of annual report narratives.

It must be acknowledged that a number of previous studies employed content analysis based on UK data. Smith and Taffler (1995) examined whether their research participants were able to discriminate between failed and non-failed companies by reading chairmen's statements. They also conducted additional investigations inquiring into whether keywords and themes contained in chairmen's statements, as well as readability and understandability of these texts, predict bankruptcy (Smith & Taffler 1992, 2000). Schleicher and Walker (2010) employed a manual analysis method to scrutinize the tone of the outlook section, which is a part of the chairman's statement. They found that firms with impending declines in sales growth and profit margin bias the tone upwards and that the tone depends on managerial incentive variables. Clatworthy and Jones (2003) look at how chairmen's narratives relate to profit before taxation and find that management tends to report in a way that best serves its own interests, crediting itself for good news and attributing bad news to the external environment. Finally, Brennan,

Guillamon-Saorin, and Pierce (2009) focus on creating a new multi-dimensional impression management measure.

While these papers make a substantial contribution to our understanding of qualitative managerial communications, they differ substantially from the current paper. Ours is a study that, unlike its UK predecessors, examines market reaction (as measured by returns) to the disclosure of narratives. In doing so, it also focuses on longer documents. This is particularly helpful, as identification of linguistic style is more reliable for lengthy texts (Grimmer & Steward, 2013: 272). Such observation has also been made in the field of authorship attribution analysis, where longer textual samples are considered to have greater discriminatory power in terms of distinguishing authorship characteristics (Baillie, 1974; Ledger & Merriam, 1994). Although all these differences between our paper and prior studies are non-trivial, there is one striking similarity worth mentioning. Namely, we found that narratives disclosed by companies are indeed an important medium of communication and that they should not be overlooked.

The overarching aim of this paper is to measure the degree of positiveness woven into annual report narratives of UK companies between January 2006 and June 2013. The ‘narrative’, to which we also refer as the ‘qualitative part of an annual report’, is defined here as the content of the annual report including independent auditors’ report, but excluding financial statements and the notes to the accounts. Following the accepted convention, any numbers appearing in the narrative are not removed from the text. Furthermore, from a definitional perspective, in this study we use the word ‘tone’ when referring to positiveness or net positiveness of narratives. We focus on gauging the impact of positiveness because managers may either be incentivized to send an upbeat message to investors and other users of accounts or, alternatively, they may simply be expressing their understanding of corporate performance. An ongoing debate in accounting literature revolves around the question of whether qualitative disclosure is a vehicle for incremental information content or an element of managerial attempts

to carry out impression management (Merkl-Davies, Brennan, & McLeay, 2011). We believe that our study can contribute to this debate by demonstrating that the tone of narratives indeed conveys information, which investors find to be material in nature. Consequently, it is imperative that market participants familiarize themselves with these narratives as soon as they become available. We also want to note at this stage that measuring market reaction is important as it allows us to make inferences about investor behaviour.

Our findings show that abnormal returns in short windows surrounding financial report disclosure dates correlate significantly with the positiveness encapsulated in annual reports. However, deriving inferences from a simple correlation coefficient can be misleading, due to the fact that financial figures are disclosed concurrently with narratives. The disentanglement of the individual influences exerted by the narratives and the quantitative data has been attempted here in a multivariate regression framework. The results obtained from this analysis indicate that positiveness remains an important factor explaining market reaction, even after financial performance and company characteristics have been controlled for.

The remainder of the article is organized as follows. The next section reviews the literature in the field and provides justification for our study. This is followed by a section on theoretical considerations and a further one describing the methodological framework. Section 5 elaborates on our data sources and the characteristics of the sample, while Section 6 presents the results of our empirical analysis. Section 7 offers additional considerations and the paper ends with some conclusions and a list of implications.

2. Research Context

Our investigation employs content analysis in the context of corporate annual report narratives. One way to approach this task is to rely on human judgment to evaluate these texts.

However exploring this avenue would be extremely time-consuming given that our sample comprises 1,410 lengthy documents. There are a number of researchers who took this route, including Bhattacharya, Galpin, Ray, and Yu (2009) who read and evaluated over 171 thousand news items about Internet IPOs, and Smith and Taffler (1995) who engaged 146 students to process chairmen's statements. A second method is to employ statistical evaluation of textual data – an approach that was introduced in the accounting context by Frazier, Ingram, and Tennyson (1984) who used a software prototype called *Words*. Since then, there has been considerable progress in the software applications available and in quantitative linguistics, however most of the algorithms rely on computing the frequencies of words falling into a given category.

In our research we rely on the thesaurus of positive words developed by Henry (2008: 387) that was created specifically for accounting and finance applications. Henry's wordlist has already gained some popularity among researchers. For instance, it has been used to measure the tone of R&D disclosures (Merkley, 2014), transcripts of earnings conference calls (Doran, Peterson & Price, 2012; Price *et al.*, 2012; Davis, Ge, Matsumoto & Zhang, 2015), discretionary disclosures prior to restatements (Gordon, Henry, Peytcheva & Sun, 2013) and investment proposals submitted to business angles (Parhankangas & Ehrlich, 2014). Rogers, Van Buskirk and Zechman (2011) employ Henry's library of words to document that the use of overly optimistic language in earnings announcements increases litigation *risk*.

Importantly, extant literature suggests that the tone of qualitative corporate reports may have non-negligible market impact. Kothari and Short's (2003) findings indicate that positive disclosure favourably affects cost of capital and price volatility, while Li (2010) shows that the tone of forward-looking statements has predictive power for the company's future performance. Furthermore, Davis *et al.* (2012), Demers and Vega (2010) and Huang *et al.* (2014) documented

that an optimistic disposition in corporate earnings press releases is associated with abnormal market returns following the announcements.

Following this trajectory in the literature, we identified two important points that affected our research design, namely the focus on the qualitative part of annual reports and the attention to positive tone within the text. In contrast with much of the existing literature - where a variety of corporate narrative outputs, such as earnings announcements, press releases, as well as texts from financial mass media (Tetlock, 2007; Tetlock, Saar-Tsechansky, & Macskassy, 2008) are examined - we decided to focus our examination on the qualitative part of companies' annual reports. In the UK, the Companies Act 2006 and the amendments to this Act introduced in 2013 require large and medium listed companies to incorporate certain sections in their annual reports. These include the strategic report/business review section (covering business description, issues related to performance, principal risks, position, trends and factors, and key performance indicators), the corporate social responsibility statement (describing environmental, employee and community issues), the directors' report, the directors' remuneration report, and the statement of directors' responsibilities. The UK Corporate Governance Code provides guidance on the directors' remuneration and directors' reports, while the Listing Rules require companies to either comply with the UK Corporate Governance Code or explain why they have failed to do so. Disclosure and Transparency Rules outline a framework for providing corporate governance statements. Compliance with regulations is monitored by the Financial Reporting Council.¹ While managers are still afforded significant discretion as to how to frame corporate performance and how much optimism to inject into the narrative, texts produced by different companies comprise a relatively structurally homogenous sample, which contributes to more effective analysis of the examined factor in the text.

