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The perceived credibility of forward-looking performance disclosures

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We investigate the credibility of forward-looking performance disclosures (FLPDs) in the narrative sections of annual reports, as perceived by investors. Our proxy for these disclosures is an index of statements about future performance. We find that companies issue more FLPDs when raising debt or conveying bad news in the financial statements. In the presence of these managerial incentives, investor reliance on FLPDs increases with the quality of earnings reported in the audited financial statements. Our results suggest that firms derive a benefit in terms of higher credibility for their narrative disclosures from having a reputation for high quality earnings.

Keywords: forward-looking statements; voluntary disclosures; managerial incentives; earnings quality

1. Introduction

We investigate the credibility of forward-looking performance disclosures (FLPDs) that managers provide in annual reports, as perceived by investors. Our proxy for these disclosures is a score that counts statements about future performance in the narrative sections of the reports. Regulator interest in the content of these sections has grown in the belief that they improve the relevance of corporate reporting (Beattie *et al.* 2004). Empirical evidence so far suggests that a higher frequency of FLPDs does indeed correlate with stock prices that are more informative about future earnings. However, as FLPDs are not immediately verifiable or auditable, managers may also use them when they have incentives to be misleading or untruthful at the time of the disclosure. To guard against misleading performance disclosures, investors may look for information quality in the audited financial statements. In this paper, we explore managerial incentives in providing FLPDs, and investigate whether, in the presence of these incentives, investor reliance on FLPDs increases with the quality of reported earnings.

Narrative sections in annual reports have been gaining increasing prominence. With annual reports being released at regular intervals, theses narratives rank highly as an information

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source. We focus on UK annual report narrative sections that include FLPDs, e.g. Financial Highlights, the Chairman's Statement, the Chief Executive Officer's Review, the Business Review and the Operating and Financial Review (OFR). FLPDs refer to information on expected payoffs from current and future investment plans and from structural business changes that enables users to predict a company's future financial performance. In the UK information about current and future trading is typically given through such qualitative narrative statements, rather than through quantitative management earnings forecasts (Brennan 1999, Schleicher and Walker 2010). As FLPDs are qualitative and non-time specific in nature (Clarkson *et al.* 1992, Clarkson *et al.* 1994, Clatworthy and Jones 2003), it is harder for outsiders to effectively monitor their accuracy (Schleicher and Walker 2010, p. 271). This provides scope for assessing managerial incentives underlying FLPDs and the use of safeguards by investors when relying on such soft and less easily verifiable disclosures in the annual reports.

We first investigate situational incentives that managers have when issuing FLPDs. By situational incentives, we mean incentives to open up about future performance triggered by specific events or circumstances, e.g. debt or equity offerings and reporting of bad earnings news in the financial statements.[1] We measure the frequency of FLPD using a score that counts the number of FLPDs in annual report narrative sections, as developed by Hussainey *et al.* (2003). Our analysis shows that controlling for other considerations (e.g. proprietary costs, firm size, analyst coverage and forecast dispersion), managers issue more FLPDs when raising debt or reporting bad news in the financial statements (e.g. earnings declines, falling short of analyst forecasts or underperforming industry peers).

We then investigate the credibility of FLPDs as perceived by investors. In the spirit of Jennings (1987) and Mercer (2004), we assess the perceived credibility of FLPDs by the extent to which investors view the FLPDs as 'believable'. Prior research shows that FLPDs increase investor ability to anticipate future earnings (Section 2). We, therefore, measure the perceived credibility of FLPDs by the extent to which investors rely on FLPDs to anticipate future earnings. Our results show that while on average FLPDs increase the share price anticipation of future earnings, investors do not rely on FLPDs of firms that issue debt or report bad news.

We then investigate whether investor reliance on FLPDs varies with earnings quality, especially in the presence of situational incentives. Management credibility cues are useful to investors in deciding whether to rely on FLPDs. As FLPDs are qualitative and therefore not easily verifiable, it is difficult to infer management forecasting reputation. In this case, managers' reporting reputation reflected in earnings quality may be informative. By 'earnings quality' we mean the precision of reported earnings in the audited financial statements. Our results show that investor reliance on FLPDs increases with reported earnings quality. In the presence of situational incentives, FLPDs help investors to re-assess information in contemporaneous earnings and anticipate future earnings only when reported earnings are of high quality. This finding is sustained when considering simpler earnings properties (e.g. earnings volatility), filtering out the variation of earnings quality related to business fundamentals, and controlling for other aspects of the firm's information environment (e.g. analyst following and forecast dispersion). We conclude that a firm's reputation for high quality earnings affects the perceived credibility of its FLPDs.

Our findings contribute to the literature examining the relevance of FLPDs. We demonstrate that investors do not rely unconditionally on FLPDs. Investors rely on disclosures of firms with higher earnings quality, especially when firms issue debt or report bad earnings news in the financial statements. The insights of our investigation are timely for policy-makers and regulators who are currently considering ways to improve communication between companies and investors in the annual report narratives (FASB 2013, FRC 2013). The stock market appears to use information in the audited financial statements in deciding whether to rely on these narratives. This

signifies a first-order effect for the quality of reported earnings, as Francis *et al.* (2008) also highlight, that might explain the lack of evidence of an unconditional positive association between superior financial communication strategies and investor confidence (Peasnell *et al.* 2011). For managers our evidence suggests that there is a benefit in terms of credibility for their narrative disclosures from having a reputation for high quality in reported earnings. This implies an additional incentive for managers to invest in earnings quality as part of the firm's reputational capital. Finally, our study contributes to the literature on accounting and disclosure choices. Our findings corroborate evidence on the interaction between reporting and disclosure choices (Bagnoli and Watts 2007, Francis *et al.* 2008), providing additional insights into how investors extract information from mandatory reporting to decide reliance on 'softer' FLPDs. Our evidence reiterates the need to examine accounting and disclosure choices as part of a general reporting and disclosure equilibrium.

The remainder of the paper is organised as follows. Section 2 reviews the literature and develops our research hypothesis. Section 3 discusses the research design. Section 4 describes the sample. Section 5 presents the main empirical results and additional analyses. Section 6 concludes.

2.   Theoretical framework and prior research

Agency theory motivates voluntary disclosure as a mechanism to reduce information asymmetry (useful reviews can be found in Core 2001, Healy and Palepu 2001, Lundholm and Van Winkle 2006). Research on forward-looking disclosures has established such a role for management earnings forecasts in press releases issued by US firms. The release of management forecasts is associated with meeting the analyst forecasts, seasoned equity offerings (SEO), low forecast errors and low earnings volatility (Ruland *et al.* 1990, Baik and Jiang 2006). Prior studies also examine forward-looking disclosures provided in annual reports and press releases. These studies, often limited to a small sample size (Clatworthy and Jones 2003, Lakhal 2005, O'Sullivan *et al.* 2008), use the traditional content analysis approach to count the number of sentences containing forward-looking information in the narrative sections. Research that has used computer software to measure levels of FLPDs in the narratives of UK annual reports, as we do, has provided some evidence on the agency considerations underlying such disclosures (Hussainey *et al.* 2003, Schleicher *et al.* 2007, Hussainey and Al-Najjar 2011).[2] We build a framework of the factors affecting the frequency of FLPDs that focuses on how earnings news in the audited financial statements induces managers to open up about the future in their annual report narratives. Our model extends existing approaches by considering explicitly how managers' strategic reporting incentives affect the frequency of FLPDs. In the presence of such strategic reporting incentives, the issue of the perceived credibility of FLPDs becomes crucial.

In examining the relevance of FLPDs, prior research has focused on the association of FLPDs with future performance and the extent to which they help investors anticipate future earnings. Clarkson *et al.* (1994, 1999) find that both frequency of, and changes in, forward-looking disclosures make corporate annual reports more informative about future performance.[3] Similarly, Bryan (1997) finds that reporting future operations and capital expenditure information in annual reports is associated with future short-term performance. Barron *et al.* (1999) shed light on the effect of forward-looking disclosures on capital markets, with evidence of a positive association between such disclosures and the accuracy of analyst earnings forecasts. Bozzolan *et al.* (2009) study the annual reports of Italian, German, French and Swiss firms cross-listed in the USA and find that forward-looking disclosures improve forecast accuracy and reduce analyst forecast dispersion. Focusing on investors, Abrahamson and Amir (1996) show that soft information included in the front end of the annual report narratives improve the return–earnings relation. Miller and

Piotroski (2000) take this evidence further showing that forward-looking disclosures increase the correlation of stock returns with the next period's earnings. Similarly, Gelb and Zarowin (2002) and Lundholm and Myers (2002) show that firms with higher Association for Investment Management Research (AIMR) disclosure scores help investors 'bring the future forward' as they have a higher amount of future earnings news reflected in their current annual returns.[4] Schleicher and Walker (1999), Hussainey *et al.* (2003), Schleicher *et al.* (2007), Hussainey and Walker (2009), and Muslu *et al.* (2012) also provide evidence that FLPDs result in stock returns incorporating future earnings in a more timely fashion. This line of research has not explicitly addressed the credibility issue that arises from the non-verifiable nature of FLPDs in the UK.

Jennings (1987) argues that investor reaction to managerial disclosures is a function of the credibility ('believability') of the disclosure. Two companies that are equally forthcoming about future performance in their annual report narratives but not equally 'believable' may elicit different responses from investors. Prior research identifies management credibility as a key factor affecting the credibility of management disclosures as the credibility of a message depends on the credibility of the messenger (Birnbaum and Stegner 1979, Mercer 2004, Kothari *et al.* 2009). Such research draws inferences mainly based on the analysis of quantitative and largely verifiable information disclosed by management, the most common type being management earnings forecasts and proxies management credibility through forecast accuracy.[5] With management forecasts, accuracy can be assessed straightforwardly through subsequent financial statements. Monitoring the accuracy of FLPDs in the UK, however, is difficult, given the qualitative nature of FLPDs. Schleicher and Walker (2010) and Schleicher (2012) highlight this issue and provide evidence that firms with large impending earnings declines bias upwards the tone of their FLPDs. Clatworthy and Jones (2006) find that the chairman's statement of unprofitable companies is subject to impression management. This evidence raises suspicion over the role of FLPDs especially in the presence of situational incentives. Demers and Vega (2011) suggest that investor reliance on soft non-verifiable information depends on factors related to the firm's information environment. We complement this line of research in two ways. First, we investigate investor reliance on FLPDs in the presence of situational incentives. Then, we examine whether investor reliance on FLPDs varies with reported earnings quality, especially in the presence of such incentives. We focus on earnings quality as a factor of the firm's information environment, as it is directly affected by managers, i.e. the 'messengers' of FLPDs.

Drawing from persuasion models, Mercer (2004) argues that investors are less likely to rely on management disclosures when managers have incentives to be misleading or untruthful at the time of the disclosure. While in the presence of situational incentives, managers may use FLPDs to release their superior information, they enjoy greater benefits and lower costs from providing inaccurate disclosures. Koch (2002) claims this to be the case with firms facing financial distress. In a similar vein, Lang and Lundholm (2000) argue that higher disclosures before equity offerings reflect managerial attempts to hype the stock rather than reduce information asymmetry, as this disclosure is optimistically biased and leads to pre-offer price rises and post-offer price declines. Thus, in the presence of situational incentives investors face a higher need for inside information, but also higher uncertainty about the credibility of management disclosures. In these cases, management credibility cues are useful for deciding whether to rely on FLPDs. A historical measure of managerial forecasting accuracy would be hard to derive due to the more qualitative and therefore less verifiable nature of FLPDs. In these cases, the quality of reported earnings in the audited financial statements may offer a useful proxy for management credibility, as it reflects management's reporting reputation and evidence suggests that it is aligned with disclosure quality (Francis *et al.* 2008). If indeed investors rely on earnings quality to infer management credibility, we would expect investor reliance on FLPDs to increase with earnings quality. This would particularly be the case in the presence of situational incentives where investors have higher

uncertainty about the credibility of management disclosures. Thus, we hypothesise that investor reliance on FLPDs increases with reported earnings quality, especially in the presence of situational incentives.

