



Contents lists available at ScienceDirect

Journal of Accounting and Economics

journal homepage: www.elsevier.com/locate/jacceco

Management earnings forecasts and other forward-looking statements[☆]



Zahn Bozanic, Darren T. Roulstone, Andrew Van Buskirk*

The Ohio State University, Fisher College of Business, 2100 Neil Avenue, Columbus, OH 43210, United States

ARTICLE INFO

Article history:

Received 1 July 2015

Revised 1 July 2017

Accepted 16 November 2017

Available online 20 November 2017

Keywords:

Management forecasts

Earnings announcements

Textual analysis

Voluntary disclosure

ABSTRACT

We identify forward-looking statements (FLS) in firms' disclosures to distinguish between "forecast-like" (quantitative statements about earnings) and "other", or non-forecast-like, FLS. We show that, like earnings forecasts, other FLS generate significant investor and analyst responses. Unlike earnings forecasts, other FLS are issued more frequently when uncertainty is higher. We then show that *earnings-related* FLS are more sensitive to uncertainty than *quantitative* statements, suggesting that managers are more likely to alter the content than the form of FLS when uncertainty is higher. Our study indicates that incorporating other FLS into empirical measures provides a more comprehensive proxy for firms' voluntary disclosures.

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"...a key unanswered question is whether firms identified by prior studies...as 'less forthcoming' disclosers are truly silent about their future operations or whether they use disclosure mechanisms that prior research has overlooked." (Li, 2013)

1. Introduction

For several decades, management earnings forecasts have been the focus of significant academic interest. Initially, that interest was driven by the concern that forecasts were not credible – so much so that firms were prohibited by the SEC from providing such forecasts in their securities filings.¹ Following substantial evidence that investors do respond to earnings forecasts (e.g., Patell, 1976; Waymire, 1984; Baginski et al., 1994; Hutton et al., 2003; Rogers and Stocken, 2005), that view has changed considerably. In fact, more recent studies have shown that management forecasts provide more information to investors than any other accounting source (Beyer et al., 2010). A common theme among these studies is the focus on quantitative earnings forecasts.

In this paper, we use textual analysis to study forward-looking information disclosed by managers. We examine both the quantitative estimates of future earnings that are typically treated as forecasts in disclosure research, and the set

[☆] We thank Michelle Hanlon (editor), Dawn Matsumoto (referee), Anne Beatty, Jeff Hoopes, Amy Hutton, Feng Li, Greg Miller, Miguel Minutti-Meza, Volkan Muslu, DJ Nanda, Aaron Nelson, Terry Shevlin, Siew Hong Teoh, Jenny Tucker, workshop participants at Florida State University, George Mason University, Indiana University, University of California – Davis, University of California – Irvine, University of Miami, University of Michigan, University of Minnesota, University of Washington, University of Wisconsin, and conference participants at the 2012 McMaster Accounting Research Symposium, 2013 AAA FARS Midyear Meeting, 2013 Yale Accounting Conference, and 2015 NYU Accounting Summer Camp for helpful comments and suggestions.

* Corresponding authors.

E-mail address: van-buskirk.10@osu.edu (A. Van Buskirk).

¹ See Cholakias (1999) for the history of the SEC's views regarding corporate projections.

of qualitative and/or non-earnings forward-looking statements often overlooked in disclosure research.^{2,3} To distinguish between different types of forward-looking statements, we identify, for each statement, whether the statement is quantitative or non-quantitative and whether it explicitly refers to earnings or not. We refer to forward-looking statements as “forecast-like” if they are both quantitative and refer explicitly to earnings. We refer to all remaining forward-looking statements as “other”, or “non-forecast-like”, forward-looking statements.⁴ Isolating the different types of forward-looking statements, and when managers issue those statements, allows us to investigate why managers make the disclosure choices we observe. While several studies have examined certain types of non-earnings forward-looking statements individually (e.g., revenue or cash flow projections), our goal is to study a comprehensive sample of forward-looking statements (both forecast-like and other) to assess how and why forecast-like statements differ from other forward-looking statements in terms of both determinants and consequences.

We address several questions related to the different types of forward-looking statements, starting with the question of whether, like earnings forecasts, other forward-looking statements are consequential in terms of affecting investor and analyst beliefs. We then focus on managers’ decisions to issue different types of forward-looking statements. In particular, we build on prior research that finds a negative relation between investor uncertainty and earnings forecast issuance (Waymire, 1985; Field et al., 2005). We extend this research by examining whether managers uniformly issue less forward-looking information when uncertainty is high or whether uncertainty *differentially* influences the decision to disclose forecast-like forward-looking information versus other forward-looking statements. We view this set of questions as important, given that prior research demonstrates that managers may issue different types of forward-looking information in different contexts.⁵

Next, we use observed disclosure choices to infer *why* managers are reluctant to issue quantitative earnings forecasts when uncertainty is high. We know from prior research that managers fear the costs of unattained projections (Waymire, 1985; Graham et al., 2005). Our question is how that fear manifests in the decision to issue (or not issue) different types of forward-looking statements. We focus on the two identifying characteristics of earnings forecasts (they are quantitative and earnings-related) to ask which aspect of earnings forecasts makes those forecasts less desirable when uncertainty is high: Is it because earnings forecasts are earnings-related or because they are quantitative? We view this last question as essentially asking whether managers are more likely to change the content (earnings vs. non-earnings statements) or the form (quantitative vs. non-quantitative) of forward-looking information in the face of uncertainty.

To answer these questions, we analyze forward-looking statements disclosed in quarterly earnings announcements (where earnings forecasts are typically issued) from 2004–2014. We follow Li (2010) and Muslu et al. (2015) in using keyword-based textual analysis to identify forward-looking statements (excluding those statements that are likely to be boilerplate). We then classify forward-looking statements along the two dimensions that have traditionally defined earnings forecasts: whether the statements refer explicitly to earnings (e.g., using such terms as “earnings” or “profits”) and, separately, whether or not the statements are quantitative.⁶ We assess the informativeness of other forward-looking statements by measuring their association with earnings announcement stock returns and analysts’ revisions. We then draw inferences about managers’ disclosure decisions based on how their disclosures change as a function of uncertainty.

Our results indicate that other forward-looking statements are consequential: earnings announcements with a greater proportion of other forward-looking statements experience greater absolute stock returns during the announcement period as well as sharper improvements in the accuracy of analyst earnings estimates. A one standard deviation increase in the amount of other forward-looking statements has approximately the same market effect as a one standard deviation increase in the amount of forecast-like statements. We emphasize two aspects of this result. First, the market effect is robust to controlling for the amount of forecast-like statements; the information in other forward-looking statements is not subsumed by the information in quantitative, earnings-related forward-looking statements. Second, other forward-looking statements are not only consequential when issued in conjunction with a management earnings forecast (as in the sample examined by Hutton et al., 2003); they are also consequential on a stand-alone basis (i.e., when issued without a concurrent management earnings forecast).

In terms of determinants, we find (similar to the results in Waymire, 1985) a strong negative relation between uncertainty and the issuance of forecast-like forward-looking statements. However, we find the opposite for other forward-looking statements. That is, managers issue *more* non-forecast-like forward-looking statements when uncertainty is higher. The increase in other forward-looking statements when uncertainty is higher is consistent with Matsumoto et al. (2011), who study conference calls and note that “the lack of earnings guidance when performance is poor is not due to a lack of

² By design, we do not restrict our sample to only those firms that issue quantitative earnings guidance. We examine the disclosure behavior of a broad sample of firms regardless of whether or not they issue the management earnings forecasts traditionally studied in prior disclosure research.

³ First Call’s CIG database, a common source of forecast data in recent years, illustrates the bias towards quantitative earnings forecasts. The database ostensibly includes both qualitative and quantitative management earnings forecasts. However, fewer than 5% of post-Regulation FD forecasts in the database are qualitative.

⁴ Note that “forecast-like” statements will generally include the quantitative earnings forecasts typically studied in prior literature. We use the term “forecast-like statement” to refer to quantitative earnings statements that we identify via textual analysis, and “earnings forecasts” to refer to quantitative earnings statements identified via the I/B/E/S guidance database. Section 3.2 discusses the classification process in greater detail.

⁵ This research generally studies targeted samples of firms (such as Kasznik and Lev, 1995, who study firms with extreme earnings changes) and/or subsets of forward-looking disclosures (such as Wasley and Wu, 2006, who study cash flow forecasts, or Lu and Tucker, 2012, who study capital expenditure and strategic plan disclosure). We discuss this research in Section 2.

⁶ We perform extensive validation tests of our text-based classification, and discuss those tests in Section 3.4 and in our Online Appendix.

future-oriented discussion". This increased disclosure in the face of greater uncertainty would be overlooked in the typical disclosure study that uses quantitative earnings forecasts as a proxy for overall voluntary disclosure.

We then examine whether uncertainty deters *all* quantitative forward-looking statements and *all* earnings-related statements and, if so, whether the deterrent effect is stronger for one type of statement than another. We find that uncertainty seems to deter both quantitative statements and earnings-related statements, and that the deterrent effect is significantly stronger for earnings-related forward-looking statements than it is for quantitative forward-looking statements.⁷ We interpret this result as evidence that uncertainty leads to fewer forecasts primarily because managers are reluctant to discuss future earnings, rather than being reluctant to provide quantitative estimates. As a result, managers are more likely to change the content of their disclosures (earnings vs. non-earnings), rather than their form (quantitative vs. qualitative), in the face of greater uncertainty.