¹ This obligation arises from the regulatory need to enforce the Companies Act 2006 and the amendments to this act introduced in 2013. This regulatory body also issued guidance on strategic and directors' reports.

Our focus on positiveness follows from the contextual nature of qualitative texts. Although we acknowledge the issue of inherent context-dependence of qualitative corporate disclosures, our measurement choice incorporates the assumption that qualitative parts in annual reports are aimed at communicating an overall positive tone and that they do so by repeatedly signalling to the reader the positiveness of the firm's activities, regardless of the immediate context in which these are presented. In the case of such texts, which are contextually positive, a measure of the degree of upbeat tone, above and beyond what investors already accept, may affect investors' decision-making. In fact, the reaction of market participants is likely to be more pronounced if they perceive the narrative part of annual reports to be a conduit for new material information rather than a mere impression management tool.

3. The Influence of Narratives

To gain a better understanding of the association between the positiveness of narratives and market response, we deploy a theoretical framework that addresses the potential underpinning mechanisms of this phenomenon. Research focusing on the economic utility that investors receive from qualitative disclosures finds that tone conveys decision-relevant information. For example, Li (2010) finds an association between tone and future earnings, while Davis *et al.* (2012) show that managers use language to signal expectations about the firm's performance. We wish to theorise how this information is incorporated and utilised in the investor's decision-making, which we regard in this context to be primarily a cognitive process. That is, although the environment in which decisions are taken may sometimes be comprised of groups of investors, the activity of reading the narrative is essentially an individual cognitive process. Following this, we mobilize theories from cognitive psychology that posit that the tone incorporated in managerial qualitative disclosures, such as those contained in annual reports, influences attitude change (Ajzen & Fishbein, 2000; Crano & Prislin, 2006; Perloff, 2010).

The influence potential of texts is regarded primarily in psychology as informational influence, which is seen as cognitive responses to persuasive messages (Petty, Cacioppo, & Schumann, 1983). According to the Elaboration Likelihood Model (ELM) put forward by Petty and Cacioppo (1986), when actors are exposed to potentially persuasive communication and when they are attentive to this message, they engage in a cognitive structure change. This process encourages the creation of new cognitions that may then be adopted and stored in memory and, as a result, different responses become more salient than previously (Sussman & Siegal 2003; Petty & Cacioppo 2011). Put differently, influence is conceptualized as a cumulative series of signals in the text that, when read by the actor, gradually brings about cognitive structure change and a change in attitude.

Further findings from experimental psychology and marketing are also relevant. Wilson and Miller (1968) document that repeated arguments become more persuasive, while Weiss (1969) finds that repeated exposure to a message is related to a higher degree of opinion formation. Commenting on the existing literature, Malaviya, Meyers-Levy, and Sternthal (1999) note that increasing the number of exposures to commercial advertising affects its persuasiveness. The literature acknowledges that the association between repetition and persuasion may be moderated by a number of factors, such as credibility of source or argument strength.

In the light of ELM, we conceptualize investors reading the narratives in the firms' reports with the aim of deciding whether or not they should invest in, or alternatively, remove their investment from the firms in question as a case of engagement in the process of cognitive structure change. Thus, the relation between repetition and attitude change emphasised in the literature also motivates us to consider frequency as an important factor in examining the market impact of annual report narratives. That is, the more often positive tone expressions are mentioned in the text, the more likely it is that they will be influential. Importantly, we do not

theorize directly about the mechanisms that attribute market reaction to the narratives, but our reading of the literature on informational influence directs our research design. In particular, it provides justification for choosing a measurement tool that relies on comparing frequencies of positive tone articulations.

We operationalized our inquiry by programming Henry's (2008) positiveness thesaurus into a content analysis software application called Diction.² By doing so, we were able to measure the frequency with which positive words are found in each of the annual report narratives. These frequencies were subsequently linked to abnormal returns around disclosure dates. We have examined two different event windows and two different statistical models against which abnormal returns are defined. Our null hypothesis is that market reaction is *ceteris paribus* unrelated to the tone inherent in the narratives. A range of control variables has been collected and incorporated into the regressions in order to more cleanly isolate the influence of tone.

4. Methodology

Since one of our main objectives is to measure market reaction around a specific event, that is the publication of an annual report, we employ event-study analysis which is suitable for the task at hand (Brown and Warner, 1980; 1985). Its aim is to measure abnormal returns (*ARs*) that are directly attributable to certain occurrences. An *AR* is defined as a deviation of the observed return from the return that would have materialized in absence of the event. Of course,

² Diction has become a very popular software package and has found many applications in political science, communication studies, linguistics, business studies, and sociology. Creators of the software track all publications that used it and list them on the following website <http://www.dictionsoftware.com/published-studies/>. At the time of writing this paper, Diction was used by the authors of 151 refereed journal articles, 15 books and monographs, 58 book chapters, 68 conference presentations, as well as 49 working papers and proceedings. Notable examples of applications of the Diction software in the field of accounting include Sydserff and Weetman (2002), Yuthas, Rogers and Dillard (2002), Demers and Vega (2010), Rogers *et al.* (2011), Craig and Brennan (2012), and Davis *et al.* (2012).

there is no way of knowing with certainty what would have happened had the event not occurred. For this reason, instead of relying on an unknown hypothetical construct, *ARs* typically gauge returns in excess of some pre-determined statistical benchmark.