3. Research design

3.1. *Measuring forward-looking disclosures*

3.1.1. *FLPD score (FDSCORE)*

To calculate our FLPD score, we use the scoring method developed in Hussainey *et al.* (2003, pp. 276–82). The authors automate the generation of disclosure scores for large samples of UK firms by using the QSR N6 text analysis software. We focus on annual report narratives, as they are more likely to contain voluntary FLPDs, and on sections with at least one of the following headings: Financial Highlights, Summary Results, Chairman's Statement, CEO's Review, OFR, Financial Review, Financial Director's Report, Finance Review, Business Review and Operating Review. All other sections of the annual report are excluded from our analysis. We focus on performance indicators as they improve the stock market's ability to anticipate future earnings changes (Hussainey *et al.* 2003, Schleicher *et al.* 2007).

We construct our disclosure index in three stages. In the first stage, we identify forward-looking statements in the narratives by electronically searching the sections for a list of 35 forward-looking keywords such as accelerate, anticipate, await and coming (financial) year(s). Appendix 1 provides detailed lists of the keywords. We also include future year numbers in the list of forward-looking keywords. In the second stage, we identify performance-related keywords. We trace these keywords in sell-side analyst reports to represent the market's view about the firm's disclosure quality.[6] For each forward-looking statement in analyst reports, we identify the key noun in the statement, e.g. profitability, earnings per share (EPS), return and margin (Appendix 1). In the third stage, we count the number of sentences that include at least one forward-looking keyword and one performance keyword in the annual report narratives. Our FLPDs index, FDSCORE, is the number of intersections divided by the total number of sentences in the narrative sections and multiplied by 100. FDSCORE is bounded by 0 and 100. Our coding scheme is arguably an improvement on binary coding as it counts the frequency of FLPDs in the annual report, not merely their existence. Also scaling by the length of the narratives allows us to control for the overall size of the annual report narrative sections. Robbins and Austin (1986), Li *et al.* (2008), Kothari *et al.* (2009) and Bozzolan *et al.* (2009) also use scaling to obtain their disclosure scores and capture the relative focus of the disclosure within the annual report. FDSCORE similarly captures the forward-looking focus of the narratives, allowing us to examine managerial incentives to open up about future performance in the annual report.

3.1.2. *What do we know about FDSCORE?*

Hussainey *et al.* (2003) developed their scoring methodology to evaluate voluntary disclosures in the annual report narratives of UK firms. This automated scoring methodology allows for sample coverage similar to AIMR- Financial Analysts Federation (FAF) US ratings. Hussainey *et al.* (2003) compare the classifications of the QSR N6 automated search against a manual inspection of the discussion sections of 50 randomly selected annual reports and find that QSR N6 identifies 86% of the cases correctly. The remaining 14% are misclassified with type I and II errors of 12% and 2%, respectively. Most errors occur when QSR N6 misses forward-looking information, but any further additions to the forward-looking keywords increases the type II error. At the firm level, the Pearson and rank correlations between the QSR N6 score and the index constructed by manual inspection are calculated at 0.96 and 0.95.

To further assess the nature of FDSCORE, we randomly select a sample of 140 forward-looking performance statements from UK annual reports across our sample period. Appendix 1 presents some of these statements. Recurring themes in these statements are facts or judgements about expected returns from: (i) new business segments and divisions, (ii) expansion programmes, (iii) restructuring and investment programmes, (iv) mergers and acquisitions, (v) development programmes, (vi) investments in technology, (vii) exploring growth opportunities, (viii) new customer contracts and (ix) increased capacity and efficiency.[7] The statements contain predominately qualitative information about the future with no reference to a specific time horizon. Only 1% of the random sample statements are quantitative in nature. Our observations corroborate existing evidence on the dominance of qualitative FLPDs, identified either through an automated scoring methodology or manual inspection (Beattie *et al.* 2004, Schleicher and Walker 2010).

The frequency of FLPDs has been used in a number of studies. In terms of the relevance of FLPDs, Hussainey *et al.* (2003) verify that firms providing more FLPDs in their annual reports help the market to predict future earnings changes more accurately. They also show that it is the frequency of forward-looking earnings statements that contribute to price-leading earnings rather than forward-looking statements about individual income statement components (e.g. revenues or costs). Schleicher *et al.* (2007) and Hussainey and Walker (2009) add to this initial evidence, showing that the effect of FLPDs on stock price anticipation of future earnings is more pronounced for loss-making and dividend-paying firms.

3.2. *Model of forward-looking disclosures*

We group factors that affect the frequency of FLPDs into four categories: persistence, proprietary costs, information environment and situational incentives that exist at the time of the disclosure. This framework builds on existing literature on the drivers of voluntary disclosure taking into account the specific nature of forward-looking disclosure (Lang and Lundholm 1993, Healy *et al.* 1999, Mercer 2005, Baber *et al.* 2006, Lapointe-Antunes *et al.* 2006, Butler *et al.* 2007). Given that our FLPDs score, FDSCORE, captures the forward-looking focus of the annual report narratives, we consider factors affecting manager willingness to discuss future performance within these narratives. The detailed form of our model is:

$$
\begin{aligned}
\text{FDSCORE}_{it} =& \beta_0 + \beta_1 \text{FDSCORE}_{it-1} + \beta_2 \text{AG}_{it} + \beta_3 \sigma \text{SALES}_{it} + \beta_4 \text{BM}_{it} + \beta_5 \text{NANAL}_{it} \\
& + \beta_6 \text{DISPERSION}_{it} + \beta_7 \text{SIZE}_{it} + \beta_8 \text{SEO}_{it} + \beta_9 \text{DEBTISSUES}_{it} \\
& + \beta_{10} \text{DECLINE}_{it} + \beta_{11} \text{MISS}_{it} + \beta_{12} \text{LOSS}_{it} + \beta_{13} \text{UNDERPERFORMANCE}_{it} \\
& + \beta_{14} \text{EQ}_{it} + \text{YEAR}_{it} + \text{INDUSTRY}_{t} + e_{it}
\end{aligned}
\tag{1}
$$

Appendix 2 provides detailed definitions of all variables. Below we describe the model components.

3.2.1. *Persistence*

Evidence suggests that firms' disclosures tend to persist across years (Bushee *et al.* 2003, Skinner 2003, Graham *et al.* 2005). Once managers decide to discuss future performance in the narrative sections of the annual report, it is unlikely that they would switch back to no disclosure. To account for the 'stickiness' in forward-looking disclosure decisions, we include the lagged frequency of FLPDs, FDSCORE$_{t-1}$.

3.2.2. *Proprietary costs*

There is considerable evidence in the literature suggesting that FLPDs are value relevant. However, this type of disclosure might provide useful information to competitors and hence might affect the firm's competitive position in product markets.[8] Therefore, proprietary costs may induce managers to be less open about future performance in the annual report narratives. Our model, similar to that of Prencipe (2004), includes the firm's asset growth rate (AG) as a proxy for proprietary costs. Competitive costs arising from FLPDs would be particularly high for firms with highly growing assets. Regardless of whether firms achieve high growth by exploiting an existing growing market or entering new profitable markets, FLPDs may reveal the existence of business opportunities to competitors. Therefore, we expect FDSCORE to be negatively associated with the asset growth rate.

3.2.3. *Information environment*

Management's disclosure choices are inherently related to the firm's information environment. Early theoretical work by Verrecchia (1983) and Diamond and Verrecchia (1991) shows that voluntary disclosure mitigates information asymmetry and improves the firm's information environment. Empirical studies verify this theoretical proposition with evidence of a positive association between poor information environments and the frequency of voluntary disclosures (Imhoff 1978, Waymire 1985, Lang and Lundholm 1993, Tasker 1998). We first consider the volatility and uncertainty of the firm's operations. Accordingly, our model includes sales variability (σSALES), and the book to market ratio (BM). Firms with volatile operations have income streams that are less predictable. Such firms would issue more FLPDs to reduce uncertainty over their future profitability and mitigate information asymmetry. Firms with lower book to market ratios would also issue more FLPDs to reduce information asymmetry.[9] Therefore, we expect a positive (negative) association between FDSCORE and σSALES (BM).

We also consider factors shaping the external information environment. Managers would be more forthcoming about future performance in their published reports when the information demands of the investment community are rising (Lapointe-Antunes *et al.* 2006). Beattie and Smith (2012) find that capital market considerations dominate soft disclosures of UK finance directors. We consider two properties of the information demand of the investment community. The first is the size of the demand, which we capture using the number of analysts following the company. The second is the market uncertainty about the firm's future potential, which we capture through the dispersion in the analyst earnings forecasts. Higher forecast dispersion would induce managers to provide more FLPDs to resolve market uncertainty by guiding the forecast consensus. Accordingly, our model includes the number of analysts following the firm (NANAL) and the dispersion of analyst earnings forecasts during the year (DISPERSION). Consistent with prior research (Lang and Lundholm 1993), we expect FDSCORE to be positively associated with NANAL and DISPERSION.

Among the factors affecting the company's information environment, we finally consider firm size. The relation between firm size and disclosure is generally expected to be positive due to the lower preparation costs for large relative to small firms (Lang and Lundholm 1993). Our FDSCORE controls for this effect structurally, as it filters out any variation in FLPDs related to larger firms' ability to produce lengthier reports. We need, therefore, to consider the effect of firm size on managers' willingness to disclose FLPDs in the annual report. Prencipe (2004) argues that larger firms face lower proprietary costs due to their ability to defend themselves against competitors' adverse action. Thus from a proprietary cost perspective, larger firms may issue more FLPDs. Skinner (1994) also argues that larger firms would disclose more as they bear higher damages in case of securities litigation. The latter argument, however, may not hold for

FLPDs, due to their price sensitive nature. Litigation considerations may indeed limit the forward-looking focus of annual report narratives (Weetman and Collins 1996). As a result, from a litigation cost perspective, larger firms may issue fewer FLPDs. Larger firms may also not choose the annual report narratives as the key means of releasing forward-looking information, preferring superior communication channels (e.g. investor relation departments, conference calls, social media) to update the market in a more timely manner. As arguments may be made for a positive or negative association between FDSCORE and firm size, the sign of the association is an empirical question.

3.2.4.   *Situational incentives*

These are incentives for managers at the time of the disclosure to open up about future performance triggered by specific events or circumstances, e.g. the firm's activity in the capital markets (debt or equity offerings) or earnings news conveyed in the financial statements.

We first consider incentives arising from corporate financing transactions. Information asymmetry considerations are higher when firms raise capital (Healy and Palepu 2001), suggesting a higher need especially for forward-looking disclosure during equity offerings. Consistent with this notion, empirical studies show that firms offering securities are more likely to issue earnings forecasts (Choi 1973, Ruland *et al.* 1990, Healy *et al.* 1999) and have higher analyst ratings of disclosure (Lang and Lundholm 1993). This evidence suggests that firms might issue more FLPDs when issuing equity. However, in periods of equity offerings companies might prefer to communicate forward-looking information directly to major investors (Healy and Palepu 1993, 1995) or to do so through more timely channels of communication (e.g. initial public offerings (IPO) or SEO prospectus earnings releases or conference calls). During these periods, potential legal liability and reputation concerns might also deter FLPDs due to their high price sensitive nature. Consistent with this notion, Li (2009) finds that the threat of shareholder litigation gives managers incentives to only partially disclose private prospective information during IPO. To control for the effect of equity offerings on FLPDs, our model includes an indicator variable of share capital increases of more than 5% during the year (SEO). As arguments may be made for a positive or negative association between FDSCORE and SEO, the sign of the association is an empirical question.