Our paper makes several contributions to the existing disclosure literature. First, we show that managers issue more forward-looking information than many prior studies would suggest. This forward-looking information is consequential, influencing investor and analyst beliefs about firm value, both when it complements a quantitative earnings forecast and when it is issued without a concurrent forecast. We note that the market reaction to other forward-looking statements issued without a quantitative earnings forecast (standalone statements) provides countervailing evidence to a belief in existing literature that some forms of disclosure are too vague or non-credible to generate a market response (e.g., Hutton et al., 2003).

Second, we show that the decision to issue quantitative earnings forecasts differs from the decision to issue other forward-looking information. This result bolsters the concern expressed in prior studies (e.g., Skinner, 1994; Kile et al., 1998; Hirst et al., 2008) that a focus on quantitative earnings forecasts can mask firms' overall level of voluntary disclosure. For example, Skinner (1994) notes that "by limiting their samples to point or range forecasts of annual EPS, some previous papers appear to have excluded an important subset of all voluntary disclosures, specifically qualitative disclosures".

Third, our decomposition of forward-looking information along both the earnings/non-earnings and the quantitative/non-quantitative dimensions allows us to more precisely investigate why managers make the disclosure choices they do. While prior literature has shown that managers disclose different types of guidance in different environments, it has been challenging to infer the reason for those differences. For example, Lu and Tucker (2012) show that strategic plan disclosures and earnings guidance are driven by different factors. However, their sample of earnings guidance is quantitative while their strategic plan disclosures are largely qualitative, which makes it difficult to distinguish between the effects of form and content. Our decomposition of forward-looking statements allows us to disentangle these effects in order to determine which is stronger. Our results show that uncertainty has a significantly stronger effect on the content (earnings vs. non-earnings) of forward-looking statements than their form (quantitative vs. non-quantitative).

Finally, we note that researchers often use the disclosure of quantitative earnings forecasts as a summary proxy for a firm's overall voluntary disclosure practices, or as a way to distinguish consequential disclosures from less consequential disclosures.⁸ Our results indicate that using earnings forecasts as a summary disclosure proxy may be inadequate, or even biased, particularly when there is variation in uncertainty across firms or time. Our study suggests that focusing on quantitative earnings forecasts will lead researchers to understate the extent of forward-looking disclosures made by firms, especially during periods of uncertainty, and to misestimate changes in aggregate disclosure levels around shocks to uncertainty (e.g., examining disclosure changes after a lawsuit or restatement). We encourage future researchers to use more comprehensive measures of forward-looking disclosure (i.e., including both earnings forecasts and other forward-looking statements) as an alternative, potentially less biased, measure of overall voluntary disclosure.

2. Prior literature and hypothesis development

A long history of forecasting literature shows that stock prices respond to the information conveyed in management earnings forecasts (e.g., Patell, 1976; Penman, 1980; Beyer et al., 2010). Similarly, there is substantial evidence that analysts respond to management forecasts by revising their estimates of future earnings (e.g., Waymire, 1986; Jennings, 1987; Cotter et al., 2006). Given their significant market consequences, many papers have studied the determinants of management forecasts (e.g., Waymire, 1985; Rogers and Stocken, 2005; Billings et al., 2015). These and similar studies focus almost exclusively on quantitative earnings forecasts.

It is no accident that quantitative earnings forecasts dominate the existing literature; such forecasts are easy to search for using services like Factiva or the Dow Jones News Retrieval Service and, more recently, have been available in machine-readable form from services like First Call and I/B/E/S. In particular, it is relatively straightforward to identify and classify

⁷ Note that these two groups of forward-looking statements are not mutually exclusive. Forecast-like statements are classified as both quantitative and earnings-related. However, forecast-like statements make up a minority of each group; most earnings-related statements are non-quantitative, and most quantitative statements are non-earnings related. We discuss the distribution of the different types of statements in Section 3.2.

⁸ There are countless examples. Billings and Cedergren (2017) use the presence or absence of earnings forecasts to identify managers who stay silent ahead of earnings disappointments. Yang (2012) uses earnings forecasts to study manager-specific voluntary disclosure style. Kwak et al. (2012) use earnings forecasts to study whether the composition of top management affects voluntary disclosure. Chen et al. (2008) use earnings forecasts to look at the voluntary disclosure practices of family firms. Rogers and Van Buskirk (2009) use the number of earnings forecasts (among other measures) to assess how firms change their disclosure practices after being sued by investors. Ajinkya et al. (2005) use the number and characteristics of earnings forecasts to study the effect of outside governance on voluntary disclosures. Soffer et al. (2000) study the preannouncement strategies of firms with good and bad earnings news. In each of these cases, First Call earnings forecasts were employed as the measure of voluntary forward-looking information.

forward-looking statements when requiring both an estimated number and an explicit reference to earnings or net income (e.g., “We expect next quarter’s earnings to be between \$1.05 and \$1.10.”).

In contrast, identifying and examining other forward-looking statements is more challenging, for at least two reasons. First, it requires subjectivity in distinguishing between consequential projections (e.g., “We plan to end production of our major product line next year.”) and vacuous platitudes (e.g., “We will continue our tradition of excellence in the coming years.”). Second, different industries are likely to issue forward-looking information about different topics (e.g., expected store openings for a retailer or upcoming product releases for a video game developer), which makes it difficult to develop a comprehensive search algorithm to identify those statements. In fact, a recent publication by the CFA Institute points out that there is no U.S. GAAP definition for what constitutes a forward-looking statement.⁹

In spite of the challenges, several studies have looked at different types of non-earnings forward-looking statements. Most of these studies choose a particular type of forward-looking statement, and then base their sample on a search for that type of statement. [Han and Wild \(1991\)](#) study revenue forecasts issued with earnings forecasts, and find that revenue forecasts convey incremental information. [Wasley and Wu \(2006\)](#) study the determinants of cash flow forecasts, and find a positive correlation between the issuance of cash flow forecasts and the issuance of earnings forecasts. [Hutton et al. \(2003\)](#) start with a sample of earnings forecasts and examine the supplementary disclosures with those forecasts, finding that good news earnings forecasts are only informative when accompanied by verifiable supplementary disclosures (but not “soft talk” disclosures). [Lu and Tucker \(2012\)](#) examine the issuance of forward-looking statements about earnings, capital expenditures, and strategic plans. They find that firms tend to withhold earnings guidance after poor performance, but sometimes substitute capital expenditure and strategic plan guidance in its place.

More recently, researchers have adopted text-based methods to identify *all* forward-looking statements based on keyword identification ([Li, 2010](#); [Muslu et al., 2015](#)). [Li \(2010\)](#) studies forward-looking statements in the MD&A section of 10-K and 10-Q filings, and finds that the tone of forward-looking statements is informative about future performance. [Muslu et al. \(2015\)](#) study the MD&A of 10-K filings and find that firms with more forward-looking disclosures tend to have worse information environments before the filing, and that the forward-looking information helps to improve that environment.

The existing literature provides evidence that some non-earnings forward-looking statements (e.g., revenue projections) can be informative incremental to earnings guidance. The results in existing papers also tell us that the decision to issue non-earnings guidance often differs from the decision to issue earnings forecasts in some cases. That being said, there are still many open questions pertaining to non-forecast-like forward-looking statements, particularly regarding qualitative forward-looking statements (which non-earnings guidance papers often discard).

Our first question is whether, like quantitative earnings forecasts, other (non-forecast-like) forward-looking statements generate measurable market reactions. On one hand, qualitative and non-earnings forward-looking information can convey meaningful information that investors can use to assess firm value (e.g., [Li, 2010](#)). On the other hand, existing research suggests that investors and analysts may be less willing to rely upon forecasts that are viewed as less credible or less precise. For example, [Bamber and Cheon \(1998\)](#) find that more precise forecasts lead to stronger investor responses. In the extreme, investors and analysts may view other forward-looking statements as non-verifiable and/or not precise, and assign very little weight to those statements. Our first set of hypotheses follows:

H1A: Disclosures with more other forward-looking statements are associated with stronger price reactions.

H1B: Disclosures with more other forward-looking statements are associated with greater improvements in analysts’ forecast accuracy.

Our second, related question builds on the work of [Hutton et al. \(2003\)](#), who focus on the informativeness of earnings forecasts both with and without supplemental disclosures. Although the Hutton et al. sample is limited to only those firms issuing earnings forecasts, their arguments suggest that other forward-looking statements can play a different informational role depending on whether they stand alone or accompany (and corroborate) an earnings forecast. Because our sample, unlike the [Hutton et al. \(2003\)](#) study, captures the forward-looking statements of all firms (forecasters and non-forecasters), we are able to examine the informativeness of other forward-looking statements on a stand-alone basis, which leads us to our second set of hypotheses:

H2A: Other forward-looking statements are associated with price reactions when they are issued in conjunction with an earnings forecast, as well as when they are issued on a stand-alone basis.