As Campbell, Lo, and MacKinley (1997) note, there are two commonly adopted benchmarks in the context of event-study analysis. The first assumes that, under the null hypothesis of no market reaction, the returns for a given event i are constant over time and equal to μ_i . This implies that, during the period surrounding the event, the mean-adjusted *ARs* can be defined as follows:

$$AR_{i,t}^{MA} = R_{i,t} - \hat{\mu}_i \quad [1]$$

where $R_{i,t}$ is the return on the relevant company for event i observed on day t and where $\hat{\mu}_i$ has been estimated as an average return on that company during a period preceding the event window. The second methodological approach accounts for the systematic risk of a security and overall stock market fluctuation. It estimates a single factor model, where stock returns are regressed against a stock market index R_M , as follows: $R_{i,t} = \alpha_i + \beta_i R_{M,t} + \varepsilon_{i,t}$. The estimation is based on data recorded immediately prior to the event window and FTSE350 approximates here the market portfolio. Collecting the parameter estimates, we are able to compute market-model-adjusted *ARs* in the temporal proximity of the event:

$$AR_{i,t}^{MM} = R_{i,t} - (\hat{\alpha}_i + \hat{\beta}_i R_{M,t}) \quad [2]$$

The timeframe we select to estimate our event-specific parameters (μ_i , α_i , and β_i) begins 201 trading days before the event and ends 2 days before the event. In other words, we use a 200-day estimation window $(-201, -2)$, relative to the first annual report dissemination date (*Day* 0). Had this window been any longer, one would run the risk of the previous year's report disclosure being incorporated within it. Consequently, its usefulness as an event-neutral benchmark would have been invalidated. On the other hand, shortening the estimation span would lead to less precise statistical inferences. With regard to examination of the impact of the

report release itself, we choose to focus on two short periods, namely (-1,1) and (-1,5). Since the windows are relatively narrow, the probability that major confounding events will occur during these ephemeral timeframes is minute, thereby reducing the likelihood of contaminated results. It is worth noting that prior studies focusing on earnings announcements used event windows of comparable length (see for instance Francis *et al.* (2002: 519), Scharnd & Walther (2000: 169)).

In the next step of our analysis, we cumulate the abnormal returns over time for each event within the relevant period to arrive at the cumulative abnormal return:

$$CAR_X_i(t_1, t_2) = \sum_{j=t_1}^{t_2} AR_{i,j}^X \quad [3]$$

where X can take the value of either MA or MM depending on whether the AR s are mean- or market-model-adjusted. The parameter t_1 denotes the beginning of the event window, or *Day -1* in our case, while t_2 can take a value of either +1 or +5 depending on the specification. CAR_X can be simply interpreted as the totality of market reaction associated with publication of a particular annual report. In other words, CARs capture the response of investors to the information contained in both the annual financial statements and the narratives.

To disentangle the impact of qualitative information from that of quantitative data and company characteristics, we perform regression analysis. More specifically, our estimate of market response is linked to the positiveness of the descriptive part of the report and other control variables. More formally, we try to fit the following regression to our data:

$$CAR_X_i(t_1, t_2) = \alpha + \beta_1 Positiveness_i + \beta_2 Size_i + \beta_3 Book_to_Market_i + \\ + \beta_4 Earnings_Surprise_i + \beta_5 \Delta \% Sales_i + \beta_6 \Delta Leverage_i + \varepsilon_i \quad [4]$$

Detailed definitions of the explanatory variables are provided in Table 1. In our empirical inquiry we try different values of X and t_2 . Furthermore, in some of the specifications we restrict some of the β coefficients to be equal to zero.

[Table 1 about here]

The key regressor in equation [4] is *Positiveness*, which is defined as the fraction of positive words in the text of an annual report narrative. A large number of studies have utilized variables constructed by dividing the number of words falling into a given tone category by the total number of words in the documents. Examples of papers that operationalized measures of positiveness/optimism constructed in that manner include Feldman, Govindaraj, Livnat, and Segal (2008), Kothari, Li, and Short (2009), Henry (2006), Cicon, Clarke, Ferris, and Jayaraman (2014), Wisniewski and Moro (2014), Ferguson, Philip, Lam, & Guo (2015). Cho, Roertd, and Patten (2010) use the optimism score as a dependent variable to model the biases in corporate environmental disclosures. At this stage it must be mentioned that a number of studies also employ a tone variable, which is typically defined as an unadjusted or scaled difference between positive and negative words (see for instance Henry, 2008; Henry & Leone, 2009; Frankel *et al.*, 2010). We construct our own version of the tone variable and report the results based on it in the Further Considerations section.

The text considered in our study runs from the beginning of the document up to and including the independent auditors' report. Inclusion of auditors' reports is justified on the basis that they include new important information published concurrently with the rest of the annual report and, just like the remainder of the narratives, express opinions that are not subject to a rigorous audit. Financial statements and notes to the accounts are omitted from the calculation of our tone measure, as the contents of these sections has to comply with regulatory requirements and is carefully audited, leaving little scope for linguistic manoeuvring. In our study, we use Henry's (2008: 387) thesaurus of 105 positive words (see Appendix I) that has been developed with the purpose of analyzing texts residing in the domain of accounting and financial reporting. Following Henry (2008) and Henry and Leone (2009), we calculate the frequencies of positive words based on a user-defined dictionary in the computer-aided text analysis program called Diction.

As this wordlist is context-specific and uses specialized language, the problem created by polysemy (words with several different meanings) is partially mitigated.³ Henry and Leone (2009) document empirically that, when analyzing earnings press releases, this particular word corpus is more powerful than the more general alternatives. This is because it does not include words that are irrelevant in the context of financial disclosure and does not misclassify domain-specific terms. Although the thesaurus has been developed by a US researcher, we believe that it is applicable to the UK market, as it does not include words related to culture or regulations. Furthermore, some British companies may be cross-listed in the US or be willing to attract American capital, which would induce a large degree of language compatibility on both sides of the Atlantic. If the market reacts favourably to positive words printed in reports, one would expect the β_I coefficient in regression [4] to be positive and statistically significant. Further details on the remaining variables appearing in equation [4] are given in the section that follows.

5. Data

The companies included in our sample are constituents of the FTSE350 stock market index. From the complete list, we have eliminated 72 companies whose operations fell within the financial services domain.⁴ Firms that were merged during our sample period were also excluded, as were those with an insufficient number of annual reports or information on financial performance. Our final sample consists of 209 companies listed on the London Stock Exchange. For this group of companies, we manually downloaded available annual reports

³ The mitigation of the problem of polysemy can be nicely illustrated with the word “beat”. In everyday language this word would be associated with violence, while in the context of financial reporting which often refers to beating forecasts or expectations this word may have positive connotations.

⁴ Banks and other financial institutions have a different mode of operation compared to other businesses and the financial reporting of these entities is specialized in nature. They have to comply, for instance, with IAS 30 or the Basel Accord and are regulated by the Financial Conduct Authority and Prudential Regulation Authority at the Bank of England. The institutions are subjected to stress testing, have to comply with minimum capital requirements and focus a lot of attention on liquidity and risk management. As a result, the structure of their annual report narratives differs significantly from that of a typical listed company. Some of the other content analysis studies performed for the UK market also concentrate exclusively on non-financial firms (see Clatworthy and Jones, 2003; Schleicher and Walker, 2010).

published between January 2006 and June 2013 from corporate web pages, Morningstar and Bloomberg. At the end of this process we had 1,410 observations, on which more detail is provided in Appendix II to this paper. The publication date for a given report is assumed to be the date on which the report appeared either on Bloomberg or Morningstar, whichever occurred earlier. It should be noted that UK annual reports are almost invariably disseminated as pdf files, which necessitates conversion to the plain text format required for content analysis. The converted files were checked manually to ensure consistency. Finally, we obtained data on company stock prices, market capitalization, book-to-market ratios, and financial indicators from Datastream.