Turning to external financing, Jensen and Meckling (1976) argue that highly levered firms have high monitoring/agency costs. These firms can reduce these costs by providing forward-looking disclosure in their annual report narratives to convey value relevant information that satisfy creditor needs. Consistent with this prediction, Sengupta (1998) finds that greater disclosure reduces the cost of issuing debt. In this vein, managers may provide more FLPDs when issuing debt in order to reduce financing costs and the required risk premiums. This implies a positive association between FDSCORE and issuing debt. We measure debt issues using an indicator variable of increases in the book value of debt of more than 5% during the year (DEBTISSUES). We expect a positive association between FDSCORE and DEBTISSUES.

Second, we consider incentives arising from earnings news reported in financial statements. Bagnoli and Watts (2007) examine voluntary disclosure as a response to managers having private information that the market can use to better estimate the value implications of the content of the financial report. In their model, the content of the financial reports affects both the possibility and frequency of voluntary disclosure. They show that if the financial report contains sufficiently bad news, the manager discloses more private information to mitigate investors' downward response to a negative earnings surprise. The incentive could be particularly strong for FLPDs, as managers may use FLPDs to communicate the specifics of the turnaround in profitability. Consistent with this notion, Schleicher *et al.* (2007) find that loss firms provide more informative FLPDs in their annual report narratives. We use four measures of 'earnings news' in the financial statements. Prior literature establishes three important earnings benchmarks for managers: earnings for the

prior period, analyst forecasts and profits (Degeorge *et al.* 1999, Brown 2001, Brown and Caylor 2005, Graham *et al.* 2005). To capture bad earnings, news in the financial statements, we include an indicator of earnings declines (DECLINE), falling short of the analyst forecasts (MISS) and losses (LOSS). If the firm's reported performance falls below expectations, managers are likely to issue FLPDs to mitigate the market response. We, therefore, expect a positive association between FDSCORE and these three indicators of bad news. Bagnoli and Watts (2007) also suggest that the extent of a firm's underperformance may also affect the probability of voluntary disclosure, because the benefits from mitigating bad news are greater the further the firm's performance deviates from market expectations. Accordingly, we include a measure of underperformance, i.e. the extent to which industry average profitability exceeds firm-specific profitability (UNDERPERFORMANCE), and expect a positive association with FDSCORE.

If investors rely more on FLPDs of firms with high earnings quality, it is possible that earnings quality also directly affects the frequency of FLPDs, i.e. firms with higher earnings quality disclose more FLPDs. This is in line with the empirical evidence of Lennox and Park (2006) who find that firms with higher earnings informativeness issue more frequent earnings forecasts, and Francis *et al.* (2008) who find that firms with higher earnings quality have higher disclosure scores. Our model, therefore, also includes earnings quality (EQ).

3.3. *Investor reliance on forward-looking disclosures*

Prior research investigating the relevance of forward-looking disclosures focuses on the extent to which these disclosures help investors 'bring the future forward', i.e. assist the stock market to anticipate earnings (Hussainey *et al.* 2003, Schleicher *et al.* 2007, Hussainey and Walker 2009, Muslu *et al.* 2012). To investigate how investor use of FLPDs varies with earnings quality, especially in the presence of situational incentives, we start by examining the extent to which FLPDs affect stock price informativeness about current and future earnings. We adopt the model of Collins *et al.* (1994) adding future earnings growth to return-earnings models as follows:

$$R_{i,t} = \beta_0 + \beta_1 X_{i,t} + \beta_2 X_{i,t3} + \beta_3 R_{i,t3} + \beta_4 EP_{i,t-1} + \beta_5 AG_{i,t} + e_t, \tag{2}$$

where X_t is the growth in EPS for year t and X_{t3} is the sum of earnings growth for years $t + 1$ to $t + 3$, R_{t3} is the aggregate stock return in year $t + 1$ to $t + 3$, EP_{t-1} is earnings in period $t - 1$ over price at the start of period t, and AG_t is the growth rate of total book value of assets in period t. Equation (2) models contemporaneous returns on current and future earnings shocks.[10] The specification includes contemporaneous and future returns, lagged earnings-to-price ratio and asset growth to account for the measurement error arising from using *ex post* earnings growth to proxy for shocks in future earnings expectations.[11] Similar to Tucker and Zarowin (2006), we refer to the coefficients on contemporaneous earnings growth as the earnings response coefficient (ERC) and that on future earnings growth as the future ERC (FERC). Both are predicted to be positive. As we wish to assess the impact of FLPDs on investor assessments of earnings, we augment the model allowing the ERC and FERC to vary with FDSCORE as follows:

$$R_{i,t} = \beta_0 + \beta_1 X_{i,t} + \beta_2 X_{i,t3} + \beta_3 R_{i,t3} + \beta_4 EP_{i,t-1} + \beta_5 AG_{i,t} + \beta_6 FDSCORE_{i,t} \\ + \beta_7 FDSCORE_{i,t} \times X_{i,t} + \beta_8 FDSCORE_{i,t} \times X_{i,t3} + u_{i,t}. \tag{3}$$

In this specification β_1 and β_2 capture the ERC and FERC irrespective of the frequency of FLPDs. If investors use FLPDs to reassess information in reported earnings, we expect FLPDs to increase the ERC. If investors rely on FLPDs to improve anticipation of future earnings, we expect FLPDs to increase FERC. To investigate investor use of FLPDs in the presence of situational incentives,

we repeat Equation (3) for a subset of firms-year observations where managers have incentives to be more open about future performance in the annual reports.

To investigate how investor reliance on FLPDs varies with earnings quality, we repeat Equation (3) distinguishing between firms with high and low earnings quality. We measure earnings quality using the Dechow and Dichev (2002) model, as modified by McNichols (2002) and as extended to control for operating performance (Kothari *et al.* 2005) and the role of accruals in asymmetric timely loss recognition (Ball and Shivakumar 2006). The model captures the extent to which working capital accruals map into cash flows – in the current, prior and future periods, operating performance and bad news. We estimate the model cross-sectionally by industry-year. EQ is the standard deviation of the model residuals calculated at the firm level using a rolling window of five years.[12] As such, EQ captures firm-specific inter-temporal variation of accrual estimation errors over a five-year window, proxying well for the reporting reputation that managers have established over the years. In additional analyses, we test the sensitivity of our results to alternative earnings quality measures. EQ provides an inverse measure of earnings quality, i.e. larger EQ implies lower earnings quality. Therefore, we classify firms with high (low) earnings quality if EQ is below (above) the industry and year median. If investor reliance on FLPDs increases with reported earnings quality, we expect FLPDs to increase ERC and FERC only for firms with high earnings quality.

4. Sample

Our sample of companies comprises the FTSE All Share non-financial UK firms. Similar to Beretta and Bozzolan (2008), we exclude financial firms because of their regulation of disclosure of forward-looking information. A requirement for using QSR N6 is the availability of annual reports in electronic form and in text format. We collect electronic versions of the UK annual reports for the years 1996–2007. We start collecting annual reports from 1996 because from this date large cross-sections of electronic UK annual reports are available on the Dialog database. Dialog stores reports in standard text format, deleting images and graphs and retaining all text and numbers. The database was discontinued by Thomson Financial in mid-2004 after comprehensive coverage for year 2002. To collect electronic versions of annual reports for the period 2003–2007, we use the Northcote Database (http://www.northcote.co.uk). Northcote offers annual reports in a portable document format. We convert these reports to standard text format, deleting images and graphs and retaining all text and numbers. We end our analysis in the year 2007 because the UK 2006 Companies Act specified the contents of the business review, thereby structuring the content of a substantial part of the annual report narratives for periods beginning on or after October 2007.[13] The total number of annual reports of all UK listed non-financial companies collected over the period 1996–2007 is 10,095. Retaining observations with available accounting and analyst forecast data from Datastream and I/B/E/S to estimate our model of forward-looking disclosures reduces the sample to 5,459 observations for 1,273 UK listed non-financial firms – 4,824 observations when we include lagged FDSCORE. For price-leading earnings tests, the requirement of three years ahead earnings and returns data reduces the number of usable observations to 4,321. To mitigate the effect of outliers, we winsorise the top and bottom 0.5% of all variables.

5. Empirical results

5.1. *Descriptive statistics*

Panel A of Table 1 reports the statistics for the variables. The mean FDSCORE is 2.818, which indicates that about 3 of every 100 sentences in the annual report are FLPDs. This translates into

approximately seven FLPDs on average per annual report, based upon a mean count of 235 sentences in annual report narratives. The maximum number of FLPDs in the narratives is 31 (13 per 100 sentences), while the minimum is zero. Our sample comprises mainly larger firms followed on average by seven analysts. This sample attribute is similar to prior studies investigating the value relevance of FLPDs (Hussainey *et al.* 2003, Schleicher *et al.* 2007, Hussainey and Walker 2009). In our sample, the frequency of equity offerings is 17%, while that of debt issues is 45%. Consistent with prior research (Athanasakou *et al.* 2011), firms missing earnings targets are a minority ranging from 38% of firms reporting earnings declines to 40% missing analyst forecasts and only 12% reporting losses during the sample period. Our sample firms on average over-perform their industry peers as mean UNDERPERFORMANCE is negative (-0.080). The mean annual returns for year t (R_t) are 0.092. The median annual returns are 0.090 and their standard deviation is 0.473. Mean change in EPS for year t scaled by lagged price (X_t) is 0.010 with a standard deviation of 0.188, while the average aggregate change in EPS three years ahead scaled by lagged price is 0.002 with a standard deviation of 0.296.

Panel B of Table 1 reports the frequency of FLPDs across situational incentives. Managers of firms that issue equity (SEO = 1) issue fewer FLPDs on average in their annual reports. Firms issuing debt (DEBTISSUES = 1), however, issue more FLPDs. The same holds for firms conveying bad news about their performance in the income statement, i.e. earnings that fall short of last year earnings (DECLINE = 1), of the analyst forecast outstanding at the earnings announcement date (MISS = 1) and of the average industry performance (UNDERPERORM = 1). The differences in the frequency of FLPDs for these firms compared with the remaining firms in the sample are statistically significant. Panel C reports the frequency of FLPDs for firms facing multiple situational incentives. Firms facing all four situational incentives (DEBTISSUES = 1, DECLINE = 1, MISS = 1 and UNDERPERFORM = 1) seem to be the most forward-looking, issuing on average nine FLPDs (3.563 per 100 sentences × 235 sentences per report) in their annual report, compared with six FLPDs (2.529 per 100 sentences × 235 sentences per report) issued by firms not facing any of these incentives.

Panel D of Table 1 reports the Pearson and Spearman correlations (above and below the diagonal) between key variables. As expected, there is a significant positive association between firm size and analyst following, highlighting the need to assess the impact of these two effects on FLPDs in a multivariate setting. Among situational incentives, there is a positive association between corporate financing events, i.e. equity offerings and debt issues, and a strong positive association between the bad news indicators. The latter associations suggest that managers may face multiple situational incentives at the time of disclosure. We take this into account when examining the relevance of FLPDs in the presence of situational incentives.