H2B: Other forward-looking statements are associated with greater improvements in analysts’ forecast accuracy when they are issued in conjunction with an earnings forecast, as well as when they are issued on a stand-alone basis.

We next investigate the effect of uncertainty on the firm’s disclosure decision. The decision to issue a particular disclosure is a function of both supply and demand. One can find many examples in prior research where managers seem to be responding to uncertainty-driven investor demand for more information; e.g., managers issue forecasts when investors have inaccurate beliefs ([Ajinkya and Gift, 1984](#)) or when information asymmetry among investors is high ([Coller and Yohn, 1997](#)). [Wasley and Wu \(2006\)](#) conclude that managers are more likely to issue cash flow forecasts when reported earnings are uninformative.

⁹ “Forward-Looking Information: A Necessary Consideration in the SEC’s Review on Disclosure Effectiveness” CFA Institute, July 2014.

At the same time, a robust finding in existing disclosure research is that firms tend to issue fewer forecasts when uncertainty is high (e.g., Waymire, 1985; Karamanou and Vafeas, 2005). This finding suggests that managers, perhaps because they are also uncertain about future earnings, tend to remain silent even when investors would like more information. Hollander et al. (2010) provide vivid evidence of this phenomenon by showing that managers regularly withhold requested information in conference calls, in some cases as directly as responding, “No, we do not want to provide that information.” In short, managers may view it most costly to issue forward-looking information at precisely those times when investors find that information to be most valuable.

If, as discussed earlier, managers fear the cost of unattained projections, we expect this fear to have a greater effect on quantitative earnings forecasts than on other forward-looking statements, for a few reasons. First, quantitative statements are, on average, likely to be more easily verified and evaluated *ex post* than non-quantitative statements.¹⁰ Second, earnings are often viewed as the most important metric for investors (Graham et al., 2005), so the consequences of missing an earnings estimate are likely to be more severe than the cost of missing other non-earnings metrics. Finally, many non-earnings items – like store openings, product release schedules, or planned inventory levels – are arguably more controllable by the manager than net income; managers may feel more comfortable making projections about those items, knowing that they have a greater ability to control their realizations. Based on these arguments, we expect the following:

H3: Uncertainty has a stronger negative effect on the decision to issue *quantitative earnings statements* than on the decision to issue *other forward-looking statements*.

To this point, we have distinguished between two groups of forward-looking statements: forecast-like statements that are both quantitative and earnings-related, and other forward-looking statements. For our remaining hypotheses, we group forward-looking statements differently. Specifically, we distinguish forward-looking statements along the two attributes that characterize earnings forecasts (i.e., the quantitative/non-quantitative dimension and the earnings/non-earnings dimension) and ask whether the effect of uncertainty is uniform across these attributes. In particular, we test whether uncertainty has a different effect on quantitative forward-looking statements than it does on non-quantitative forward-looking statements. Similarly, we test whether uncertainty has a different effect on earnings-related forward-looking statements than it does on non-earnings forward-looking statements. We expect that statements are more affected by uncertainty when they share attributes with earnings forecasts:

H4A: Uncertainty has a stronger negative effect on the decision to issue *quantitative forward-looking statements* than on the decision to issue *non-quantitative forward-looking statements*.

H4B: Uncertainty has a stronger negative effect on the decision to issue *earnings-related forward-looking statements* than on the decision to issue *non-earnings-related forward-looking statements*.

Finally, we investigate whether the tradeoff between earnings and non-earnings forward-looking information differs from the tradeoff between quantitative and non-quantitative forward-looking information. Here, we are effectively asking the following question: Do managers avoid issuing earnings forecasts when uncertainty is high primarily because those forecasts are quantitative or because the forecasts are earnings-related?

On one hand, managers may be reluctant to issue quantitative projections for which they may later be held accountable. Hutton et al. (2003) make the point that projections are more credible when they are “specific enough to be compared with subsequent realizations.” Extending this argument, managers may believe that adverse consequences from specific projections are more likely because those projections are more easily judged against *ex post* realizations. In this case, managers would prefer non-quantitative statements to quantitative statements, regardless of the metric disclosed, when uncertainty is high.

On the other hand, managers may prefer to issue prospective statements about topics over which they have more control. Lu and Tucker (2012) propose this explanation in their study of capital expenditure and strategic plan disclosures. Specifically, they suggest that managers might be willing to disclose “input metrics over which they have control while withholding guidance of earnings – a summary output metric.” An implication of this scenario is that managers would be willing to issue both qualitative and quantitative forward-looking information as long as they have control over the metric they disclose.¹¹

Because we have no *ex ante* reason to believe that one effect would dominate the other, our final hypothesis is stated in null form:

H5: Uncertainty has the same effect on earnings-related forward-looking statements as it does on quantitative forward-looking statements.¹²

¹⁰ We acknowledge the point made by Hutton et al. (2003): statements do not need to be quantitative to be verifiable. We do not disagree, and simply argue that, on average, quantitative statements are more verifiable than non-quantitative statements.

¹¹ As Lu and Tucker note, all of their earnings and capital expenditure guidance is quantitative, while virtually all of their strategic plan guidance is qualitative. Thus, it is unclear whether the disclosure decisions they consider are driven by content (strategic plan vs. capital expenditure) or form (quantitative vs. qualitative).

¹² To be clear, these two groups of statements are not mutually exclusive; some forward-looking statements are both quantitative and earnings related. This test is designed to determine whether managers view one of those attributes as more undesirable/costly than the other when uncertainty is high.

Table 1
Quarterly earnings announcement sample.

Year	I/B/E/S earnings forecast		Total	% with Forecasts
	No	Yes		
2004	155	136	291	47
2005	2,981	2,463	5,444	45
2006	3,116	2,839	5,955	48
2007	3,574	2,744	6,318	43
2008	4,012	2,791	6,803	41
2009	4,360	2,547	6,907	37
2010	4,280	2,691	6,971	39
2011	3,956	2,668	6,624	40
2012	3,737	2,644	6,381	41
2013	3,530	2,558	6,088	42
2014	913	632	1,545	41
Total	34,614	24,713	59,327	42

Notes: The table shows the distribution of our sample of quarterly earnings announcements by year of the earnings announcement date. Earnings announcements are included if they meet the following criteria: I/B/E/S provides both an actual earnings value and at least one pre-announcement analyst earnings estimate for the quarter in question; the firm has CRSP market data and Compustat Balance Sheet data prior to the earnings announcement; both the current and prior earnings press release are available as 8-K filings in the SEC's EDGAR database. The earnings announcements are separated into two groups based on whether the I/B/E/S management earnings forecast dataset reports a management earnings forecast within one day of the earnings announcement.

3. Sample selection, measurement, and validation

3.1. Sample selection

We examine quarterly earnings announcements from 2004 (when earnings announcements were first made electronically available via 8-K filings from EDGAR) through 2014. We focus on earnings announcements for three reasons. First, during our sample period the vast majority of earnings forecasts (over 70%) are issued in conjunction with earnings announcements (Rogers and Van Buskirk, 2013). Second, earnings announcements are regular, planned disclosure events that occur regardless of underlying economic events. As a consequence, the choice to disclose/withhold forward-looking information in an earnings announcement is more likely to be driven by managerial preference than by the availability of new information or occurrence of a major event.¹³ Third, focusing on earnings announcements allows us to study the market reactions to forward-looking statements; studying forward-looking statements in 10-K or 10-Q filings (as in Li, 2010 and Muslu et al., 2015) would be less desirable, as market reactions to those filings are typically small.

Our sample starts with quarterly earnings announcements as reported on Compustat for firms with share codes of 10 or 11 in CRSP (this eliminates foreign companies, ADRs, and REITs). We require that each observation has at least one analyst estimate for the current period's earnings and an actual earnings value reported by I/B/E/S. We also require that each earnings announcement has available market data from CRSP and financial statement information from Compustat prior to the announcement date.

For each earnings announcement, we obtain the corresponding 8-K filing from the SEC's EDGAR database. We identify earnings announcement 8-Ks based on the 8-K classification and its filing date. We retain only those 8-K press releases classified as Results of Operations and Financial Condition and filed within five days of the earnings announcement date. After requiring that both the current announcement and the prior quarter's announcement have available 8-K filings, we are left with 59,327 quarterly earnings announcements from 2004–2014.¹⁴ Table 1 shows the annual distribution of these announcements.

Table 1 also shows the earnings announcements for which the I/B/E/S guidance database (the successor to the commonly-used First Call database) records a management earnings forecast within 1 day of the earnings announcement date. These forecasts include point, range, open-ended and qualitative forecasts of various horizons, although the majority of I/B/E/S forecasts are quantitative – either point or range.¹⁵ Of the 59,327 earnings announcements in our initial sample, 24,713 (42%) were issued in conjunction with a management earnings forecast captured by I/B/E/S. The 59,327

¹³ An alternative method would be to compare quarters in which firms provided forecasts to quarters in which they did not, as in Rogers and Van Buskirk (2009). The downside of this method is that forecasts may be issued in response to some major event (like the earnings forecasts issued after the 9/11/2001 terrorist attacks), in which case observed forecasting behavior would be more a function of the underlying economics than a reflection of the manager's disclosure preferences.