[Table 1 about here]

In addition to cumulative abnormal returns and the *Positiveness* measure, which have already been described in some detail above, this study employs a range of other variables which act as controls (see Table 1). Firstly, the extant literature documents that small companies tend to generate higher returns (Banz, 1981; Fama and French, 1992). Secondly, the seminal work of Rosenberg, Reid, and Lanstein (1985) has discovered a robust relationship between companies' book-to-market ratios and rewards earned by investors. We consequently incorporate the natural logarithm of market capitalization and book-to-market ratios of companies in our set of regressors, which aligns with the argument of Fama and French (1993), who argue that these two can be considered the most important risk factors for stocks. The beta of security is not taken to be an explanatory factor, as the *CAR_MM* dependent variable has already been purged of the influences of the general market.

Furthermore, we try to account for financial figures which are released concurrently with the narrative. Our earnings surprise measure is based on an increase of earnings over a simple random walk forecast. This definition is dictated primarily by data availability and is similar to that used in Wisniewski (2004) and Sponholtz (2008). It should be noted that Hughes and Ricks

(1987) report that an earnings surprise based on a simplistic seasonal random walk benchmark outperforms that derived from analyst forecasts, in that it is more closely linked to abnormal returns around the dissemination date. The numerator of *Earnings_Surprise* is divided by stock price, which coheres with the approach used in Easton and Zmijewski (1989), DeFond and Park (2001), Bartov, Givoly, and Hayn (2002) and Brown and Caylor (2005). We also control for an increase in financial leverage, which according to Bhandari (1988) is *ceteris paribus* positively related to stock returns. Finally, we include the percentage change in sales in our set of regressors. This inclusion is motivated by the findings of Jordan, Waldron, and Clark (2007) who show that sales predict stock prices and Barbee, Mukherji, and Raines (1996) who found that sales yield is one of the strongest determinants of returns.

[Table 2 about here]

Table 2 presents summary statistics for the variables used in our study. The magnitude of *CARs* is, on average, close to zero. This is not entirely unexpected, as some disclosures will be perceived as good news and others as bad news, cancelling each other out in the averaging process. The mean of our linguistic variable indicates that one in every 209 words appears in our positive tone thesaurus. Furthermore, companies were confronted with falling earnings per share, which can be linked to the occurrence of deep recession during our sample period. The severe impact of the credit crunch is also mirrored in falling financial leverage, as enterprises struggled to access credit due to the banking sector's distress. Even in these difficult circumstances, our sample companies managed to increase their sales volumes, perhaps at the expense of falling profit margins.

[Table 3 about here]

The correlation matrix between variables is reported in Table 3. Most importantly, the Pearson correlation coefficients between positiveness of text and magnitude of market reaction

are positive and statistically significant. This preliminary result attests to the fact that the manner in which annual report narratives are written is not immaterial to stock market participants and that it could possibly convey valuable information. Secondly, correlations between explanatory variables are relatively low, indicating that multicollinearity is not likely to be a problem in the empirical models that follow. In cases where association between the regressors is strong, standard errors of the regression parameter estimates are inflated. Chatterjee and Price (1991) argue that Variance Inflation Factors (VIFs) in excess of 10 are symptomatic of estimation problems. We find that the highest VIF in the regressions reported in this paper is 1.27, dispelling any apprehensions about this potential issue.

6. Empirical Results

In what follows, we analyze different variations of the regression specified in equation [4]. Table 4 reports the results where the dependent variable is defined as the cumulative abnormal return calculated using the mean-adjusted model, while Table 5 focuses on market-model-adjusted CARs. Each of the tables consists of two panels, as two different lengths of the event window are examined. For each panel, three regressions are presented – one with no control variables, one which takes into account company characteristics and one which also incorporates financial performance measures.

[Table 4 about here]

[Table 5 about here]

The most notable finding arising from these tables is that the *Positiveness* measure carries a positive coefficient and is statistically significant in all regression specifications. This has several important ramifications. Firstly, the narrative of annual reports is to some extent flexible and could potentially be manipulated by management. Shin (1994) considers a

theoretical model in which firms that operate in an informationally asymmetric environment could manage the disclosure of facts by suppressing negative news. By the same token, Hildebrandt and Snyder (1981), Rutherford (2005) and Henry (2008) allude to the possible existence of the “Pollyanna effect” (positivity bias) in parts of annual reports. It is conceivable that management will use a report as a marketing tool and suffer from overconfidence when writing their own reviews. The unjustified overuse of optimistic language could undermine the usefulness of information extracted from linguistic features. However, our results indicate that, despite all these real-life complications, the tone of annual reports can still be viewed as price-sensitive in nature.

It is helpful to consider the implications of our findings from the investors’ and market’s perspectives. According to the Efficient Market Hypothesis proposed by Fama (1970), stock prices already reflect all available information and change only in response to disclosure of previously unknown facts. Consequently, if markets were efficient and the positiveness expressed in narratives was perceived to merely capture different degrees of impression management, rational investors would dismiss it as being uninformative. If, on the other hand, the tone conveyed new important information, discerning market participants would revise their assessment of the company’s fundamental value. The discrepancy between fundamental value and market price will induce them to trade. In cases in which the positiveness level turned out to be above expectations, the revised fundamental value would surpass the pre-disclosure market price, leading to a simultaneous lack of supply and excess demand for the company’s stocks. The price will need to rise immediately until demand and supply are equalized. In a scenario where the positiveness level was below expectations, the excess of sellers relative to buyers would cause a stock price decline. Several caveats need to be mentioned at this stage. Firstly, for the abovementioned mechanism to work, market participants need to have a general understanding of managerial behaviour and motives, in order to rationally formulate their

expectations of narrative positiveness levels. Secondly, one may argue that the reaction observed can be attributed to noise traders who trade on irrelevant information. However, if this was the case, one would expect smart money to swiftly correct the mispricing that arises as a result. Since the effect of positiveness is not eliminated in our longer event windows, we are inclined to conclude that it is indeed material in nature.

It should also be mentioned that our findings are of interest from the point of view of the UK's regulatory framework. As we have alluded to earlier, UK regulations against potentially misleading disclosure do not appear to be adequately deterrent from the point of view of management, partially due to issuer-only liability (Ferran, 2009). Furthermore, in the US, SEC (1998) provides more detailed guidance on word usage and writing style. Despite this, our finding that the tone of disclosure determines market response is mirrored by those obtained for US earnings press releases (Henry, 2008; Demers & Vega, 2010; Davis *et al.*, 2012). This observation leads us to believe that reluctance to put excessive spin on facts may not be rooted solely in regulatory boundaries, but also in fear of potentially costly reputational loss.