5.2. *What drives FLPDs?*

Table 2 reports regression results for the factors influencing the frequency of FLPDs (Equation (1)). The first column reports the results of Equation (1) excluding $FDSCORE_{t-1}$, therefore highlighting the cross-sectional effects. FDSCORE is negatively associated with AG, SIZE and SEO and positively associated with σSALES, BM, DEBTISSUES, DECLINE, MISS and UNDERPERFORMANCE. With regards to size, Hussainey and Al-Najjar (2011) find a positive association with FLPDs, using total assets as a proxy for size. Their finding is consistent with their hypothesis that larger firms have enough resources to provide lengthy narrative sections in their annual reports. We control for this effect when constructing our FLPDs index as we scale FLPDs with the total number of sentences in the narrative sections.[14] Therefore, the negative association between FDSCORE and SIZE in our specification suggests that larger firms have a lower forward-looking focus in their annual report narratives.[15] This may be due to larger

Table 1. Descriptive statistics and correlations of variables.

Panel A: Descriptive statistics of key variables

Variables	N	Mean	Median	Std. dev.	Min.	Max.
FDSCORE	5459	2.818	2.326	2.180	0.000	12.903
AG	5459	0.189	0.069	0.581	−0.604	5.502
σSALES	5459	0.257	0.147	0.340	0.002	2.651
BM	5459	0.624	0.475	0.583	−0.424	3.792
NANAL	5459	7.147	5.000	6.490	1.000	47.000
DISPERSION	5459	0.373	0.094	1.119	0.000	11.773
SIZE	5459	11.912	11.773	1.829	7.840	17.156
SEO	5459	0.170	0.000	0.376	0.000	1.000
DEBTISSUES	5459	0.452	0.000	0.498	0.000	1.000
DECLINE	5459	0.378	0.000	0.485	0.000	1.000
MISS	5459	0.396	0.000	0.489	0.000	1.000
LOSS	5459	0.117	0.000	0.321	0.000	1.000
UNDERPERFORMANCE	5459	−0.080	−0.036	0.438	−4.051	1.363
EQ	5459	0.063	0.044	0.067	0.000	0.478
R_t	4321	0.092	0.090	0.473	−1.497	2.125
X_t	4321	0.010	0.006	0.188	−0.917	1.434
X_{t3}	4321	0.002	0.001	0.296	−2.074	1.732
R_{t3}	4321	0.148	0.155	0.694	−2.224	2.696
EP_{t-1}	4321	0.032	0.061	0.168	−1.424	0.408

Panel B: Forward-looking disclosures (FDSCORE) across situational incentives

Variables	N	Mean	Median	Diff. (mean)	t-Stat (p-value)
Equity offerings					
SEO = 1	927	2.560	2.095	(0.311)	−4.49 (<0.001)
SEO = 0	4532	2.871	2.376		
Debt issues					
DEBTISSUES = 1	2465	2.881	2.381	0.115	2.76 (0.006)
DEBTISSUES = 0	2994	2.766	2.290		
Earnings declines					
DECLINE = 1	2066	3.065	2.500	0.398	6.60 (<0.001)
DECLINE = 0	3393	2.667	2.200		
Missing analyst forecasts					
MISS = 1	2163	2.904	2.392	0.143	2.20 (0.028)
MISS = 0	3296	2.761	2.273		
Losses					
LOSS = 1	638	2.749	2.094	(0.078)	−3.30 (0.001)
LOSS = 0	4821	2.827	2.362		
Underperformance					
UNDERPERFORM = 1	1787	3.040	2.478	0.330	5.14 (<0.001)
UNDERPERFORM = 0	3672	2.710	2.246		
N	5459				

Panel C: Forward-looking disclosures (FDSCORE) when there are no situational incentives and in the presence of multiple of the following situational incentives: debt issues, earnings declines, missing analyst forecasts and underperformance compared with industry peers – DEBTISSUES = 1, Decline = 1, MISS = 1, UNDERPERFORM = 1

Situational incentives	N	Mean	Median	Diff. (mean)	t-Stat (p-value)
0	995	2.529	2.091		
1	1784	2.763	2.271	0.234	2.65 (0.008)
2	1565	2.801	2.302	0.038	0.61 (0.544)
3	893	3.094	2.548	0.293	3.34 (<0.001)
4	222	3.563	3.075	0.469	3.09 (0.002)

Table 1. Continued.

Variables	FDSCORE	AG	σSALES	BM	NANAL	DISPERSION	SIZE	EQ	SEO	DEBT ISSUES	DECLINE	MISS	LOSS	UNDER-PERFORMANCE
Panel D: Pearson (above the diagonal) and Spearman (below the diagonal) correlations between key variables														
FDSCORE	1.000	−0.044	0.053	0.185	−0.177	0.022	−0.274	0.004	−0.055	0.027	0.089	0.033	−0.012	0.073
AG	−0.063	1.000	0.190	−0.135	−0.049	−0.016	−0.019	0.157	0.438	0.218	−0.067	0.019	0.042	−0.048
σSALES	0.104	0.062	1.000	−0.111	−0.151	0.040	−0.139	0.247	0.161	0.007	0.048	0.078	0.079	0.012
BM	0.191	−0.237	−0.173	1.000	−0.178	0.093	−0.297	−0.116	−0.121	−0.061	0.173	0.061	0.083	0.099
NANAL	−0.158	0.001	−0.200	−0.176	1.000	−0.071	0.820	−0.165	−0.079	0.086	−0.023	−0.040	−0.169	−0.038
DISPERSION	0.041	−0.259	0.140	0.160	−0.085	1.000	−0.062	0.066	0.021	−0.031	0.192	0.091	0.186	0.027
SIZE	−0.249	0.029	−0.208	−0.275	0.832	−0.100	1.000	−0.160	−0.063	0.099	−0.019	−0.029	−0.172	−0.064
EQ	0.001	0.047	0.288	−0.130	−0.185	0.116	−0.182	1.000	0.123	0.016	0.021	0.047	0.120	−0.043
SEO	−0.063	0.390	0.159	−0.147	−0.079	0.057	−0.067	0.130	1.000	0.125	0.009	0.055	0.154	0.010
DEBTISSUES	0.038	0.434	−0.001	−0.054	0.095	−0.069	0.105	−0.026	0.125	1.000	−0.009	0.003	−0.071	−0.034
DECLINE	0.089	−0.224	0.074	0.167	−0.033	0.480	−0.026	0.021	0.009	−0.009	1.000	0.278	0.253	0.058
MISS	0.030	−0.074	0.073	0.040	−0.057	0.195	−0.036	0.051	0.055	0.003	0.278	1.000	0.239	0.022
LOSS	−0.045	−0.186	0.086	0.009	−0.209	0.320	−0.178	0.125	0.154	−0.071	0.253	0.239	1.000	0.143
UNDER-PERFORMANCE	0.114	−0.182	−0.027	0.297	−0.045	0.174	−0.111	−0.115	0.047	0.031	0.142	0.077	0.233	1.000

Variables	R_t	X_t	X_{t3}	R_{t3}	AG	EP_{t-1}	FDSCORE
R_t	1.000	0.183	−0.045	−0.073	0.157	−0.073	−0.107
X_t	0.308	1.000	−0.227	−0.007	−0.007	−0.542	−0.057
X_{t3}	−0.003	−0.153	1.000	0.186	−0.076	−0.139	−0.005
R_{t3}	0.002	0.038	0.350	1.000	−0.133	0.019	0.024
AG	0.189	0.136	−0.167	−0.069	1.000	0.043	−0.055
EP_{t-1}	0.008	−0.257	−0.041	0.069	0.053	1.000	0.050
FDSCORE	−0.111	−0.063	0.002	0.013	−0.059	0.145	1.000

Notes: The sample consists of 5459 observations during the period 1996–2007 for 1273 UK listed non-financial firms with available accounting, stock price and analyst forecast data from Datastream and I/B/E/S 1,138 observations are eliminated when further requiring stock price data. Appendix 2 defines the variables. *p*-Value corresponds to a Wilcoxon non-parametric test (two-sided) for the difference in means between the sub-samples. In Panel D all reported correlations highlighted in grey are not significant at the 0.1 level.

firms' litigation considerations or alternative means of dissemination (Section 3.2). Litigation concerns are also suggested by the evidence of a negative association between FDSCORE and SEO, which means that firms issue fewer FLPDs in years of issuing equity. The UK Financial Services Authority advises listed companies to be wary of making unintentional profit projections ahead of equity offerings, which could discourage managers from being overly forthcoming about future performance in these periods.[16] In contrast, when it comes to issuing debt, UK firms seem to be making extensive use of FLPDs in their annual reports. This evidence suggests a constraint to forward-looking disclosure in the annual report in periods of equity offerings, which could be ideally suited to counter managerial optimism evident in these periods (Lang and Lundholm 2000). In summary, the results of the first column suggest that across the section of UK firms, FLPDs decrease with proprietary considerations (captured by asset growth rates) and equity offerings, and increase with the revenue volatility, book to market ratio, debt issues, and reporting of bad news in financial statements and the extent of underperformance. These factors explain approximately 18% of the variation in the frequency of FLPDs.

In the next column, we include $FDSCORE_{t-1}$ and as expected FLPDs persist over time. The explanatory power of the specification rises substantially to 26%. As we control for the persistence of FDSCORE, these results highlight the factors driving changes in the forward-looking focus of the annual report narratives across time. In this specification, NANAL is positive and significant, consistent with analyst following triggering additional disclosures of FLPDs.[17] BM is positively associated to FDSCORE. This might be due to the endogenous nature of BM as more FLPDs reduce information asymmetry. To investigate this issue further, we repeat the analysis adding BM_{t-1} in our model. The next column reports the regression results. BM_{t-1} is negatively associated with FDSORE while BM retains the positive association.[18] These results suggest a feedback loop between FLPDs and the book-to-market divergence, higher divergence induces managers to open up about future performance in the narrative sections of their annual reports, and this openness subsequently reduces information asymmetry, consistent with our claim.[19]

Taken together, the results of Table 2 show that FLPDs are part of a 'sticky' disclosure policy. Controlling for the persistence of FLPDs across years, we find that proprietary costs and equity offerings in the current period restrain the forward-looking focus of the annual reports. Managers provide more FLPDs to reduce the book-to-market divergence and respond to higher information demands of the investment community, i.e. high analyst following. In terms of situational incentives, FLPDs increase when firms issue debt or convey bad news in their financial statements, in the form of earnings declines and falling short of analyst forecasts and average industry performance.

5.3. *The perceived credibility of forward-looking disclosure*

Table 3 presents results on the extent to which FLPDs affect stock price informativeness about current and future earnings (Equation (3)). The coefficient on X_t is positive and highly significant (0.543, $t = 4.41$), yielding a strong ERC. The coefficient on X_{t3} is, however, insignificant, suggesting that prices do not lead earnings for three periods. Consistent with evidence from Hussainey *et al.* (2003), additional untabulated analysis on disaggregated future earnings changes shows that this is due to prices leading earnings one year ahead, but to a much lesser extent for two and three periods ahead. The insignificance of the effect of X_{t3} may be also due to share price anticipation of future earnings varying with the frequency of FLPDs. The next column presents the results of Equation (3). The coefficient on $FDSCORE \times X_{t3}$ is positive and marginally significant (0.024, $t = 1.65$), consistent with FLPDs increasing the FERC, i.e. the share price anticipation of future earnings. To shed further light on the interpretation of this result, we test a specification without interaction terms distinguishing between firms with high

Table 2.   The determinants of FLPD (FDSCORE).