¹⁴ We require that the prior earnings announcement has an available filing because we control for lagged disclosure behavior in many of our tests.

¹⁵ As Chuk et al. (2013) note, the First Call CIG database (the discontinued predecessor database to the I/B/E/S database we use) is more likely to capture earnings forecasts that are for specific dollar amounts. The First Call focus on quantitative earnings forecasts (and pervasive academic use of the First Call database) underlies our central claim that qualitative and non-earnings projections have been relatively understudied.

Table 2
Univariate statistics.

Panel A: Firm-level characteristics						
Variable	N	Mean	Median	Std. dev.	25th pct	75th pct
Market Value (Millions)	59,327	5,081	1,112	12,961	379	3,453
Book-to-Market	59,327	0.60	0.46	0.56	0.27	0.77
Analyst Following	59,327	9.5	8.0	6.5	5.0	13.0
Loss	59,327	18%				
Pre-Earnings Expectations Gap	56,056	−0.3%	0.0%	2.2%	−0.3%	0.2%
Pre-Earnings Expectations Gap	56,056	1.0%	0.3%	2.4%	0.1%	0.8%
Earnings Volatility	48,496	2.6%	1.2%	3.7%	0.5%	3.0%
Analyst Dispersion	47,976	5.9%	2.3%	13.2%	1.0%	5.2%
Pre-Earnings Implied Volatility	44,282	48.0%	43.5%	22.1%	32.5%	57.9%
Earnings surprise, deflated	59,327	−0.11%	0.06%	1.79%	−0.08%	0.25%
Earnings Period 3-day Return	59,327	0.22%	0.09%	8.79%	−4.34%	4.76%
I/B/E/S earnings forecast	59,327	41.7%				
Panel B: Earnings announcement characteristics						
Variable	N	Mean	Median	Std. dev.	25th pct	75th pct
Sentence Count	59,327	74.2	60.0	54.6	44.0	85.0
Forward-looking sentences (FLS)	59,327	7.3	5.0	7.6	3.0	9.0
FLS – earnings and quantitative	59,327	0.6	0.0	1.0	0.0	1.0
FLS – other	59,327	6.7	5.0	7.3	2.0	8.0
% Forward-looking sentences (FLS)	59,327	3.3	2.0	3.6	1.0	5.0
% FLS – earnings and quantitative	59,327	9.5%	8.7%	5.8%	5.1%	13.0%
% FLS – other	59,327	0.8%	0.0%	1.5%	0.0%	1.4%
% of earnings announcements with at least 1 FLS	59,327	95.4%				
% of earnings announcements with at least 1 earnings and quantitative FLS	59,327	33.9%				
Panel C: Proportion of each type of forward-looking sentence						
Sentence count	Earnings	Non-earnings		Total		
		Non-earnings, HMS	Non-earnings, Non-HMS			
Quantitative	0.6	0.5	0.7	1.7		
Non-quantitative	0.7	1.4	3.3	5.5		
Total	1.3	1.9	4.0	7.2		
% of Forward-looking sentences	Earnings (%)	Non-earnings		Total (%)		
		Non-earnings, HMS (%)	Non-earnings, Non-HMS (%)			
Quantitative	8	7	9	24		
Non-quantitative	10	20	46	75		
Total	17	27	55	100		

Notes: Panel A provides descriptive statistics for the variables used in the paper.

Panel B provides descriptive statistics for the earnings press release sentence types.

Panel C breaks down forward-looking sentences (both the number of forward-looking sentences and as a fraction of the total number of sentences in the press release) by whether they are earnings-related or not earnings-related and whether they are quantitative or non-quantitative. In addition, non-earnings related forward-looking sentences are further broken out by those reflecting performance measures from Hutton et al. (2003) (denoted by “HMS”). Some percentages may not appear to add to 100% due to rounding. See Appendix B for variable definitions.

earnings announcements were issued by 4,129 unique firms; 2,066 of those firms have no I/B/E/S management earnings announcement-period forecasts in the entire sample, and would typically be described as “non-forecasters”.

Table 2, Panel A provides descriptive statistics for the firms/earnings announcements in our sample. Due to the requirement that firms have analyst coverage in I/B/E/S, our sample is biased towards larger firms; the median market value is roughly \$1.1 billion, while the median analyst coverage is 8. The number of observations differs across variables due to data availability, with the largest drops in sample size coming from earnings volatility (requiring 12 prior quarters of reported earnings), analyst dispersion (requiring at least two analyst estimates), and implied volatility (requiring publicly traded options).

As noted earlier, a minority of earnings announcements are issued with management earnings forecasts (as identified by I/B/E/S), which suggests that providing forward-looking disclosures is relatively limited. Whether that extends to other types of forward-looking statements is one of the questions that we address.

3.2. Classifying statements using textual analysis

We use the Perl programming language to analyze the text of the 8-K filings on a sentence-by-sentence basis. After removing boilerplate language, such as that attributable to Safe Harbor statements, we classify sentences in an earnings announcement as forward-looking sentences (FLS) if they include at least one forward-looking term, such as “company

expects” or “management anticipates”. We employ a hybrid approach that follows Appendix B in Li (2010) and the Appendix in Muslu et al. (2015) in both identifying boilerplate language and in constructing our list of forward-looking terms to identify forward-looking statements.¹⁶ We then classify each forward-looking statement along two dimensions: whether that statement is earnings-related and whether that statement is quantitative.

We classify each forward-looking statement as either earnings-related or non-earnings related using search words commonly used by researchers who have manually collected earnings forecasts from sources like Dow Jones News Retrieval Service (Jennings, 1987; Pownall et al., 1993; Skinner, 1994). A forward-looking statement is identified as earnings-related if it includes words such as “EPS”, “income”, “loss”, or “profit”. A forward-looking statement that does not contain at least one of the earnings-related terms is considered a non-earnings related forward-looking statement. The complete list of forward-looking and earnings-related terms is presented in our Online Appendix. Appendix A provides examples of earnings-related and non-earnings-related forward-looking statements from our sample.

The earnings-related statements are easy to characterize – similar to the traditional notion of a management forecast, they refer explicitly to the net profits of the firm. The non-earnings statements, which make up the majority of forward-looking statements in our sample, are more diverse. One drawback of our comprehensive approach, in contrast to the targeted studies like Wasley and Wu (2006) discussed earlier, is that we know relatively little about the particular types of non-earnings statements in our sample. Anecdotal readings of earnings press releases suggest that in some cases non-earnings statements refer to common metrics like revenue, taxes, margins, or capital expenditures, while in other cases they refer to industry-specific or firm-specific items like FDA approval or expected product release dates.¹⁷

We also classify each forward-looking statement as either quantitative or non-quantitative. Because we are primarily interested in numbers that reflect financial information, we follow a targeted approach, similar to Huang et al. (2014). A sentence is identified as quantitative if it includes words such as “dollars”, “thousands”, or “millions”, or numbers followed by scale abbreviations (e.g., \$10M or \$5B). A sentence is also classified as quantitative if there are any references to U.S. currency (i.e., “\$”) or percentages (the word “percent” or the symbol “%”). A forward-looking statement that does not contain at least one of the quantitative terms is classified as a non-quantitative forward-looking statement. Appendix A contains examples of quantitative and qualitative forward-looking statements.

Table 2, Panel B summarizes the textual characteristics of the earnings announcements in our sample. Earnings announcements have an average of 74.2 sentences (after removing boilerplate language), of which 7.3 (9.5%) are classified as forward-looking. Of those forward-looking statements, only an average of 0.6 statements are classified as both earnings-related and quantitative (i.e., forecast-like). Roughly 33.9% of earnings announcements feature at least one forecast-like (both quantitative and earnings-related) forward-looking statement, while virtually all (95.4%) of the announcements include at least one forward-looking statement. The latter statistic indicates that forward-looking information is far more pervasive than what is captured by quantitative earnings forecasts.

Panel C provides a further breakdown of the forward-looking statements in our sample. The matrix in Panel C distinguishes along both the quantitative/non-quantitative dimension and the earnings/non-earnings dimension, with each cell showing the average number of sentences in that cell. To distinguish between different types of non-earnings statements in our sample, we take advantage of the word list used by Hutton et al. (2003) in their search for management guidance. In addition to the terms that we categorize as “earnings related” (e.g., “earnings” and “profit”), Hutton et al. include other performance measures like “revenue”, “margins”, “cash flows”, and “EBITDA”.¹⁸ For each of our non-earnings statements, we classify them as including (“HMS”) or not including (“Non-HMS”) at least one of the Hutton et al. performance measures. The quantitative “Non-Earnings, HMS” statements are those more likely to have been studied in prior research (e.g., revenue statements in Han and Wild, 1991, or cash flow forecasts in Wasley and Wu, 2006), while the “Non-Earnings, Non-HMS” statements are more likely to reflect industry-specific, firm-specific, or otherwise previously unexamined statements.

Panel C shows that most forward-looking statements do not refer explicitly to earnings (5.9 non-earnings compared to 1.3 earnings-related), and most are not quantitative (5.5 non-quantitative compared to 1.7 quantitative). We also note that only 0.7 statements, on average, are quantitative, non-earnings statements that reference one of the performance measures from Hutton et al. (2003). In summary, most forward-looking statements differ on at least one dimension from the quantitative earnings/performance forecasts used in prior empirical research.¹⁹

¹⁶ We explain how we combined the two approaches and describe the tests supporting our decision to do so in our Online Appendix.