The coefficients on the *Size* variable are always negative and statistically significant for longer event windows, which is consistent with the effect propounded by Banz (1981). There are several reasons why investors may demand higher compensation when committing to low capitalization stocks. Firstly, less information is available on these firms (Atiase, 1985; Freeman, 1987) and analysts are reluctant to follow them (Arbel, Carvell, & Strebel, 1983; Gilbert, Tourani-Rad, & Wisniewski, 2006). Secondly, size is an important determinant of the likelihood of bankruptcy (Shumway, 2001), with large multinationals being more diversified and less risky. Finally, small caps are associated with higher transaction costs (Lesmond, Ogden, & Trzcinka, 1999) and are more strongly affected by the illiquidity problem (Amihud, 2002). Book-to-market ratios, on the other hand, have almost no explanatory power in our regressions, possibly due to the short span of our event windows.

Our findings for *Earnings_Surprise* are in line with those of Lev (1989) who argued that the relationship between accounting earnings and stock market returns is weak and unstable over time. Most likely, financial figures from annual reports do not engender a strong market response because they are merely an aggregation of the interim results that firms have published earlier. This explanation would be in line with Ball and Brown (1968), who observe that about 85 to 90 percent of the information contained in annual report income statements has been captured by reports released beforehand.

One caveat that needs to be mentioned here is that although up to 2007 preliminary statements of annual results announcements were mandatory, they became voluntary due to changes in Listing Rules. We have tested whether this regulatory change had implications for the stability of coefficients on the variables derived from financial statements data (*Earnings_Surprise*, $\Delta\%Sales$, and $\Delta\text{Leverage}$). Our tests [not reported] revealed that the null hypothesis of coefficient constancy could not be rejected.⁵ Even though disclosure of preliminary statements may have, at least in the latter part of our sample, an element of voluntariness, Disclosure and Transparency Rules (DTR 4.2.2) required companies to disclose half-yearly reports. Many issuers also published quarterly results. Consequently, annual financial statements (unlike narratives) could be viewed as stale news, which should be irrelevant to the price formation process in informationally efficient markets. Perhaps this is also the reason why increases in sales and leverage are invariably statistically insignificant in our model specifications.

The *F*-statistics for the regressions indicate that the factors considered are jointly important from a statistical point of view. However, this observation must be tempered by the fact that the R-squared coefficients are relatively low. It is a well-established empirical finding that stock markets are excessively volatile compared to underlying fundamentals. Shiller (1981)

⁵ Detailed results can be obtained from the authors upon request.

argues that price volatility is about five to thirteen times higher than that justified by a dividend-based valuation model. Returns are often a manifestation of the fickle sentiments of the investing public and can be orthogonal to the economic performance of companies. As a result, the impact of genuine fundamental drivers is intertwined with and obscured by noise, resulting in low values of the goodness of fit measures. This problem transcends our study and is a more general issue that has troubled financial economists since time immemorial.

7. Further Considerations

One possible extension of this study could be to investigate the market impact of words with negative connotations. To probe this issue, we use Henry's (2008:387) negativity thesaurus incorporating 85 words and measure the frequency with which these words appear in the qualitative parts of annual reports. We discover that most of our market reaction measures are negatively correlated with this frequency; however, these correlations are statistically insignificant. This clearly shows that positive words have greater explanatory power.

Perhaps investors do not believe that managers would voluntarily disclose bad news in narrative text, unless forced to do so by regulators. Managers are often remunerated by share or call option compensation schemes, which gives them incentives to suppress unfavourable information. These motivations are likely to be weakened during option granting periods when the desire to negotiate the lowest strike on the calls may dominate. However, it is safe to assume that managerial compensation increases with the stock price during the majority of periods. Due to the existence of this incentive, it is likely that the influence of bad news would be more apparent in financial statements rather than in the narrative. Davis and Tama-Sweet (2012) argue that managers tend to publish pessimistic narratives in outlets with the lowest impact and it is doubtful whether an annual report is such an outlet.

We are also not the first to claim that positive statements in UK annual reports are more informative compared to negative ones. Schleicher and Walker (2010), who examined the outlook section in chairmen's statements in conjunction with managerial incentives, found that tone is biased primarily by manipulating the number of negative statements (p. 388). Therefore the fact that negative words have less impact on the market attests to investors' rationality. There are also some parallels to the world of politics – Wisniewski and Moro (2014) find that policy makers are unlikely to draft pessimistic communiqués related to meetings in which they themselves have participated. As a result of these considerations, we believe that tone is more accurately measured by different shades of optimism rather than pessimism.

On an intuitive level, some may argue that positive words may be overrated, since managers have the proclivity to get involved in 'sugar-coating rituals'. However, rational investors are expected to fully anticipate such behaviour. Whenever managers fail to engage in such rituals, it may be a very strong signal to shareholders that there may be serious problems on the horizon. Consequently, this can give rise to a strong correlation between the degree of positiveness and market reaction.

Notwithstanding some of the aforementioned problems, we proceeded to construct an index which aggregates the frequencies of both positive and negative words. The practical issue is that the two thesauruses considered have different word counts, which unavoidably leads to the measured positive and negative word frequencies having different sample means and standard deviations. In order to make sure that both carry the same weight in the aggregation, we convert these frequencies into z-scores.⁶ Consequently, we construct the following index:

$$Tone_i = Positivity_z_i - Negativity_z_i$$

⁶ As a matter of convention, Diction software converts frequencies into z-scores before aggregating them.

Subsequently, we use the *Tone* variable in our market impact regressions instead of the *Positivity* indicator. The results presented in Table 6 reassure us that the statistical significance of the tone conveyed by a narrative is maintained, regardless of how this sentiment is defined.

[Table 6 about here]

Another potential problem is that our sample incorporates both a period of expansion and a subsequent recession sparked by the banking crisis. In order to control for this fact, we have constructed a dummy variable which takes a value of 1 if the annual report was published after 15th September 2008 (collapse of Lehman Brothers) and a value of 0 otherwise. This variable, however, proved insignificant in our regressions and does not alter the strength of the relationship between *Positiveness* and *CARs*. Furthermore, we note that the correlations between different measures of market reaction and upbeat tone are always positive, irrespective of whether we look at the boom or bust sub-sample.