Variables	Pred. sign	Coeff. (*t*-stat)	Coeff. (*t*-stat)	Coeff. (*t*-stat)
$FDSCORE_{t-1}$	+		0.285***	0.284***
			(8.97)	(9.01)
AG	−	−0.095***	−0.113***	−0.135***
		(−4.38)	(−3.67)	(−3.86)
σSALES	+	0.160*	0.138	0.114
		(1.74)	(1.45)	(1.26)
BM_{t-1}	−			−0.289***
				(−3.48)
BM	−	0.162**	0.143**	0.309***
		(2.13)	(1.98)	(3.54)
NANAL	+	0.016	0.018*	0.022**
		(1.25)	(1.74)	(2.16)
DISPERSION	+	0.012	0.012	0.011
		(0.40)	(0.40)	(0.34)
SIZE	+/−	−0.321***	−0.222***	−0.252***
		(−8.42)	(−6.71)	(−7.11)
SEO	+/−	−0.137**	−0.133*	−0.133*
		(−2.55)	(−1.86)	(−1.90)
DEBTISSUES	+	0.238***	0.185***	0.179***
		(2.97)	(3.40)	(3.34)
DECLINE	+	0.089**	0.058	0.062*
		(2.08)	(1.53)	(1.66)
MISS	+	0.367***	0.354***	0.330***
		(5.15)	(4.70)	(4.72)
LOSS	+	−0.070	0.022	0.018
		(−0.54)	(0.21)	(0.17)
UNDERPERFORMANCE	+	0.093***	0.073***	0.085***
		(2.95)	(3.66)	(4.62)
EQ	−	−0.122	−0.475	−0.528
		(−0.24)	(−1.21)	(−1.36)
Year dummies		YES	YES	YES
Industry dummies		YES	YES	YES
Observations		5459	4824	4824
Adj. R^2		0.1842	0.2622	0.2640

Notes: The sample consists of 5459 observations during the period 1996–2007 for 1273 UK listed non-financial firms with available accounting and analyst forecast data from Datastream and I/B/E/S. Six hundred and thirty-five (635) observations are eliminated when including lagged frequency of forward-looking performance statements. Appendix 2 defines the variables. We report the coefficient estimates from ordinary least squares (OLS) regressions of the frequency of FLPD (FDSCORE) on a dynamic factor and variables proxying for the firm's information environment and situational incentives. *t*-Statistics in parentheses are based on robust standard errors clustered by year and firm to control for cross-sectional dependence and heteroskedastic and autocorrelated residuals.
*Significance at the 0.1 level (two-tailed).
**Significance at the 0.05 level (two-tailed).
***Significance at the 0.01 level (two-tailed).

and low FDSCORE (splitting using the sample median). The coefficient on X_{t3} (not tabulated) is positive and significant (0.155, $t = 2.00$) only when FDSCORE is above the sample median. When FDSCORE is below the sample median, X_{t3} is insignificant. Thus, it is only higher frequencies of FLPDs in annual report narratives that enable stock prices to capture more information about future earnings. The results for the measurement error proxies EP_{t-1}, R_{t3} and AG_t are generally in line with those reported by Hussainey *et al.* (2003).[20]

Table 3. Forward-looking disclosure (FDSCORE), situational incentives and share price anticipation of earnings.

Variables	Entire sample			DEBTISSUES = 1 Coeff. (t-stat)	DECLINE = 1 Coeff. (t-stat)	MISS = 1 Coeff. (t-stat)	UNDER-PERFORM = 1 Coeff. (t-stat)	Multiple situational incentives Coeff. (t-stat)
	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)					
X_t	0.543***	0.485***	0.393***	0.482**	0.072	0.068	0.233	−0.001
	(4.41)	(4.86)	(2.87)	(2.03)	(0.28)	(0.38)	(1.26)	(−0.00)
X_{t3}	0.055	0.028	−0.046	−0.019	−0.041	−0.121	0.021	−0.089
	(1.07)	(0.73)	(−1.03)	(−0.15)	(−0.37)	(−1.24)	(0.24)	(−0.61)
R_{t3}	−0.039	−0.045	−0.044	−0.060	−0.069	−0.047	−0.081*	−0.108**
	(−0.82)	(−1.09)	(−1.09)	(−1.35)	(−1.63)	(−1.25)	(−1.82)	(−2.21)
AG_t	0.118***	0.099***	0.097***	0.115***	0.089***	0.102***	0.090***	0.112***
	(3.27)	(3.78)	(3.77)	(4.20)	(2.88)	(6.03)	(4.09)	(3.71)
EP_{t-1}	0.126	0.129	0.119	0.449**	0.089	−0.070	−0.006	−0.039
	(0.86)	(1.16)	(1.03)	(2.24)	(0.65)	(−0.61)	(−0.04)	(−0.23)
$FDSCORE_t$			−0.013***	−0.011**	−0.020***	−0.008	−0.015**	−0.020***
			(−3.70)	(−2.15)	(−4.36)	(−1.63)	(−2.14)	(−4.27)
$FDSCORE_t \times X_t$			0.027	0.065	0.040	0.085***	0.037	0.047
			(1.62)	(1.02)	(1.22)	(4.96)	(1.36)	(1.25)
$FDSCORE_t \times X_{t3}$			0.024*	0.029	0.030*	0.028	0.021	0.031
			(1.65)	(1.16)	(1.89)	(1.20)	(1.59)	(1.28)
Year dummies	NO	YES	YES	YES	YES	YES	YES	YES
Industry dummies	NO	YES	YES	YES	YES	YES	YES	YES
Observations	4321	4321	4321	2000	1567	1671	1352	821
Adj. R^2	0.0588	0.1242	0.1282	0.1615	0.1226	0.1331	0.1536	0.1816

Notes: The sample consists of 4321 observations during the period 1996–2007 for 1056 UK listed non-financial firms with available accounting, stock price and analyst forecast data from Datastream and I/B/E/S. Appendix 2 defines the variables. Multiple situational incentives include firm-year observations with at least two of the following situational incentives: debt issues, earnings declines, missing of analyst forecasts and underperformance compared with the industry peers (DEBTISSUES, DECLINE, MISS and UNDERPERFORM). We report the coefficient estimates from OLS regressions of annual stock returns on contemporaneous and future earnings interacted with the frequency of forward-looking performance statements within subsets of observations with situational incentives. t-Statistics in parentheses are based on robust standard errors clustered by year and firm to control for cross-sectional dependence and heteroskedastic and autocorrelated residuals.
*Significance at the 0.1 level (two-tailed).
**Significance at the 0.05 level (two-tailed).
***Significance at the 0.01 level (two-tailed).

Table 4. Forward-looking disclosure (FDSCORE), situational incentives, earnings quality and share price anticipation of earnings.

Variables	Entire sample High earnings quality Coeff. (t-stat)	Entire sample Low earnings quality Coeff. (t-stat)	Debtissues DEBTISSUES = 1 High earnings quality Coeff. (t-stat)	Debtissues DEBTISSUES = 1 Low earnings quality Coeff. (t-stat)	Earnings declines DECLINE = 1 High earnings quality Coeff. (t-stat)	Earnings declines DECLINE = 1 Low earnings quality Coeff. (t-stat)	Missed expectations MISS = 1 High earnings quality Coeff. (t-stat)	Missed expectations MISS = 1 Low earnings quality Coeff. (t-stat)	Underperformance UNDERPERFORM = 1 High earnings quality Coeff. (t-stat)	Underperformance UNDERPERFORM = 1 Low earnings quality Coeff. (t-stat)	Multiple situational incentives High earnings quality Coeff. (t-stat)	Multiple situational incentives Low earnings quality Coeff. (t-stat)
X_t	0.254**	0.489**	0.280	0.559*	−0.114	0.246	−0.135	0.412	0.158	0.414	0.061	0.098
	(2.16)	(2.30)	(1.25)	(1.90)	(−0.44)	(0.77)	(−0.81)	(1.30)	(0.61)	(1.42)	(0.22)	(0.24)
X_{t3}	−0.125	0.048	−0.153	0.052	−0.175	0.176	−0.262*	0.108	−0.044	0.187	−0.102	0.172
	(−1.58)	(0.58)	(−1.09)	(0.49)	(−0.87)	(1.01)	(−1.85)	(0.69)	(−0.34)	(1.39)	(−0.60)	(0.56)
R_{t3}	−0.053	−0.027	−0.040	−0.073	−0.075	−0.048	−0.065*	−0.024	−0.106**	−0.035	−0.079*	−0.112*
	(−1.29)	(−0.59)	(−1.04)	(−1.28)	(−1.63)	(−0.87)	(−1.78)	(−0.51)	(−1.97)	(−0.99)	(−1.90)	(−1.71)
AG_t	0.087***	0.104***	0.112***	0.109**	0.061**	0.110***	0.091***	0.119***	0.036	0.176***	0.020	0.162***
	(3.28)	(3.31)	(4.42)	(2.50)	(2.17)	(3.27)	(6.03)	(10.43)	(0.99)	(5.72)	(0.46)	(5.51)
$EP_{t−1}$	−0.054	0.326*	0.076	0.734***	−0.075	0.414***	−0.185	0.297*	−0.026	0.094	−0.103	0.554**
	(−0.52)	(1.86)	(0.54)	(3.31)	(−0.41)	(2.65)	(−1.20)	(1.78)	(−0.16)	(0.41)	(−0.54)	(2.27)
$FDSCORE_t$	−0.015***	−0.005	−0.005	−0.016**	−0.016***	−0.019**	−0.015***	−0.004	−0.016***	−0.009	−0.017**	−0.013
	(−3.21)	(−1.63)	(−0.76)	(−2.23)	(−3.79)	(−2.32)	(−3.72)	(−0.39)	(−2.67)	(−0.84)	(−2.24)	(−0.92)
$FDSCORE_t \times X_t$	0.046**	0.023	0.164*	0.054	0.097*	0.014	0.120***	0.043	0.063	0.001	0.103*	0.020
	(2.32)	(0.90)	(1.80)	(0.89)	(1.78)	(0.31)	(3.34)	(1.17)	(1.59)	(0.03)	(1.93)	(0.32)
$FDSCORE_t \times X_{t3}$	0.032*	0.012	0.055*	0.023	0.061*	−0.000	0.071***	−0.010	0.027*	0.002	0.060***	−0.014
	(1.77)	(1.19)	(1.85)	(1.21)	(1.65)	(−0.02)	(3.24)	(−0.85)	(1.67)	(0.09)	(2.64)	(−0.29)
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	2171	2150	1043	957	812	755	855	816	667	685	411	410
Adj. R^2	0.1611	0.1742	0.1445	0.1941	0.1336	0.1479	0.1492	0.1511	0.1844	0.1827	0.2427	0.2167

Notes: The sample consists of 4321 observations during the period 1996–2007 for 1056 UK listed non-financial firms with available accounting, stock price and analyst forecast data from Datastream and I/B/E/S. High (low) earnings quality includes firm-year observations where EQ (inverse measure of earnings quality) is lower (higher) than the industry and year median. Multiple situational incentives includes firm-year observations with at least two of the following situational incentives: debt issues, earnings declines, missing of analyst forecasts and underperformance compared with the industry peers (DEBTISSUES, DECLINE, MISS and UNDERPERFORM). We report the coefficient estimates from OLS regressions of annual stock returns on contemporaneous and future earnings interacted with the frequency of forward-looking performance statements within subsets of observations with situational incentives. t-Statistics in parentheses are based on robust standard errors clustered by year and firm to control for cross-sectional dependence and heteroskedastic and autocorrelated residuals.
*Significance at the 0.1 level (two-tailed).
**Significance at the 0.05 level (two-tailed).
***Significance at the 0.01 level (two-tailed).