¹⁷ Because our process is similar to Li’s (2010) in identifying forward-looking statements, we expect the distribution of our statements to be similar to that found in his sample of MD&A disclosures. Li classifies 30,000 forward-looking sentences from MD&A disclosures and reports the following: only 8.7% relate to profits; 62.8% refer to revenues, costs, profits, or operations; 38.8% refer to liquidity, investing, or financing; and 13.7% refer to other items (e.g., litigation). Given the distribution reported in Li (2010), it is not surprising that the bulk of our forward-looking statements do not refer explicitly to earnings.

¹⁸ From footnote 10 of Hutton et al. (2003): “The specific search we use is as follows: (forecast\$ or estimat\$ or predict\$ or anticipat\$ or expect\$) in the same paragraph as (sale or sales or revenue\$ or earning\$ or profit\$ or loss or losses or margin or margins or cashflow\$ or cash flow\$ or income or ebit or ebitda or result or result\$) in the same paragraph as (manager or management or CEO or executive or president or official or officials or officer or spokesperson or spokesman or spokeswoman).”

¹⁹ As a robustness check, we re-perform our main tests excluding the “Quantitative, Non-Earnings, HMS” forward-looking statements from our “other” category of forward-looking statements. Our inferences are unchanged, which leads us to conclude that our results are not driven by the types of non-earnings forecasts studied in prior research.

Table 3
Validation of text-based classification.

	(1)	(2)	(3)	(4)	(5)	(6)
% Forward-looking sentences (FLS)	4.033*** (14.32)					
% Earnings-related FLS		22.27*** (26.85)		19.47*** (5.460)		8.129** (2.271)
% Non-earnings FLS		0.464 (1.487)		0.481 (0.136)		3.049 (0.870)
% Quantitative FLS			13.59*** (20.89)	7.511** (2.119)		–3.425 (–0.978)
% Non-quantitative FLS			–0.0383 (–0.113)	–2.515 (–0.713)		–2.937 (–0.836)
% Earnings-related and quantitative FLS					47.03*** (30.43)	42.36*** (20.99)
% Other FLS					0.476 (1.595)	
N	59,327	59,327	59,327	59,327	59,327	59,327
Pseudo R ²	0.0249	0.0985	0.0687	0.119	0.158	0.161

Notes: The table shows results from probit regressions where the binary dependent variable is equal to 1 for earnings announcements that were accompanied by an earnings forecast recorded in the I/B/E/S management guidance dataset (including measures ‘EPS’, ‘GPS’, and ‘NET’), and 0 for earnings announcements without an associated forecast. Variables are defined in Appendix B and standard errors are clustered by firm. Robust z-statistics are in parentheses. *** $p < .01$, ** $p < .05$, * $p < .10$.

3.3. Validating the output of our text classification

As discussed above, we characterize all forward-looking sentences along two dimensions, whether the sentence explicitly refers to earnings and whether the sentence is quantitative. If our classification scheme is effective, there should be a strong link between I/B/E/S-identified earnings forecasts and the statements that we identify as quantitative and earnings-related.

We first assess how well our list of earnings terms corresponds to the types of statements traditionally identified as earnings forecasts. Although our earnings-related word list is small, we believe it reflects the terms traditionally used to identify earnings forecasts (Jennings, 1987; Pownall et al., 1993; Skinner, 1994; Chen et al., 2011).²⁰ We arbitrarily selected 60 forecast records from the CIG dataset from January 2005 and read the relevant press release sentence that contained each forecast. Of those 60 observations, 58 sentences included at least one of our earnings terms; 1 statement referred to FFO (Funds From Operations, a measure used heavily by REITs and typically discarded in earnings forecast studies); and 1 statement presented a dollar amount without explicitly referring to it as an earnings per share figure in that sentence. Thus, our condensed list of earnings terms seems sufficiently comprehensive to identify the types of statements typically classified as earnings forecasts.

We then test the link between traditional earnings forecasts and our text-based measures by measuring how well our quantitative and earnings-related statements predict forecasts aggregated in the I/B/E/S earnings guidance dataset. We expect the following. First, earnings announcements with more forward-looking statements should be more likely to be recorded as containing earnings forecasts in the I/B/E/S database. Second, earnings announcements with more earnings-related forward-looking statements should be more likely to be recorded as containing earnings forecasts in the I/B/E/S database. Third, earnings announcements with more quantitative forward-looking statements should be more likely to be recorded as containing earnings forecasts in the I/B/E/S database. Finally, earnings announcements with more forward-looking statements that are both earnings-related and quantitative should be more likely to be recorded as containing earnings forecasts in the I/B/E/S database.

Table 3 provides evidence on these predictions. Each column of Table 3 shows the results of a probit regression where the binary dependent variable is a 1 for earnings announcements accompanied by an earnings forecast recorded in the I/B/E/S dataset, and 0 for all other earnings announcements. The independent variables are text-based measures based on the classification schemes discussed earlier. We cluster standard errors by firm.

The results of these regressions provide strong support for our classification scheme. Column 1 shows that when earnings announcements contain a larger proportion of forward-looking statements (% FLS), I/B/E/S is more likely to show an associated earnings forecast.²¹ Column 2 shows that when we split the FLS into earnings-related and non-earnings FLS, only the earnings-related FLS predict an I/B/E/S forecast (z-stat of 26.85 for earnings-related FLS compared to a z-stat of

²⁰ Some researchers have used an expanded list of terms in identifying forecasts (e.g., Hutton et al., 2003). However, Pownall et al. (1993) support the use of a concise list of earnings-related terms. They use “earnings”, “income”, and “profits”, but note in their footnote 3 that an expanded list of terms would not have generated a different sample of forecasters.

²¹ For each forward-looking text variable, we scale the number of forward-looking sentences by the total number of sentences in the earnings announcement. This approach implicitly controls for the total information content of the earnings announcement. Unscaled versions of our text-based variables also show a significantly positive association with the existence of an I/B/E/S earnings forecast. However, the explanatory power is greater for our scaled versions, and we use those scaled versions throughout our analyses.

1.487 for non-earnings FLS). Column 3 shows that more quantitative FLS predict I/B/E/S forecasts (z-stat of 20.89), while non-quantitative FLS have no predictive ability (z-stat of -0.113). Column 4 combines the four text-based measures, and the results indicate that the earnings/non-earnings classification and the quantitative/non-quantitative classification are distinct predictors of an I/B/E/S forecast: earnings-related FLS and quantitative FLS continue to predict I/B/E/S forecasts at the $p < .05$ level, while their complements have no predictive power.

Finally, columns 5 and 6 show the results when we distinguish between forward-looking sentences that are both quantitative and earnings-related, and other forward-looking statements (i.e., those that are either non-earnings-related, non-quantitative, or both). The results are striking – the strongest determinant of an I/B/E/S-identified earnings forecast is the frequency of quantitative and earnings-related forward-looking statements (a z-stat of 30.43 and a pseudo R^2 of 0.158, nearly double the pseudo R^2 from earnings-related or quantitative statements in columns 2 and 3). Column 6 shows that, after controlling for the statements that are both quantitative and earnings related, there is little to no remaining association between I/B/E/S management forecasts and the other sets of forward-looking statements. While these results are intuitive, they provide assurance that our classification scheme effectively identifies the two attributes that jointly characterize the forecasts aggregated by I/B/E/S and which are typically used in empirical disclosure research.²²

3.4. Uncertainty proxies

We use multiple proxies for investor uncertainty to predict forward-looking information in a firm's quarterly earnings announcement. In particular, we use the following proxies to capture investor uncertainty about future earnings:

<i>Loss</i>	Losses tend to not be persistent and are not informative about future earnings (Hayn, 1995).
<i>Earnings Volatility</i>	More volatile earnings are harder to predict (Waymire, 1985).
<i>Expectations Gap</i>	A significant gap between investor expectations and future earnings indicates relatively uninformed investors (Ajinkya and Gift, 1984)
<i>Implied Volatility</i>	When investors are uncertain about the value of the firm, it may be a signal that earnings are harder to predict (Baginski and Hassell, 1997; Patell and Wolfson, 1981).
<i>Analyst Dispersion</i>	Analyst disagreement about future earnings reflects difficulty in predicting earnings.

Some of these variables (*Loss*, *Earnings Volatility*) reflect earnings characteristics that are likely to impede the successful prediction of future earnings. The remaining variables (*Expectations Gap*, *Implied Volatility*, and *Analyst Dispersion*) reflect outcomes signaling that investors and analysts are relatively uncertain about the future.²³

We use these variables, along with other control variables expected to be associated with voluntary disclosure, to predict the issuance of forward-looking information in firms' quarterly earnings announcements. We first predict each particular disclosure type (e.g., the extent of quantitative, earnings-related forward-looking statements) in a standard regression model. We then use seemingly unrelated regressions to assess whether the uncertainty proxies *differentially* affect the decision to issue different types of forward-looking information. These analyses allow us to draw conclusions about the directional determinants of forward-looking disclosures, as well as the sensitivity of various disclosures to those determinants.