8. Conclusions

Our results indicate that the positiveness inherent in qualitative parts of annual reports, has a statistically significant association with abnormal returns around disclosure dates. More specifically, an upbeat tone typically induces statistically significant stock price increases. These results, that join a growing body of empirical evidence about the impact of narrative-based elements on markets, call for further and more detailed examination of qualitative parts of annual reports by both academics and practitioners. In particular, our findings affirm the usefulness of text-analysis software in revealing hidden characteristics of texts and thus suggest that such software tools may be fruitfully employed by investors and regulators alike. Computerized computational linguistic approaches to analyzing annual report narratives can be particularly helpful considering how voluminous these documents are. Previous studies focused

on shorter items, however reliable assessment of linguistic style in short documents is a rather problematic undertaking.

There are several facts that can be gleaned from our empirical observations. Firstly, although many claim that annual report narratives may have the tendency to suffer from subjective optimism, investors clearly believe that they also convey material information. In fact, they seem to rebalance their portfolios in response to the tone of the qualitative part of annual reports, which becomes apparent when examining the distribution of returns. While narratives may be partially used to build brands and manage impressions, they also appear to contribute to the reduction of informational asymmetries. Secondly, our study invites a reflection on the extent to which managers can exaggerate an optimistic message under the principles-based system operating in the UK. Most of the research on qualitative corporate outputs used US documents, which are produced under a rules-based regulatory framework. Our results, which record market reactions similar to those observed in the US, point to a similar set of general phenomena. We can therefore conclude that what restrains managers from injecting excessive positiveness bias into narratives is not only the litigation risk, but also potential reputational loss or other non-regulatory factors. The third lesson that can be drawn from our findings is that a thorough perusal of the narrative should be recommended. Whilst a number of previous studies performed content analysis of specific sections of annual reports, such as chairmen's statements, in our view it would be imprudent to advise investors to read parts of the annual report narratives selectively. This is not to say that some parts cannot contain more informational content than others, however, deliberately dismissing selected sections may be a misguided strategy. Fourthly, it appears that resources committed to drafting these documents are well spent. Companies typically involve many departments, accountants, lawyers, directors and external agencies to carefully design the message they wish to convey in their annual reports. This message is heard by market participants, who act accordingly. Lastly, we can infer

that the use of a semantic software package could, at least to a certain extent, be useful in predicting market reactions to annual report disclosures.

There are many avenues that further research could explore. Our computerized approach to text analysis is analytically elegant and convenient, however it is unable to assess the veracity of statements made or to evaluate whether managers are playing strategic disclosure games with investors and regulators. Further research needs to be conducted to answer these questions, which are outside the scope of the current paper. Secondly, the algorithm to measure positiveness employed here relies on computing frequencies from a user-specified thesaurus in the text. As such, it does not recognize sentence structures, subjunctive clauses or the context in which a given word occurs, even though all of these can modify or even negate the meaning of a particular word. Future research should endeavour to address these methodological deficiencies. Thirdly, we discover that narrative positiveness significantly correlates with announcement cumulative abnormal returns that measure the overall market response. However, this particular indicator is able to explain only a small proportion of the return variance. Inability to model price increases precisely is a well-known problem in finance, after Shiller (1981) pointed out that stock prices are substantially more volatile than underlying fundamentals. It is quite possible that much of the return variation is driven by non-fundamental, irrational factors which are difficult to capture in an empirical model. Our study points to only one incremental variable that may be useful to further explicate stock price fluctuations.

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Table 1
Definitions of Explanatory Variables

Panel A. Explanatory Variables Used in the ‘Empirical Results’ Section	
Variable	Definition
Positiveness	Frequency with which the positive words listed in Henry’s (2008) tone thesaurus appear in the narrative of the annual report. For the complete list of these words see Appendix I. The frequency is defined as the number of positive words divided by the number of total words in the document
Size	Natural logarithm of company’s capitalization at the end of fiscal year to which the annual report refers
Book_to_Market	Ratio of book value per share to share price at the end of fiscal year covered by the report
Earnings_Surprise	Increase in earnings per share from the previous year scaled by the share price measured at the end of fiscal year
$\Delta\%$ Sales	Percentage increase in sales relative to the previous year
Δ Leverage	Increase in leverage, where leverage is defined as total liabilities over total assets
Panel B. Explanatory Variable Used in the ‘Further Considerations’ Section	
Variable	Definition
Tone	To construct this variable, we measured the frequencies with which the positive and negative words listed in Henry’s (2008) tone thesauruses appear in the narrative of the annual reports. These frequencies have been subsequently converted into z-scores by deducting their individual sample means and dividing by standard deviation. <i>Tone</i> for a particular report is measured as its positive word frequency z-score minus the negative word frequency z-score

Table 2
Summary Statistics

Variable	Mean	Standard Deviation	25th Percentile	Median	75th Percentile
CAR_MA(-1,1)	0.0671%	3.9994%	-1.7751%	0.0086%	1.9135%
CAR_MA(-1,5)	0.2502%	5.9793%	-2.5880%	-0.0988%	2.8867%
CAR_MM(-1,1)	0.0207%	3.5317%	-1.5615%	-0.0795%	1.4735%
CAR_MM(-1,5)	0.0450%	5.2468%	-2.4810%	-0.1416%	2.3364%
Positiveness	0.4778%***	0.4071%	0.2180%	0.3960%	0.5960%
Size	14.3314***	1.4504	13.3439	14.0619	15.0463
Book_to_Market	0.5897***	0.7472	0.2323	0.4024	0.7566
Earnings_Surprise	-0.0168	0.4404	-0.0115	0.0076	0.0258
$\Delta\%$ Sales	8.3288%***	26.1616%	0.3921%	7.3865%	15.6980%
Δ Leverage	-0.0046*	0.0979	-0.0401	-0.0046	0.0280

Note: CAR_MA denotes cumulative abnormal return from a constant-mean-adjusted model and the parameters in the parentheses denote the length of the event window. CAR_MM are cumulative returns in excess of a market model benchmark. The remaining variables are defined in Table 1. A two-tailed test for the hypothesis that the mean of a variable is equal to zero has been performed. *, **, *** reported in the 'Mean' column denote rejection at 90%, 95% and 99% confidence level, respectively.