The remaining columns of Table 3 show how investors' use of FLPDs varies for firms that issue debt or convey bad news in their financial statements in the form of earnings declines, missing analyst forecasts or underperforming relative to industry peers. FLPDs appear to marginally affect share price anticipation of future earnings when firms report declines in profitability (DECLINE = 1). In the presence of all other situational incentives, FDSCORE $\times X_{t3}$ is insignificant (*t*-statistics range from 1.16 to 1.59). The results suggest an element of scepticism towards FLPDs when disclosed by managers facing situational incentives at the time of the disclosure. Investor scepticism seems to evolve also around contemporaneously reported earnings as X_t is also insignificant for firms facing situational incentives. We next investigate whether in these cases investors base their reliance on earnings quality.

Table 4 reports the regression results of Equation (3) distinguishing between firms with high and low earnings quality. Given that EQ is an inverse measure of earnings quality, we classify firms with high (low) earnings quality if EQ is below (above) the industry and year median. The first two columns show the unconditional effect of earnings quality on the relevance of FLPDs on the entire sample. FDSCORE $\times X_t$ and FDSCORE $\times X_{t3}$ are positive and significant only for firms with higher earnings quality (*t*-statistics 2.32 and 1.77). In the presence of situational incentives, and particularly when firms issue debt (DEBTISSUES = 1), report earnings declines (DECLINE = 1), or earnings that fall short of the analyst forecasts (MISS = 1) or of industry performance (UNDERPERFORM = 1) FDSCORE $\times X_{t3}$ is positive and significant only for firms with higher earnings quality (*t*-statistics range from 1.65 to 3.24). In most of these cases, and particularly within firms that miss analyst forecasts, FDSCORE $\times X_t$ is also positive and significant (*t*-statistics range from 1.80 to 3.34), consistent with FLPDs increasing the informativeness of current year earnings for these firms. These results suggest that investors use FLPDs to reassess information in contemporaneous earnings and anticipate future earnings only when reported earnings quality is high. In the last column, we repeat the analysis for firms facing at least two situational incentives and obtain stronger results. This suggests that investors are particularly cautious when firms face multiple situational incentives. At the same time, it suggests a benefit in terms of higher credibility for their narrative disclosures when managers have an established reputation for high quality earnings in their financial statements.

5.4. *Additional analyses*

5.4.1. *Earnings quality as a gauge of management credibility*

We run the analysis of Table 4 through various sensitivity tests. For brevity, we report in Table 5 the results for firms facing at least two situational incentives, but we obtain similar inferences for firms facing individual situational incentives. In our first test, we repeat the analysis using earnings variability as an alternative earnings quality measure. Earnings variability has been shown to work as an instrument for various earnings quality measures, such as earnings smoothness, earnings predictability and poor matching of revenue and expenses (Francis *et al.* 2004, Dichev and Tang 2009), that are closely related to management credibility. The first two columns of Table 5 report the regression results. FDSCORE $\times X_t$ and FDSCORE $\times X_{t3}$ are positive and significant only for firms with low earnings volatility (*t*-statistics 2.39 and 1.89).

Dechow and Dichev (2002) and Francis *et al.* (2004, 2005) show that the Dechow and Dichev (2002) earnings quality measure that we use for our main test is a function of both business fundamentals and managerial intent. To the extent that earnings quality is driven by the company's business model, earnings quality is unlikely to serve as a gauge for management credibility and may not affect investor reliance on FLPDs. To address this issue, we regress our earnings quality measure on the seven variables proxying for business fundamentals as identified by Dechow and Dichev (2002) and Francis *et al.* (2004, 2005), i.e. size, cash flow volatility, sales

Table 5. Earnings quality as a gauge of management credibility?.

Variables	Low earnings volatility Coeff. (t-stat)	High earnings volatility Coeff. (t-stat)	High discretionary earnings quality Coeff. (t-stat)	Low discretionary earnings quality Coeff. (t-stat)	Multiple situational incentives			Low earnings quality Coeff. (t-stat)	Low analyst dispersion Coeff. (t-stat)	High analyst dispersion Coeff. (t-stat)
					Low analyst coverage Coeff. (t-stat)	High analyst coverage Coeff. (t-stat)	High earnings quality Coeff. (t-stat)			
X_t	−0.103	0.285	0.036	−0.325	0.009	0.360	0.033	0.028	0.688	−0.194
	(−0.29)	(0.56)	(0.17)	(−0.60)	(0.04)	(0.81)	(0.12)	(0.07)	(1.38)	(−0.73)
X_{t3}	−0.201	0.168	−0.046	−0.209	−0.042	0.247	−0.108	0.198	0.037	−0.112
	(−1.09)	(0.75)	(−0.37)	(−1.06)	(−0.28)	(0.89)	(−0.67)	(0.69)	(0.24)	(−0.75)
R_{t3}	−0.137*	−0.051	−0.148***	−0.075	−0.086**	−0.173**	−0.079*	−0.116	−0.021	−0.104*
	(−1.78)	(−1.62)	(−5.69)	(−0.96)	(−2.15)	(−2.24)	(−1.89)	(−1.62)	(−0.36)	(−1.94)
AG_t	0.116**	0.006	0.162***	0.087**	0.144***	0.085*	0.018	0.166***	0.148	0.097*
	(2.35)	(0.16)	(5.04)	(2.23)	(4.18)	(1.85)	(0.40)	(5.40)	(1.48)	(1.74)
EP_{t-1}	−0.164	−0.049	−0.090	0.033	−0.012	0.790	−0.109	0.534**	−0.085	−0.043
	(−0.70)	(−0.16)	(−0.49)	(0.07)	(−0.13)	(1.53)	(−0.61)	(2.20)	(−0.51)	(−0.24)
$FDSCORE_t$	−0.024***	−0.011	−0.013	−0.022**	−0.015	−0.024***	−0.017**	−0.017	−0.021*	−0.018*
	(−2.77)	(−1.55)	(−1.09)	(−2.28)	(−1.37)	(−2.94)	(−2.31)	(−1.19)	(−1.96)	(−1.81)
$FDSCORE_t \times X_t$	0.074**	−0.055	0.120***	0.070	0.052	0.023	0.108*	0.019	−0.166	0.058
	(2.39)	(−0.68)	(2.94)	(1.45)	(1.14)	(0.24)	(1.88)	(0.33)	(−1.21)	(1.00)
$FDSCORE_t \times X_{t3}$	0.053*	−0.023	0.065**	0.013	0.023	0.006	0.061***	−0.014	−0.127	0.035
	(1.89)	(−0.54)	(2.19)	(1.28)	(0.74)	(0.06)	(2.70)	(−0.32)	(−1.60)	(1.25)
$DISPERSION_t$								−0.001	−0.015**	
								(−0.65)	(−2.23)	
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	384	437	377	444	392	429	411	410	231	590
Adj. R^2	0.1989	0.1486	0.2971	0.1159	0.2102	0.1519	0.2346	0.2387	0.2109	0.1765

Notes: The original sample consists of 4321 observations during the period 1996–2007 for 1056 UK listed non-financial firms with available accounting, stock price and analyst forecast data from Datastream and I/B/E/S. In this table we retain only 821 observations of firms facing multiple situational incentives. Multiple situational incentives includes firm-year observations with at least two of the following situational incentives: debt issues, earnings declines, missing of analyst forecasts and underperformance compared with the industry peers (DEBTISSUES, DECLINE, MISS and UNDERPERFORM). Appendix 2 defines the variables. High (low) earnings quality includes firm-year observations where EQ (inverse measure of earnings quality) is lower (higher) than the industry and year median. Low (high) earnings volatility includes firm-year observations where firm-specific earnings variability (σEARN) is lower (higher) than the industry and year median. Low (high) analyst coverage includes firm-year observations where the number of analysts following the firm (NANAL) are below (above) the sample median. Low (high) analyst dispersion includes firm-year observations where the analyst forecast dispersion (DISPERSION) is below (above) the sample median. We report the coefficient estimates from OLS regressions of annual stock returns on contemporaneous and future earnings interacted with the frequency of forward-looking performance statements within subsets of observations with situational incentives. t-Statistics in parentheses are based on robust standard errors clustered by year and firm to control for cross-sectional dependence and heteroskedastic and autocorrelated residuals.
*Significance at the 0.1 level (two-tailed).
**Significance at the 0.05 level (two-tailed).
***Significance at the 0.01 level (two-tailed).

volatility, operating cash cycle, cumulative losses, intangible assets intensity and capital assets intensity. As in Francis *et al.* (2005), we obtain the regression residuals as a proxy for discretionary earnings quality, i.e. the part of earnings quality that is more likely to reflect managerial intent. The next two columns of Table 5 report the regression results. FDSCORE $\times X_t$ and FDSCORE $\times X_{t3}$ remain positive and significant only for firms with high discretionary earnings quality (*t*-statistics 2.94 and 2.19), consistent with this part of earnings quality being the defining factor for investor reliance on FLPDs.

Among factors relating to the firm's information environment, we focus on earnings quality as it is directly affected by managers, i.e. the 'messengers' of FLPDs. As UK firms do not provide information about their future trading through earnings forecasts releases, forecasting reputation cannot be used to assess whether FLPDs are credible. It is, however, possible that investors evaluate other aspects of the firm's information environment in deciding whether to rely on FLPDs. One such aspect might be the assurance provided by financial intermediaries such as financial analysts. Mercer (2004) argues that financial analysts are a source of external assurance for management disclosures. Evidence, largely anecdotal, suggests that financial analysts do indeed affect the weight that investors give to management disclosures. To test whether analyst coverage affects investor reaction to management disclosures, we repeat our analysis distinguishing between firms with low and high analyst coverage. We split the sample based on the sample median of five analysts. The next two columns of Table 5 report the regression results. FDSCORE $\times X_t$ and FDSCORE $\times X_{t3}$ are not significant in either column, consistent with analyst coverage not affecting investors reliance on FLPDs in the presence of situational incentives.