4. Empirical results

4.1. Are other forward-looking statements consequential? (H1)

Our first question is whether market participants view these other forward-looking statements as relevant and credible. Stated differently, can these statements revise beliefs? We answer this question by focusing on two market-based responses to the firm's quarterly earnings announcement: the stock price response to the earnings announcement and the change in analysts' earnings estimate accuracy during the earnings announcement period. We examine how each measure varies with the extent of forward-looking information provided in the earnings announcement, after controlling for the disclosed earnings surprise, other firm characteristics, and year fixed effects.

²² We acknowledge that our classification is imperfect, and that our text-based measures will contain some degree of noise. To illustrate, we identify 33.9% of earnings announcements as having forecast-like statements, while I/B/E/S identifies 42% of those earnings announcements as including an earnings forecast. When we compare our classification to the I/B/E/S classification for each observation, our classification agrees with the I/B/E/S classification for 73.9% of our observations. In 9.2% of the sample, we identify a forecast-like statement where I/B/E/S records no earnings forecast, and in 16.9% of the sample we identify no forecast-like statements where I/B/E/S does record an earnings forecast. To mitigate the possibility that our results are affected by misclassification, we perform robustness checks for all of our analyses using disclosure measures that are adjusted as follows. In cases where we have at least one forecast-like statement and I/B/E/S does not identify an earnings forecast, we reduce the sentence count of forecast-like statements to 0 and increase the sentence count of "other FLS" by the number of forecast-like statements that we had previously identified. Similarly, in cases where we do not have a forecast-like statement and I/B/E/S identifies an earnings forecast, we increase the sentence count of forecast-like statements by 1 and reduce the sentence count of "other FLS" by 1. The untabulated results indicate that using this approach yields qualitatively similar outcomes in terms of investor and analyst response, as well as the determinants of earnings forecasts vs. other forward-looking statements. We discuss these measures further in our Online Appendix, which also provides illustrations of particular disclosure types that our approach fails to measure correctly.

²³ Note that *Expectations Gap* is not observable at the time of the earnings announcement, because it represents the difference between current expectations of next quarter's earnings (which are observable) and next quarter's realized earnings (unobservable as of the current quarter's earnings announcement).

Table 4, Panel A shows the relation between forward-looking statements and the stock price response to a firm's quarterly earnings announcement. Because the amount of forward-looking disclosure is not an unambiguously positive or negative signal (unlike, for example, disclosure tone or signed earnings surprises), we study the effect of greater forward-looking disclosure on absolute stock returns measured over the 3-day earnings announcement period. Column 1 shows that, after controlling for the magnitude of the earnings surprise (letting it differ between positive and negative surprises), there is a stronger stock price response to announcements that have a greater proportion of forward-looking information.

In Columns 2 and 3, we distinguish between forecast-like (% *FLS* – *Earnings and Quantitative*) and other (% *FLS* – *Other*) forward-looking statements, respectively, and find that greater amounts of both types of forward-looking statements are associated with stronger investor response to the disclosure. In Column 4, we include both types of forward-looking statements and continue to find that more other forward-looking statements are associated with stronger investor response even when controlling for the extent of forecast-like statements. Overall, investors not only view other forward-looking statements as credible and relevant, but the information conveyed in those statements is not subsumed by statements typically viewed as earnings forecasts.

In terms of magnitude, the coefficient on quantitative, earnings-related statements is substantially larger than the coefficient on other forward-looking statements (12.5 compared to 4.9 in column 4); an *F*-test confirms that a forecast-like statement is significantly more consequential than a statement that would not typically be viewed as an earnings forecast ($p < .01$). Recall that these different types of forward-looking statements have significantly different distributions: the average earnings announcement contains about 0.6 quantitative, earnings-related statements compared to 6.6 other forward-looking statements, and the standard deviation of other forward looking statements is several times larger than the standard deviation of quantitative, earnings-related statements. In Column 5 we show results where we have standardized each disclosure variable to have a mean of zero and a standard deviation of 1. Column 5 shows that a one unit change in each variable has about the same effect on stock price (0.185 vs. 0.264 with the difference having a *p*-value of .13).

We report the results of a similar analysis in Table 4, Panel B. In this case, the dependent variable is the change in analyst forecast errors for quarter $t + 1$ earnings.²⁴ The results for analyst accuracy are similar to the results for stock price response: forward-looking statements are consequential and lead to more accurate analyst estimates of future earnings (greater reductions in absolute analyst forecast errors). This is true for both forecast-like statements (Column 2) and for other forward-looking statements (Column 3), and is true whether the variables are included in the regression separately or together (Column 4). Similar to the effect on stock prices, a single forecast-like forward-looking statement has a larger (though statistically insignificant) effect than a single other forward-looking statement. When we standardize quantitative/earnings-related statements and other forward-looking statements, we find that a one unit change in the amount of other forward-looking information has a much larger effect (0.016 vs. 0.007) on analyst forecast accuracy (Column 5, $p = .03$).²⁵

Overall, the results in Table 4 show that forward-looking statements are consequential in terms of affecting investors' and analysts' beliefs. Most pertinent to this study, we find significant consequences for the other forward-looking statements that are typically overlooked by researchers, even when controlling for forecast-like statements. In terms of economic significance, quantitative earnings forecasts are a succinct method of conveying information: a single forecast-like statement has a substantially larger effect than a single other forward-looking statement. However, when we take into account the fact that firms issue significantly more other forward-looking statements, increasing the amount of other forward-looking information by one standard deviation has about the same effect as quantitative/earnings-related statements on stock prices and a larger effect on analyst forecast accuracy.

4.2. Forward-looking statements issued with and without a quantitative earnings forecast (H2)

Our next question is whether other forward-looking statements are informative both when issued in conjunction with an earnings forecast and on a stand-alone basis. In Table 5, we present regressions similar to those in Table 4, but based on two separate subsamples. In the first two columns of each panel, we show the relation between forward-looking statements and market responses for earnings announcements *with* an earnings forecast (as recorded on the I/B/E/S database). In the third and fourth columns, we show the same relations for the sample of earnings announcement observations *without* an I/B/E/S earnings forecast. As in Table 4, Panel A shows the relation between forward-looking statements and absolute stock returns. Panel B shows the relation with analyst forecast accuracy.

In both cases, forward-looking statements have a significant relation with observed market responses regardless of whether the earnings announcement included a quantitative earnings forecast. This is true for both the *total* percentage of forward-looking statements (columns 1 and 3) and the percentage of *other* forward-looking statements (columns 2 and

²⁴ Specifically, we measure the change in forecast errors as the negative of the post-announcement absolute analyst error for quarter $t+1$ earnings minus the pre-announcement absolute analyst error for quarter $t+1$ earnings, scaled by the pre-announcement stock price. (Positive numbers indicate an improvement in forecast accuracy.) The pre-announcement analyst error is based on analyst estimates for quarter $t+1$ earnings made prior to the quarter t earnings announcement. The post-announcement analyst error is based on analyst estimates made in the 7 days following the quarter t earnings announcement.

²⁵ We note that our results are robust to excluding from "other" forward-looking statements those quantitative statements that refer to revenues, cash flows, and the other metrics studied by Hutton et al. (2003). In terms of the control variables, earnings volatility and lagged stock return volatility are consistently positively associated with investor and analyst response, while firm size is negatively associated with investor and analyst response. We interpret this as evidence that when investors have more uncertainty about firm value prior to the announcement, their response to new information is stronger (e.g., Verrecchia, 2001).

Table 4
Response to forward-looking statements.