Table 3
Pearson Correlation Table

	CAR_MA (-1,1)	CAR_MA (-1,5)	CAR_MM (-1,1)	CAR_MM (-1,5)	Positiveness	Size	Book_to_ Market	Earnings Surprise	Δ%Sales	ΔLeverage
CAR_MA(-1,1)	1.0000									
CAR_MA(-1,5)	0.6645***	1.0000								
CAR_MM(-1,1)	0.8761***	0.5806***	1.0000							
CAR_MM(-1,5)	0.5947***	0.8744***	0.6780***	1.0000						
Positiveness	0.0547**	0.0515*	0.0647**	0.0771***	1.0000					
Size	-0.0467*	-0.0742***	-0.0316	-0.0550**	-0.0077	1.0000				
Book_to_Market	0.0348	0.0367	0.0089	-0.0050	-0.0120	-0.1378***	1.0000			
Earnings_Surprise	0.0265	-0.0498*	0.0145	-0.0502*	0.0220	0.0824***	-0.4344***	1.0000		
Δ%Sales	0.0204	0.0143	-0.0047	-0.0257	-0.0266	0.0080	-0.0342	0.0420	1.0000	
ΔLeverage	0.0149	0.0390	0.0075	0.0079	0.0237	-0.0302	0.0144	-0.1536***	-0.0497*	1.0000

Note: The first four variables in the table measure the cumulative abnormal returns computed using a constant-mean adjustment (MA) and market-model adjustment (MM). For definitions of the remaining variables please refer to Table 1. A two-tailed test for the hypothesis that the correlation coefficient is equal to zero has been performed. *, **, *** denote rejection at 90%, 95% and 99% confidence level, respectively.

Table 4
Determinants of Constant-Mean-Adjusted Cumulative Abnormal Returns

Panel A. Regressions on CAR_MA(-1,1)			
	(1)	(2)	(3)
Intercept	-0.0019 (0.0016)	0.0139 (0.0109)	0.0134 (0.0111)
Positiveness	0.5286** (0.2614)	0.5278** (0.2619)	0.5341** (0.2660)
Size		-0.0012 (0.0007)	-0.0012 (0.0008)
Book_to_Market		0.0017 (0.0014)	0.0029* (0.0016)
Earnings_Surprise			0.0050* (0.0028)
$\Delta\%$ Sales			0.0035 (0.0041)
Δ Leverage			0.0089 (0.0115)
R-squared	0.2895%	0.6013%	0.9046%
F-stat	4.0880	2.8252	2.0966
Prob (F-stat)	0.0434	0.0375	0.0509
No. obs.	1410	1405	1385
Panel B. Regressions on CAR_MA(-1,5)			
	(1)	(2)	(3)
Intercept	-0.0013 (0.0025)	0.0380 (0.0163)	0.0385** (0.0165)
Positiveness	0.7865** (0.3909)	0.7756** (0.3907)	0.7640* (0.3963)
Size		-0.0028** (0.0011)	-0.0028** (0.0011)
Book_to_Market		0.0021 (0.0022)	0.0010 (0.0024)
Earnings_Surprise			-0.0049 (0.0041)
$\Delta\%$ Sales			0.0045 (0.0062)
Δ Leverage			0.0195 (0.0171)
R-squared	0.2868%	0.8689%	1.1473%
F-stat	4.0492	4.0933	2.6654
Prob (F-stat)	0.0444	0.0066	0.0142
No. obs.	1410	1405	1385

Note: This table reports regressions where the constant-mean-adjusted cumulative returns are taken to act as a dependent variable. Panel A models the CAR measured in the (-1,1) event window, while Panel B extends the window to (-1,5). All of the explanatory variables are defined in Table 1. The table presents coefficient estimates with the corresponding standard errors in parentheses, coefficient of determination, the F-test for the null hypothesis that the regressors are jointly statistically insignificant and the number of observations. *, **, *** denote statistical significance at 10%, 5% and 1%, respectively.

Table 5
Determinants of Market-Model-Adjusted Cumulative Abnormal Returns

Panel A. Regressions on CAR_MM(-1,1)			
	(1)	(2)	(3)
Intercept	-0.0024 [*] (0.0014)	0.0082 (0.0097)	0.0080 (0.0098)
Positiveness	0.5456 ^{**} (0.2307)	0.5438 ^{**} (0.2314)	0.5586 ^{**} (0.2353)
Size		-0.0008 (0.0007)	-0.0008 (0.0007)
Book_to_Market		0.0004 (0.0013)	0.0007 (0.0014)
Earnings_Surprise			0.0019 (0.0024)
Δ%Sales			-0.0004 (0.0037)
ΔLeverage			0.0031 (0.0102)
R-squared	0.3955%	0.5007%	0.5655%
F-stat	5.5911	2.3501	1.3062
Prob (F-stat)	0.0182	0.0708	0.2511
No. obs.	1410	1405	1385
Panel B. Regressions on CAR_MM(-1,5)			
	(1)	(2)	(3)
Intercept	-0.0042 [*] (0.0022)	0.0249 [*] (0.0143)	0.0262 [*] (0.0145)
Positiveness	0.9759 ^{***} (0.3425)	0.9613 ^{***} (0.3428)	1.0017 ^{***} (0.3477)
Size		-0.0020 ^{**} (0.0010)	-0.0020 ^{**} (0.0010)
Book_to_Market		-0.0010 (0.0019)	-0.0029 (0.0021)
Earnings_Surprise			-0.0078 ^{**} (0.0036)
Δ%Sales			-0.0045 (0.0054)
ΔLeverage			-0.0034 (0.0150)
R-squared	0.5733%	0.8603%	1.2954%
F-stat	8.1189	4.0527	3.0142
Prob (F-stat)	0.0044	0.0070	0.0062
No. obs.	1410	1405	1385

Note: This table reports the estimates of regressions where the market-model-adjusted cumulative abnormal return is the dependent variable. The results in Panel A refer to the CAR computed in the (-1,1) window, whereas Panel B is based on the (-1,5) window. Standard errors are given in parentheses below the parameter estimates. R-square, F-statistic for the joint significance of explanatory variables and the number of observations are presented at the bottom of each panel. *, **, *** denote statistical significance at 10%, 5% and 1%, respectively.

Table 6
Market Reaction and the Tone of Annual Report Narrative

	Determinants of Constant-Mean-Adjusted Returns		Determinants of Market-Model-Adjusted Returns	
	(1)	(2)	(3)	(4)
Intercept	0.0007 (0.0011)	0.0164 (0.0110)	0.0002 (0.0009)	0.0112 (0.0097)
Tone	0.0013* (0.0008)	0.0015* (0.0008)	0.0015** (0.0007)	0.0016** (0.0007)
Size		-0.0012 (0.0008)		-0.0008 (0.0007)
Book_to_Market		0.0031* (0.0016)		0.0009 (0.0014)
Earnings_Surprise		0.0051* (0.0028)		0.0021 (0.0024)
$\Delta\%$ Sales		0.0032 (0.0041)		-0.0007 (0.0037)
Δ Leverage		0.0091 (0.0115)		0.0033 (0.0102)
R-squared	0.2100%	0.8624%	0.3413%	0.5364%
F-stat	2.9630	1.9978	4.8213	1.2387
Prob (F-stat)	0.0854	0.0630	0.0283	0.2835
No. obs.	1410	1385	1410	1385

Note: This table reports the estimates of regressions where the abnormal returns in the (-1,1) event window act as the dependent variable. Standard errors are given in parentheses below the parameter estimates. R-square, F-statistic for the joint significance of explanatory variables and the number of observations are presented at the bottom of the table. *, **, *** denote statistical significance at 10%, 5% and 1%, respectively.