Another consideration relating to the firm's information environment is the role of the overall level of voluntary disclosure when considering the relevance of FLPDs. Our FDSCORE index partly controls for the firm's overall disclosure strategy by scaling the FLPDs with the length of the narrative sections. However, another type of firm disclosure within the narratives may also be used to 'bring the future forward', as FLPDs, and if positively correlated with FLPDs could lead to erroneous inferences. There is a large body of literature that argues and shows that FLPDs increase the amount of future earnings news reflected in current stock returns (Hussainey *et al.* 2003, Schleicher *et al.* 2007, Hussainey and Walker 2009, Muslu *et al.* 2012). This effect is conceptually grounded on the nature of FLPDs, i.e. their forward-looking perspective and explicit reference to profits. While annual report narratives contain other types of voluntary disclosure, FLPDs are those expected to be behind the price-leading earnings association for UK firms. Hussainey *et al.* (2003) verify this empirically with evidence that only FLPDs, and not other types of disclosures in the annual report, help investors anticipate future earnings. Hence the concern relates mainly to the instances where UK firms use a channel other than annual reports to communicate information and where that other channel is correlated with FLPDs. Prior evidence suggests that this is unlikely to be the case as in the UK firms typically do communicate information about future profits through annual report narratives (Brennan 1999, Schleicher and Walker 2010). To mitigate this concern further, we test how our results vary with proxies associated with the firm disclosures. As there is no single score rating UK firms' overall voluntary disclosure, we use a market-based measure associated with firm disclosures, analyst forecasts dispersion (DISPERSION). Dispersion in analyst forecasts reflects the overall level of uncertainty within the investment community and has been found to be negatively associated with firm disclosure proxies (Healy and Palepu 2001). It, therefore, offers an inverse proxy for the overall disclosure level that is well suited for our purposes.[21] To test whether FLPDs have an incremental effect on the price-leading earnings association, we first repeat our tests adding DISPERSION as an additional control. The next two columns of Table 5 report the results. Both FDSCORE $\times X_t$ and FDSCORE $\times X_{t3}$ remain positive and significant for the firms with high earnings quality (*t*-statistics 1.88 and 2.70), consistent with analyst forecast dispersion not

subsuming the main effect of FLPDs. As earnings quality is also positively correlated with firm disclosures, and therefore analyst forecast dispersion, we next test whether DISPERSION can equally explain the differential weights on FLPDs. We expect analyst forecast dispersion to be a noisier proxy of management credibility than earnings quality, as it is affected by the efficiency and incentives of information intermediaries. In the final two columns of Table 5, we repeat the analysis distinguishing between firms with low and high analyst forecast dispersion (DISPERSION). $FDSCORE \times X_t$ and $FDSCORE \times X_{t3}$ are not significant in either column, consistent with analyst forecast dispersion not affecting investors reliance on FLPDs.

In summary, Table 5 shows that our core finding is sustained when considering simpler earnings properties, such as earnings volatility, and filtering out the variation of earnings quality related to business fundamentals. Other aspects of the firm's information environment that are arguably less informative about the credibility of management disclosures compared with

Table 6. Forward-looking disclosure (FDSCORE) and share price anticipation of earnings over time and across earnings quality.

Variables	Entire sample Coeff. (*t*-stat)	High earnings quality Coeff. (*t*-stat)	Low earnings quality Coeff. (*t*-stat)
X_t	0.433***	0.290**	0.597**
	(2.97)	(2.03)	(2.57)
X_{t3}	0.007	−0.029	−0.007
	(0.12)	(−0.24)	(−0.05)
R_{t3}	−0.051	−0.057	−0.046
	(−1.07)	(−1.15)	(−0.86)
AG	0.103***	0.058***	0.129***
	(8.01)	(2.66)	(6.75)
EP_{t-1}	0.176*	0.081	0.318*
	(1.77)	(0.65)	(1.68)
FDSCORE	−0.006	−0.010**	−0.001
	(−1.10)	(−1.97)	(−0.11)
$FDSCORE \times X_t$	0.026	0.186***	−0.031
	(0.44)	(3.39)	(−0.69)
$FDSCORE \times X_{t3}$	−0.066	0.027	−0.004
	(−1.35)	(0.99)	(−0.11)
TIME	0.001	−0.006***	0.010***
	(1.51)	(−10.28)	(6.57)
$FDSCORE \times X_t \times TIME$	−0.001	−0.023**	0.007
	(−0.05)	(−2.42)	(1.16)
$FDSCORE \times X_{t3} \times TIME$	0.013**	0.006	0.016***
	(2.26)	(0.79)	(3.15)
Year dummies	YES	YES	YES
Industry dummies	YES	YES	YES
Observations	2831	1526	1305
Adj. R^2	0.1369	0.1228	0.1475

Notes: The sample consists of 2831 observations during the period 1996–2007 for a sample of 394 UK listed non-financial firms with at least *five* years available accounting, stock price and analyst forecast data from Datastream and I/B/E/S. Appendix 2 defines the variables. High (low) earnings quality includes firm-year observations where EQ (inverse measure of earnings quality) is lower (higher) than the industry and year median. TIME is a trend variable equal to the difference between the current year and 1996. We report the coefficient estimates from OLS regressions of annual stock returns on contemporaneous and future earnings interacted with the frequency of forward-looking performance statements and a time trend. *t*-Statistics in parentheses are based on robust standard errors clustered by year and firm to control for cross-sectional dependence and heteroskedastic and autocorrelated residuals.
*Significance at the 0.1 level (two-tailed).
**Significance at the 0.05 level (two-tailed).
***Significance at the 0.01 level (two-tailed).

earnings quality, such as financial analyst coverage or the analyst forecast dispersion, do not appear to affect investors reliance on FLPDs. Overall, these results reaffirm our conclusion that investor reliance on FLPDs increases with earnings quality in the presence of situational incentives, lending further credence to the use of earnings quality as a gauge of management credibility.

5.4.2. *Forecasting versus reporting reputation*

While it is hard to monitor the accuracy of FLPDs due to their qualitative nature, over time investors could learn to estimate the extent to which FLPDs map into future operating performance. This is possible through cumulative learning over time, which generates priors for corporate disclosure behaviour and allows for persistence to be built into these priors (Holland 2005). If an evaluation of the firm's forecasting reputation is feasible in the long term, investor confidence in management disclosures will rise over time. To test this assertion, we examine whether investor reliance on FLPDs increases over time for a balanced sample of firms with at least five years of being listed and therefore a sufficient record of annual reports. To capture inter-temporal variation in the relevance of FLPDs we introduce a time trend, TIME, and interact it with both FDSCORE $\times X_t$ and *FDSCORE* $\times X_{t3}$. To the extent that investor reliance on FLPDs rises with the track record of annual report narratives, we expect the interaction term to be positive. Table 6 reports the regression results for the balanced sample. As expected, FDSCORE $\times X_{t3} \times$ TIME is positive and significant (0.013, $t = 2.26$), suggesting that reliance on FLPDs to anticipate future earnings increases over time.

To the extent that management forecasting and reporting reputation are alternative cues of management credibility, relying on a track record of annual narratives to evaluate management's forecasting reputation will be more pronounced within firms with a poor reputation for the quality of their reported earnings. To test this assertion, we repeat the analysis distinguishing between firms with high and low earnings quality. The next two columns of Table 6 report the regression results. FDSCORE $\times X_{t3} \times$ TIME is indeed positive and significant only for firms with low earnings quality.[22] Thus, for firms facing issues with financial reporting quality, investors rely on FLPDs to anticipate future earnings only with a track record of annual report narratives. We view these results as reinforcing our core finding that earnings quality enhances reliance on FLPDs, shedding light on the compensating effect of time as a means of estimating management forecasting reputation.

6. Conclusion

In this paper, we investigate the credibility, as perceived by investors, of FLPD provided in annual reports. We find that further to the firm's disclosure policy and information environment, the frequency of forward-looking disclosure depends on managerial incentives at the time of the disclosure. Managers seem to be more forthcoming about future performance in their annual reports during years when the company raises debt or reports bad earnings news in the financial statements. In the presence of these managerial incentives, investors do not seem to rely on FLPDs unconditionally, they use forward-looking disclosure to appraise both current and future performance only when reported earnings in the audited financial statements are of high quality.

Our results have important implications for managers and policy-makers. For managers, they provide insights into the strategies they might follow to increase the extent to which stock prices capture their private information discussed in the narratives. Developing a reputation for high quality of earnings in the audited financial statements appears to make forward-looking disclosure more credible to investors. For policy-makers who are considering broadening the scope for disclosures of forward-looking information in annual report narratives, our evidence suggests that

investors mitigate the risk of resource misallocation by using information on the firm's earnings quality. A further important insight from our findings is that the drivers and usefulness of voluntary disclosure, especially of 'soft', unverifiable information, cannot be examined in isolation from the contents and properties of mandatory reporting. There is a meaningful interaction between the front end of the financial reports and the financial statement that could enhance our understanding of managers' disclosure choices and offer guidance to regulators on how to improve corporate reporting.

Acknowledgements

Notes

1. Recent research relies heavily on computer software packages to measure levels of narratives disclosures. These include Kothari *et al.* (2009), Feldman *et al.* (2010), Brown and Tucker (2011), Gruning (2011) and Davis and Tama-Sweet (2012). For an extensive review of the use of computer-based content analysis to measure levels of disclosure, see Li (2010b). We focus on forward-looking earnings statements within narrative disclosures.
2. On the determinants of forward-looking disclosure some evidence is also provided by studies focusing on the 'tone' of forward-looking disclosures. Li (2010a) finds that firms with better current performance, smaller size, less return volatility and lower market-to-book ratios issue more positive forward-looking disclosures. Since we examine factors inducing managers to be more forward about future performance in their reports, we focus on the *frequency* forward-looking disclosures.
3. For completeness, we reaffirm the information content of FLPDs by examining their predictive ability for future performance. We confirm that FLPDs, and annual changes in FLPDs, are positively associated with future changes in profitability.
4. The Financial Analysts Federation (FAF) produced the AIMR-FAF ratings by evaluating firms' disclosures along three dimensions: (a) the detail of information disclosed in annual published reports, (b) the detail of information in quarterly reports and (c) the responsiveness and openness of management to analyst questions. These ratings covered all the various disclosures made by firms, including verbal information given during analyst meetings and conference calls. However, prior research using these ratings argues that it is not clear how analysts selected firms to be included in the ratings, suggesting the existence of a strong bias towards the largest firms in each industry sector. The FAF discontinued the ratings in 1995.
5. Investors may assess the credibility of management forecasts through *ex post* realisations. Consistent with this notion, prior research finds that investors rely on earnings forecasts more when firms have provided accurate forecasts in the past (Williams 1996, Hirst *et al.* 1999, Mercer 2004, Rogers and Stocken 2005).
6. Analyst reports are highly likely to include the topics that help the stock market to anticipate future earnings changes. This is due to financial analyst representing and influencing investor beliefs (Schipper 1991, Lang and Lundholm 1996) and to annual reports serving as a key input to drafting analyst reports. Relying on analysts' views, as representative of the market's view, about the firm's disclosure policy is also consistent with the use of AIMR-FAF ratings as a proxy for the firm disclosures.
7. As our analysis focuses on the frequency of FLPDs, i.e. how forthcoming managers are about the future, and not their content, we do not perform extensive content analysis on FLPDs. To assess consistency with prior literature, we only draw some general observations about the content. In our randomly selected statements, consistent with the evidence of Clarkson *et al.* (1992), Clarkson *et al.* (1994), and Clatworthy and Jones (2003), good news appears to dominate bad news. Of the randomly selected sample statements, 95% contain good news about the future. Only a few of these statements

contain a mixture of good and bad news. The bad news component refers to current or past events, leading to the good news component with a forward-looking perspective.

8. According to the proprietary costs theory (Verrecchia 1983, Dye 1986, Darrough and Stoughton 1990, Wagenhofer 1990) the incentive to voluntarily disclosure information is a decreasing function of proprietary costs such as competitive costs. Consistent with this theory, Jones (2007) finds that higher proprietary costs are associated with lower levels of R&D voluntary disclosure. Prencipe (2004) finds that proprietary costs also limit the incentive for companies to provide segment information to the market.

9. Barclay and Smith (1995), McLaughlin *et al.* (1998), Barth and Kasznik (1999) and Huddart and Ke (2007) use the book to market measure as a proxy for information asymmetry.

10. The framework of this model has its theoretical underpinning in the discounted cash flows valuation model, assuming that investors' revisions in dividend expectations are fully summarised by their revisions in future earnings expectations.

11. Collins *et al.* (1994) include errors-in-variables proxies such as lagged earnings yield, current asset growth and future period returns to mitigate the measurement error problems. They argue that the inclusion of such proxies will affect the goodness of fit of the model only if the reason for the poor performance of the simple return-earnings regression is prices leading earnings. Panel C of Table 1 shows that the correlations between these variables are relatively small, with the largest correlation being between future earnings and future returns (35%). Such a correlation is anticipated (Lev 1989).