Panel A: Stock price response. Dependent variable = 3-day EA period stock return					
	(1)	(2)	(3)	(4)	(5)
Positive earnings surprise, deflated	76.464*** (12.15)	76.203*** (12.08)	76.127*** (12.09)	76.745*** (12.20)	76.745*** (12.20)
Negative earnings surprise, deflated	26.035*** (8.95)	25.791*** (8.81)	25.983*** (8.93)	26.027*** (8.94)	26.027*** (8.94)
% FLS	5.615*** (9.64)				
% FLS – earnings and quantitative		15.208*** (6.43)		12.510*** (5.25)	.185*** (5.25)
% FLS – other			5.379*** (8.68)	4.853*** (7.81)	.264*** (7.81)
Earnings volatility	8.576*** (7.35)	9.340*** (8.00)	8.553*** (7.33)	8.730*** (7.46)	8.730*** (7.46)
Loss	-.643*** (-5.97)	-.574*** (-5.33)	-.658*** (-6.11)	-.616*** (-5.73)	-.616*** (-5.73)
Book-to-Market	-.272*** (-3.07)	-.308*** (-3.47)	-.281*** (-3.18)	-.269*** (-3.03)	-.269*** (-3.03)
Log(Market Value)	-.227*** (-8.47)	-.236*** (-8.85)	-.225*** (-8.39)	-.230*** (-8.57)	-.230*** (-8.57)
Lagged Return Volatility	95.605*** (28.34)	97.329*** (28.76)	95.563*** (28.31)	95.966*** (28.48)	95.966*** (28.48)
Log(Sentence Count)	-.139** (-2.11)	-.018 (-0.28)	-.146** (-2.21)	-.114* (-1.72)	-.114* (-1.72)
Constant	5.215*** (15.76)	5.128*** (15.52)	5.313*** (16.08)	5.119*** (15.46)	5.641*** (17.10)
F-test: % FLS – earnings and quantitative = % FLS – other (p-value)				< 0.01	0.13
Year fixed effects	Yes	Yes	Yes	Yes	Yes
N	48,496	48,496	48,496	48,496	48,496
R ²	0.131	0.130	0.131	0.132	0.132
Panel B: Improvement in analyst accuracy. Dependent variable = Δ Average analyst forecast error for next quarter's earnings					
	(1)	(2)	(3)	(4)	(5)
Positive earnings surprise, deflated	0.700 (0.61)	0.669 (0.58)	0.685 (0.59)	0.706 (0.61)	0.706 (0.61)
Negative earnings surprise, deflated	2.081*** (2.93)	2.062*** (2.90)	2.080*** (2.93)	2.080*** (2.93)	2.080*** (2.93)
% FLS	.317*** (6.24)				
% FLS – earnings and quantitative		0.644*** (4.12)		0.480*** (3.00)	.007*** (3.00)
% FLS – other			.319*** (5.65)	.299*** (5.19)	.016*** (5.19)
Earnings volatility	0.182 (1.62)	.223** (1.99)	0.178 (1.59)	.186* (1.65)	.186* (1.65)
Loss	0.005 (0.39)	0.009 (0.63)	0.004 (0.32)	0.006 (0.44)	0.006 (0.44)
Book-to-Market	0.001 (0.07)	-.001 (-0.10)	0.001 (0.04)	0.001 (0.08)	0.001 (0.08)
Log(Market Value)	-.005** (-2.07)	-.006** (-2.26)	-.005** (-2.05)	-.005** (-2.09)	-.005** (-2.09)
Lagged Return Volatility	.810* (1.91)	.901** (2.12)	.802* (1.89)	.819* (1.93)	0.819* (1.93)
Log(Sentence Count)	-.017*** (-2.87)	-.010* (-1.78)	-.017*** (-2.98)	-.016*** (-2.73)	-.016*** (-2.73)
Pre-Earnings Expectations Gap	15.962*** (28.47)	15.971*** (28.46)	15.960*** (28.46)	15.963*** (28.47)	15.963*** (28.47)
Constant	.070** (2.22)	.069** (2.13)	.076** (2.41)	.068** (2.12)	.098*** (3.00)
F-test: % FLS – earnings and quantitative = % FLS – Other (p-value)				0.32	0.03
Year fixed effects	Yes	Yes	Yes	Yes	Yes
N	44,568	44,568	44,568	44,568	44,568
R ²	0.341	0.341	0.341	0.341	0.341

Notes: Panel A shows the results from an OLS regression where the dependent variable is the absolute value of 3-day cumulative stock returns around quarterly earnings announcements, multiplied by 100 for readability. In Column 5, the FLS variables have been standardized to have a mean of zero and a standard deviation of 1. Variables are defined in Appendix B and standard errors are clustered by firm. Robust *t*-statistics are in parentheses. *** $p < .01$, ** $p < .05$, * $p < .10$.

Panel B shows the results from an OLS regression where the dependent variable is the change in average analyst forecast error for next quarter's earnings, scaled by stock price, and multiplied by 100 for readability. (Positive changes indicate improvement in accuracy.) In Column 5, the FLS variables have been standardized to have a mean of zero and a standard deviation of 1. Variables are defined in Appendix B and standard errors are clustered by firm. Robust *t*-statistics are in parentheses. *** $p < .01$, ** $p < .05$, * $p < .10$.

Table 5
Response to forward-looking sentences conditional on issuing an I/B/E/S earnings forecast.

Panel A: Stock price response. Dependent variable = 3-day EA period stock return				
	Earnings announcement with I/B/E/S earnings forecast		Earnings announcement without I/B/E/S earnings forecast	
	(1)	(2)	(3)	(4)
Positive earnings surprise, deflated	73.005*** (5.64)	72.685*** (5.61)	82.365*** (11.69)	82.404*** (11.68)
Negative earnings surprise, deflated	43.485*** (5.16)	43.431*** (5.16)	25.963*** (8.39)	25.984*** (8.41)
% FLS	3.283*** (3.90)		5.544*** (7.09)	
% FLS – other		3.485*** (3.87)		5.569*** (6.92)
Earnings volatility	7.524*** (4.04)	7.452*** (4.00)	9.198*** (6.35)	9.188*** (6.34)
Loss	–1.040*** (–5.12)	–1.049*** (–5.17)	–0.367*** (–3.01)	–0.370*** (–3.03)
Book-to-Market	–0.646*** (–3.68)	–0.654*** (–3.74)	–0.123 (–1.23)	–0.122 (–1.22)
Log(Market Value)	–0.463*** (–11.27)	–0.466*** (–11.38)	–0.126*** (–3.70)	–0.125*** (–3.68)
Lagged Return Volatility	110.282*** (18.69)	110.293*** (18.71)	89.721*** (21.94)	89.710*** (21.93)
Log(Sentence Count)	–0.147 (–1.54)	–0.167* (–1.73)	–0.109 (–1.33)	–0.107 (–1.31)
Constant	7.468*** (13.94)	7.617*** (14.34)	4.170*** (10.58)	4.174*** (10.58)
Year fixed effects	Yes	Yes	Yes	Yes
N	21,056	21,056	27,440	27,440
R ²	0.123	0.123	0.143	0.143
Panel B: Improvement in analyst accuracy. Dependent variable = Δ Average analyst forecast error for next quarter's earnings				
	Earnings announcement with I/B/E/S earnings forecast		Earnings announcement without I/B/E/S earnings forecast	
	(1)	(2)	(3)	(4)
Positive earnings surprise, deflated	–3.000 (–1.10)	–3.015 (–1.10)	1.672 (1.33)	1.677 (1.33)
Negative earnings surprise, deflated	–1.500 (–0.79)	–1.502 (–0.79)	2.955*** (3.89)	2.957*** (3.90)
% FLS	0.145*** (2.77)		0.385*** (4.62)	
% FLS – other		0.139** (2.36)		0.393*** (4.51)
Earnings volatility	0.334*** (2.80)	0.332*** (2.78)	0.021 (0.13)	0.019 (0.12)
Loss	–0.030 (–1.19)	–0.030 (–1.20)	0.018 (1.10)	0.018 (1.08)
Book-to-Market	0.006 (0.25)	0.005 (0.23)	–0.002 (–0.12)	–0.002 (–0.11)
Log(Market Value)	–0.005* (–1.88)	–0.005* (–1.95)	–0.004 (–1.11)	–0.004 (–1.10)
Lagged Return Volatility	0.680 (1.28)	0.685 (1.28)	0.885 (1.55)	0.882 (1.54)
Log(Sentence Count)	–0.005 (–0.90)	–0.005 (–0.99)	–0.023*** (–2.67)	–0.023*** (–2.66)
Pre-Earnings Expectations Gap	–0.005 (–0.90)	–0.005 (–0.99)	14.880*** (24.94)	14.880*** (24.94)
Constant	0.028 (0.81)	0.035 (1.01)	0.084* (1.91)	0.084* (1.92)
Year fixed effects	Yes	Yes	Yes	Yes
N	19,992	19,992	24,576	24,576
R ²	0.360	0.360	0.338	0.338

Notes: Panel A shows the results from an OLS regression where the dependent variable is the absolute value of 3-day cumulative stock returns around quarterly earnings announcements, multiplied by 100 for readability. The additional control variables are: *Earnings Volatility*, *Loss*, *Log(Market Value)*, *Book-to-Market*, and *Lagged Volatility*. Columns 1 and 2 show results for the sample of earnings announcements issued with a management earnings forecast identified in the I/B/E/S database. Columns 3 and 4 show results for the sample of earnings announcements without an I/B/E/S earnings forecast. Variables are defined in Appendix B and standard errors are clustered by firm. Robust *t*-statistics are in parentheses. *** $p < .01$, ** $p < .05$, * $p < .10$.

Panel B shows the results from an OLS regression where the dependent variable is the change in average analyst forecast error for next quarter's earnings, scaled by stock price, and multiplied by 100. Columns 1 and 2 show results for the sample of earnings announcements issued with a management earnings forecast identified in the I/B/E/S database. Columns 3 and 4 show results for the sample of earnings announcements without an I/B/E/S earnings forecast. Variables are defined in Appendix B and standard errors are clustered by firm. Robust *t*-statistics are in parentheses. *** $p < .01$, ** $p < .05$, * $p < .10$.

4). Across Panels A and B, the relation is significant at the $p < .01$ level for seven of the eight regressions, and at the $p < .05$ level for the remaining regression. Based on these results, we conclude that other forward-looking statements are significantly associated with market responses on both a stand-alone basis and in conjunction with an earnings forecast.

4.3. The relation between uncertainty and different types of forward-looking statements (H3)

As discussed earlier, prior research suggests that investors will demand more forward-looking information when uncertainty is high, but managers will be less willing to supply that information in the face of uncertainty. In particular, managers are less willing to issue quantitative earnings forecasts when uncertainty is high (e.g., Waymire, 1985; Lu and Tucker, 2012).²⁶ Whether that extends beyond quantitative earnings forecasts remains an open question.