Appendix I

Thesaurus of Positive Words

positive, positives, success, successes, successful, succeed, succeeds, succeeding, succeeded, accomplish, accomplishes, accomplishing, accomplished, accomplishment, accomplishments, strong, strength, strengths, certain, certainty, definite, solid, excellent, good, leading, achieve, achieves, achieved, achieving, achievement, achievements, progress, progressing, deliver, delivers, delivered, delivering, leader, leading, pleased, reward, rewards, rewarding, rewarded, opportunity, opportunities, enjoy, enjoys, enjoying, enjoyed, encouraged, encouraging, up, increase, increases, increasing, increased, rise, rises, rising, rose, risen, improve, improves, improving, improved, improvement, improvements, strengthen, strengthens, strengthening, strengthened, stronger, strongest, better, best, more, most, above, record, high, higher, highest, greater, greatest, larger, largest, grow, grows, growing, grew, grown, growth, expand, expands, expanding, expanded, expansion, exceed, exceeds, exceeded, exceeding, beat, beats, beating

Appendix II

Companies and Number of Annual Reports Included in the Sample

3i Group	7	Capita	7
3i Infrastructure	5	Carillion	7
Admiral Group	7	Carnival	7
Amec	7	Carpetright	7
Amlin	7	Catlin Group	7
Anglo American	7	Centrica	7
Antofagasta	7	Close Brothers Group	7
Arm Holdings	7	Cobham	7
Ashmore Group	6	Colt Group	7
Ashtead Group	7	Compass Group	7
Associated Brit.Foods	7	Computacenter	7
Astrazeneca	7	CRH	7
Aveva Group	7	Croda International	7
Aviva	7	CSR	7
Babcock Intl.	7	Daejan Holdings	7
BAE Systems	7	Dairy Crest	7
Balfour Beatty	7	De La Rue	7
Barratt Developments	7	Debenhams	6
BBA Aviation	7	Dechra Pharmaceuticals	7
Beazley	7	Diageo	6
Bellway	7	Dialight	7
Berendsen	7	Diploma	6
Berkeley Group Hdg.(The)	7	Dixons Retail	7
BG Group	7	Domino Printing Sciences	7
BHP Billiton	7	Drax Group	7
Big Yellow Group	7	Dunelm Group	6
Blackrock World Mng.	5	Electrocomp.	7
Bodycote	7	Elementis	7
Booker Group	6	Eurasian Natres.Corp.	5
Bovis Homes Group	7	Experian	5
BP	7	Fenner	7
Brewin Dolphin	7	Ferrexpo	6
British American Tobacco	7	Fidessa Group	7
British Land	7	First Group	7
British Sky Beast.Group	7	Fresnillo	5
Britvic	7	G4S	6
BT Group	7	Galliford Try	7
BTG	7	Genus	7
Bunzl	7	GKN	7
Burberry Group	7	Glaxosmithkline	7
Bwin Party Digital Entm.	7	Glencore Xstrata	2
Cable & Wireless Comms.	7	Go-Ahead Group	6

Companies and Number of Annual Reports Included in the Sample (Continued)

Grainger	7	Millennium & Cpth.Htls.	7
Great Portland Estates	7	Mitchells & Butlers	7
Greene King	7	MITIE Group	7
Greggs	7	Mondi	5
Halfords Group	7	National Express	7
Halma	7	National Grid	7
Hammerson	7	Next	7
Hansteen Holdings	7	Oxford Instruments	7
Hargreaves Lansdown	5	Paragon Gp.Of Cos.	7
Hays	7	Paypoint	6
Henderson Group	7	Pearson	7
HICL Infrastructure	6	Pennon Group	7
Hikma Pharmaceuticals	7	Persimmon	6
Hiscox	7	Petrofac	7
Hochschild Mining	6	Phoenix Group Hdg. (Lon)	3
Home Retail Group	6	Polar Capital Tech.Tst.	7
Homeserve	7	Premier Farnell	7
Howden Joinery Gp.	7	PZ Cussons	7
Hunting	7	Qinetiq Group	6
ICAP	7	Randgold Resources	7
Ictl.Htls.Gp.	7	Rank Group	6
IG Group Holdings	7	Rathbone Brothers	7
IMI	7	Reckitt Benckiser Group	7
Imperial Tobacco Gp.	7	Redrow	7
Inchcape	7	Reed Elsevier	7
Informa	7	Regus	7
Inmarsat	7	Renishaw	7
Intermediate Capital Gp.	7	Rentokil Initial	7
Interserve	7	Resolution	4
Intertek Group	7	Restaurant Group	7
Invensys	7	Rexam	7
IP Group	7	Rightmove	7
ITE Group	7	Rio Tinto	7
ITV	6	RIT Capital Partners	7
Jardine Lloyd Thompson	7	Rotork	7
Kazakhmys	7	RPC Group	7
Kcom Group	7	RPS Group	7
Kenmare Res. (Lon)	7	Sabmiller	7
Kier Group	7	Sage Group	7
Kingfisher	7	Salamander Energy	6
Ladbrokes	7	Savills	7
Lonmin	7	Schroders	7
Man Group	7	Segro	7
Marks & Spencer Group	7	Senior	7
Meggitt	7	Serco Group	7
Menzies (John)	7	Severn Trent	7
Michael Page Intl.	7	Shaftesbury	7

Companies and Number of Annual Reports Included in the Sample (Continued)

SIG	7	Tesco	7
Smith & Nephew	7	Travis Perkins	7
Smiths Group	7	Tullett Prebon	6
SOCO International	7	Tullow Oil	7
Spectris	7	UBM	7
Spirax-Sarco	7	Ultra Electronics Hdg.	7
Spirent Communications	7	Unilever (UK)	7
Sports Direct Intl.	5	Vedanta Resources	7
SSE	7	Victrex	7
SVG Capital	7	Vodafone Group	7
Synergy Health	7	Weir Group	7
Tate & Lyle	5	WH Smith	7
Taylor Wimpey	6	Whitbread	7
Ted Baker	6	William Hill	7
Telecity Group	5	WPP	7
Telecom Plus	7		

Note: This table presents a list of companies included in the sample and the number of annual reports used for each of the companies. The number of reports sums to 1410, which is our sample size.