12. We focus on the standard deviation of the model residuals, as in Dechow and Dichev (2002). We repeat the analysis using the average of the model residuals and obtain qualitatively similar results.

13. For years beginning on or after 1 October 2007, UK quoted companies follow the enhanced business review reporting requirements of section 417 of the Companies Act 2006. Section 417 sets out the required contents of the business review, which companies need to include as part of their director's report. The content of the business review overlaps considerably with the content of the OFR, which constitutes a substantial part of the UK annual report narratives.

14. When using the unscaled FDSCORE, simply counting the frequency of FLPDs in the annual report, we also document a positive association with SIZE.

15. The negative association remains when using alternative measures of size based on firm sales or total assets.

16. With respect to equity offerings we also test the variation in FDSCORE in the year prior to equity offerings, i.e. redefining SEO as an indicator of increases in equity in the following period. In this additional test the effect of equity offerings is insignificant. For US firms, Lang and Lundholm (2000) also find no change in the frequency of forward-looking statements prior to equity offerings and attribute this to the SEC explicitly discouraging forecasts prior to registering the offering.

17. Causality may be an issue with analyst following, as it may be that firms issuing more FLPDs have lower information acquisition costs and therefore attract more financial analysts. To mitigate this concern, we repeat the analysis adding lagged NANAL and the effect remains positive and significant.

18. Since BM_t and BM_{t-1} are highly correlated we scrutinised collinearity diagnostics for this specification. Both the variance inflation factors and the tolerance levels of these and all remaining variables where at acceptable levels (below 3 and 0.9, respectively) alleviating collinearity concerns.

19. The remaining firm-specific characteristics, e.g. DISPERSION, LOSS and EQ do not significantly affect FLPDs in any of the specifications. In a specification excluding industry dummies EQ is significant and with the predicted sign. The effect of LOSS is subsumed by DECLINE and MISS, as losses are highly correlated with declines in profitability and the missing of analyst forecasts.

20. Collins *et al.* (1994) predict a negative coefficient for R_{t3} and AG_t and positive coefficients for EP_{t-1}, as EP_{t-1} (R_{t3} and AG_t) is (are) negatively (positively) associated with expected future earnings growth and the measurement error proxies serve to subtract the noise element from realised earnings growth. Similar to Hussainey *et al.* (2003), we document a positive, instead of negative, coefficient on AG_t.

21. Bid-ask spreads have also been found to be negatively associated with firm disclosures (Healy and Palepu 2001), offering an alternative inverse proxy for disclosure quality. However, as they are directly associated with stock returns, we do not use them in our additional tests so that the results are not hardwired.

22. We note that FDSCORE $\times X_t \times$ TIME is negative for firms with high earnings quality, suggesting that investor reliance on FLPDs to reassess contemporaneously reported earnings declines over time for these firms. This might reflect the declining scope for using FLPDs to explain contemporaneous performance for firms whose reported earnings are already of high quality.

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Appendix 1. FLPDs

Stages for constructing index of FLPD FDSCORE.
Stage 1: Identifying forward-looking keywords.

Accelerate	Estimate	Next	Scope for, scope to
Anticipate	Eventual	Novel	Shall
Await	Expect	Optimistic	Shortly
Coming (financial) years	Forecast	Outlook	Should
Coming months	Forthcoming	Planned, planning	Soon
Confidence, confident	Hope	Predict	Will
Convince	Intend, intention	Prospect	Well placed, well positioned
Current (financial) year	Likely, unlikely	Remain	Year(s) ahead
Envisage	Look forward, look ahead	Renew	

Stage 2: Identifying performance-related keywords from analyst reports.

Benefit	Contribution	Loss	Profitability
Break even	Earnings	Margin	Return
Budget	EPS	Profit	Trading

Stage 3: Counting the intersections between forward-looking and performance-related keywords, scaling the intersections by the total number of sentences in the annual report and multiplying by 100.

Sample of forward-looking performance statements	
Statement	Source (year of annual report)
'Management is confident that, with the launch of its new division "The Film Factory at VTR", the company is now well placed to capture a large stake of these special effects commercials and feature film market which will ensure the company's continuing growth in profitability'	VTR PLC (1996)
'Of the three divisions, RCO Healthcare is attracting the highest level of investment and offers considerable prospects for good returns in the medium and long term'	RCO Holdings PLC (1996)
'We intend to increase profits both by a controlled programme of organic expansion and by improving the performance of the existing units'	Vardon PLC (1996)
'We believe that the restructuring and investment programme will restore profitability to the group and strengthen our position in the market place'	Stoddard Sekers International PLC (1996)
'Its merger into Montgomery will provide an opportunity for profits recovery in future years'	Macfarlane Group (Clansman) PLC (1996)
'We will continue to invest to improve the business and to translate the many opportunities available to us into good returns for our shareholders'	FirstBus PLC (1997)
'The Directors believe that the company is now well positioned to support further growth which should result in a consequent improvement in operating margin'	Stoves Group PLC (1997)
'Going forward, Cantab will retain key commercial rights to provide both flexibility and greater financial return'	Cantab Pharmaceuticals PLC (1997)
'Importantly, we expect to produce solid profits and cash flow above the norms of our competition, whilst maintaining our capability to take advantage of improving markets'	Abacus Polar PLC (1997)
'I am confident that our carefully targeted expansion programmes across all our businesses will result in strong growth in earnings for the future'	Stagecoach Holdings PLC (1997)

(Continued)

Appendix 1. Continued.

Sample of forward-looking performance statements	
Statement	Source (year of annual report)
'As with our previous acquisitions we expect them to benefit from being part of McBride and to be earnings enhancing during the forthcoming year'	McBride PLC (1998)
'Superscape will invest these funds to continue to grow the company and move towards profitability'	Superscape VR PLC (1998)
'We are looking forward to the years ahead and are confident of generating major rights assets and of producing significant growth in earnings'	Bloomsbury Publishing PLC (1998)
'The development programme will concentrate primarily on large capacity key sites in high profile locations which have the potential individually to generate profits well in excess of the average bar or nightclub'	Chorion PLC (1998)
'Our focus on sales will ensure that the Group produces revenue growth and a return to profit and thus progressively build value for our shareholders'	IES Group PLC (1999)
'To match this investment in technology, we have also increased our sales and marketing activities and expect to see the benefits coming through in the near future'	Dee Valley Group PLC (1999)
'We believe that such opportunities combined with our reorganised UK operations will lead to improved levels of profitability'	Liberfabrica PLC (1999)
'A consistent focus on service quality, at sustainable margins, will contribute to long term profitable growth in this business'	Go Ahead Group PLC (1999)
'Future prospects look encouraging and we intend to take advantage of every opportunity to increase Group profits and earnings, and enhance value to shareholders'	Columbus Group PLC (1999)
'However, the situation is now improving significantly and the company is moving towards profit and regaining the confidence of its retail and contract customers'	Mcbride PLC (2000)
'The winning of new contracts and the maintenance of existing relationships will ensure that SSS continues its positive contribution to the Group'	IES Group PLC (2000)
'It is our intention to continue to expand the sales of our testing services, which will bring the benefits of greater flexibility and additional income'	Dee Valley Group PLC (2000)
'Thus the Group is well placed for further acquisitions and profit growth in the future'	Beale PLC (2000)
'Demand for our products remains buoyant and I am confident that the addition of further CD and DVD case capacity in the coming months should provide the opportunity to further increase turnover and profitability'	Coral Products PLC (2000)
'We shall be actively exploiting new growth opportunities to enhance the Group's profitability'	Stoves Group PLC (2000)
'The business is building but will inevitably take time to achieve an acceptable return'	Burnden Leisure PLC (2001)
'We expect there to be benefits from increased capacity and improved efficiency'	W T Foods PLC (2001)
'The Board is confident that the enlarged estate will continue to produce substantial returns in the years ahead'	Fuller Smith & Turner PLC (2001)

(*Continued*)

Appendix 1. Continued.

Sample of forward-looking performance statements	
Statement	Source (year of annual report)
'We are confident that our significant investment in filtration and our strategic strengths will produce a good and increasing return for shareholders, and a rewarding environment for our employees and customers'	Mcleod Russel Holdings PLC (2001)
'Over the short term, profit growth will be constrained by the cost of investment'	Boots Company PLC – (2002)
'This was achieved despite significant revenue investment in areas such as the Argos store card and new products at Experian, which will underpin future profits growth'	Great Universal Stores PLC (2002)
'We shall continue our ongoing strategy of using this surplus to buy back shares, in order to enhance long term growth in earnings per share'	Next PLC (2002)

Appendix 2. Definition of variables (in alphabetical order)

Variable	Definition
AG	The growth rate of total book value of assets in period t
BM	Book (DS307) to market (DSHMV) ratio. HMV is the item code for the market value of equity.
CFO	Operating cash flows (DS1015) scaled by lagged total assets
DEBTISSUES	Equals one if total debt (DS1301) increases by more than 5% during the year, zero otherwise
DECLINE	Equals one if annual change in I/B/E/S actual EPS is negative, zero otherwise
DISPERSION	Standard deviation of analyst forecasts during the accounting period scaled by the absolute value of actual earnings
EP	I/B/E/S reported actual EPS for year $t-1$ divided by beginning of year share price
EQ	The standard deviation of a firms' abnormal working capital accruals calculated over years $t-4$ through t. Abnormal accruals are estimated using the modified Jones (1991) model extended with return on assets (Kothari *et al.* 2005), and negative changes in cash flows to account for the role of accruals in timely loss recognition (Ball and Shivakumar 2006). Working capital accruals measured as change in total current assets (DS376) net of change in cash (DS375), minus change in current liabilities (DS389) net of change in the current portion of long-term debt (DS309)
FDSCORE	The number of forward-looking performance statements included in the annual report narratives divided by the total number of sentences in the annual report narrative sections and multiplied by 100
LOSS	Equals one if in I/B/E/S actual EPS is negative in the current accounting period, 0 otherwise
MISS	Equals one if the earnings surprise (SURP) is negative, zero otherwise
NANAL	Number of analysts following the firm over the accounting period (source: I/B/E/S)
UNDERPERFORMANCE	Average industry return on assets (ROA) minus firm-specific ROA. ROA is earnings before interest, tax, depreciation and amortisation (DS1502) over total assets (DS392)
UNDERPERFORM	Equals one if UNDERPERFORMANCE is positive (i.e. the firm underperforms compared its industry peers), 0 otherwise

Appendix 2. Continued.

Variable	Definition
R_t	Buy-and-hold returns from eight months before end of financial year t to four months after the end of financial year t
R_{t3}	Buy-and-hold returns from eight months before the financial year-end to four months after the financial year-end for years $t + 1$ to $t + 3$
SEO	Equals one if the share capital (DS301) increases by more than 5% during the year, zero otherwise
SIZE	Log of market value of equity (DSHMV)
SURP	Earnings surprise calculated as the difference between I/B/E/S actual EPS and the forecast outstanding at the earnings announcement date for year t
X_t	The annual change in I/B/E/S actual EPS from year t to $t + 1$ scaled by the stock price at the beginning of the year t
X_{t3}	The sum of annual change in I/B/E/S actual EPS for years $t + 1$ to $t + 3$ scaled by the stock price at the beginning of the year t
σSALES	The standard deviation of total sales (DS104) over the accounting periods over years $t - 2$ through to t

Note: DS, Datastream code.