To address this question, we regress our forward-looking disclosure measures on proxies for uncertainty (see Section 3.4) and additional control variables.²⁷ The results of these regressions are shown in Table 6. In Panel A, we show regressions where the dependent variable is the percentage of quantitative, earnings-related forward-looking statements in a quarterly earnings announcement (i.e., the type of statements typically classified as earnings forecasts). Column 1 presents the results from a baseline regression, including only market value, book-to-market, lagged stock returns, and analyst following as independent variables. Column 2 shows the effect of an additional independent variable: *Lagged FLS Measure*, the proportion of quantitative, earnings-related FLS in the previous earnings announcement.

The lagged variable is overwhelmingly the strongest predictor of the firm's disclosure choice, increasing the R^2 from 0.018 in Column 1 to 0.48 in Column 2. There are a few reasons why one period's disclosure choice is such a powerful predictor of the next period's choice. First, disclosure choices tend to be sticky; it is likely that many firms use a similar earnings announcement template from one period to the next, primarily updating the numbers within that template. Second, firms that issue forward-looking information in one period may feel pressure to update those predictions to avoid legal liability.²⁸ In any event, the significant autocorrelation in disclosure behavior illustrates the importance of controlling for prior disclosure choices rather than analyzing only a single period's disclosure or treating each period as independent of prior periods.

In each of the remaining columns, we add a variable representing uncertainty about firm value or future earnings: *Loss*, *Earnings Volatility*, *Expectations Gap*, *Implied Volatility*, and *Analyst Dispersion*. Although there is some variation in statistical significance, the inference is the same for each of the five uncertainty proxies: increased uncertainty is associated with a lower likelihood of the firm issuing quantitative, earnings-related forward-looking statements.²⁹ The negative relation between uncertainty and quantitative, earnings-related statements is consistent with prior research (e.g., Waymire, 1985; Lu and Tucker, 2012), as well as anecdotal evidence from CFOs. In particular, Graham et al. (2005) conclude from their interviews that "guidance is desirable if the firm is stable enough to deliver the guided number, but guidance is undesirable if the firm is unsure of its ability to deliver the guided earnings."

Our question is whether the guidance/uncertainty relation extends to other types of forward-looking statements. To address this question, we perform a similar exercise as in Table 6 Panel A, this time examining the decision to issue forward-looking statements other than quantitative, earnings-related FLS. Table 6, Panel B presents the results.

Similar to the decision to issue quantitative, earnings-related FLS, the decision to provide other forward-looking information is quite sticky: Panel B shows that the prior period's disclosure measure (*Lagged FLS Measure*) has a coefficient of roughly 0.66, and its inclusion in the model dramatically increases the explanatory power from an R^2 of 0.009 in Column 1 to 0.43 in Column 2. As in Panel A, Columns 3 through 7 show the effect of uncertainty on the disclosure of other forward-looking statements.

The contrast between Panels A and B is clear: while firms are *less* likely to issue quantitative earnings forecasts when uncertainty is higher, they are *more* likely to issue other forward-looking statements when uncertainty is higher. Overall, the well-known result that uncertainty leads to fewer forecasts does not apply to most forward-looking information. The small minority of quantitative, earnings-related statements are less frequent when uncertainty is higher, but the opposite is true for the much larger set of forward-looking statements that would not typically be viewed as forecasts.

4.4. Effect of uncertainty on different attributes of forward-looking statements (H4)

If managers are reluctant to issue prospective statements for which they may be held accountable ex post (particularly when uncertainty is high), and quantitative statements are more verifiable than non-quantitative statements, then we expect

²⁶ In a more recent paper, Billings et al. (2015) suggest a more nuanced view of the relation between forecasts and uncertainty. They show that managers are less likely to issue an earnings forecast when baseline uncertainty is high, but more likely to issue an earnings forecast when uncertainty has increased immediately prior to an earnings announcement.

²⁷ Unlike our earlier analyses, these regressions do not include year fixed effects, though our results are robust to their inclusion (at similar significance levels). We omit time fixed effects because, to the extent that market-wide uncertainty influences firm disclosure behavior, fixed effects could absorb the effect of market-wide uncertainty. Table 1 hints at this possibility; firms were less likely to issue earnings forecasts in the 2008–2010 period, likely due to the greater uncertainty during the financial crisis.

²⁸ As recently noted by Skadden, Arps, Slate, Meagher & Flom LLP, "There is no federal securities law, rule or regulation expressly imposing a duty to update a forward-looking statement. However, courts have analyzed the possible duty under Exchange Act Section 10(b) and Rule 10b-5. Courts are divided as to whether or not a duty to update exists for a forward-looking statement that becomes inaccurate or misleading after the passage of time." (Corporate Finance Alert: Earnings Guidance, 2012)

²⁹ In untabulated results, we find the same relation between uncertainty and the issuance by management of an I/B/E/S earnings forecast.

Table 6

The effect of uncertainty on forward-looking disclosures.

Panel A: Determinants of quantitative, earnings-related forward-looking statements							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log(Market Value)	−0.00687 (−0.445)	0.000323 (0.0623)	−.0114** (−2.117)	−0.00467 (−0.754)	−0.00369 (−0.687)	−.0186*** (−2.942)	−0.000363 (−0.0639)
Book-to-Market	−.223*** (−8.619)	−.0776*** (−8.618)	−.0709*** (−7.979)	−.0961*** (−8.193)	−.0639*** (−6.443)	−.0831*** (−6.290)	−.0822*** (−7.452)
Lagged Return	−.105*** (−3.697)	0.0106 (0.528)	0.0172 (0.859)	−0.00321 (−0.136)	8.40e−05 (0.00402)	−0.0407 (−1.603)	0.00721 (0.310)
Log(Analyst Following)	.175*** (5.993)	.0531*** (5.375)	.0595*** (5.996)	.0525*** (4.689)	.0506*** (4.859)	.0406*** (3.330)	.0428*** (3.271)
Lagged FLS Measure		.678*** (80.76)	.675*** (80.42)	.669*** (70.50)	.680*** (79.57)	.683*** (70.62)	.672*** (73.05)
Loss			−.132*** (−10.43)				
Earnings Volatility				−.739*** (−4.039)			
Expectations Gap					−1.177*** (−6.479)		
Implied Volatility						−.219*** (−7.217)	
Analyst Dispersion							−.245*** (−6.890)
N	59,327	59,327	59,327	48,496	56,056	44,282	47,976
R ²	0.018	0.479	0.480	0.468	0.482	0.482	0.473
Panel B: Determinants of other forward-looking statements							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log(Market Value)	−.381*** (−6.097)	−.138*** (−6.032)	−.103*** (−4.324)	−.0938*** (−3.568)	−.123*** (−5.157)	−.119*** (−4.137)	−.146*** (−5.900)
Book-to-Market	−.565*** (−5.340)	−.243*** (−5.924)	−.266*** (−6.425)	−.186*** (−3.807)	−.305*** (−6.691)	−.204*** (−3.586)	−.251*** (−5.267)
Lagged Return	−.348*** (−3.033)	−.554*** (−6.133)	−.575*** (−6.352)	−.547*** (−5.097)	−.534*** (−5.684)	−.511*** (−4.801)	−.567*** (−5.629)
Log(Analyst Following)	.723*** (6.522)	.271*** (6.508)	.255*** (6.094)	.241*** (5.243)	.269*** (6.169)	.154*** (2.987)	.273*** (5.274)
Lagged FLS Measure		.655*** (94.87)	.653*** (94.17)	.657*** (85.96)	.656*** (92.51)	.658*** (84.74)	.662*** (87.18)
Loss			.401*** (6.736)				
Earnings Volatility				5.355*** (7.205)			
Expectations Gap					5.096*** (5.506)		
Implied volatility						.551*** (4.704)	
Analyst dispersion							0.279 (1.242)
N	59,327	59,327	59,327	48,496	56,056	44,282	47,976
R ²	0.009	0.433	0.434	0.440	0.437	0.439	0.441

Notes: Panel A shows the results from OLS regressions where the dependent variable is the percentage of sentences that are forward-looking, quantitative, and earnings-related.

Panel B shows the results from OLS regressions where the dependent variable is the percentage of sentences that are forward-looking, but are not jointly quantitative and earnings-related. Variables are defined in Appendix B and standard errors are clustered by firm. Robust *t*-statistics are in parentheses. *** $p < .01$, ** $p < .05$, * $p < .10$.

that uncertainty will have a stronger deterrent effect on quantitative statements than on non-quantitative statements. We investigate this possibility by comparing the sensitivities of quantitative and non-quantitative forward-looking statements to uncertainty. We do so by estimating a system of seemingly-unrelated regressions (SUR), with each regression similar to the regressions shown in Table 6. In one regression, the dependent variable is the percentage of quantitative earnings-related statements; in the other regression, the dependent variable is the percentage of non-quantitative earnings-related statements.³⁰ In other words, we vary the quantitative/non-quantitative dimension, but hold the earnings/non-earnings dimension constant. The SUR structure allows us to compare the relative sensitivity to uncertainty across the two dependent variables.

We show the outcome from these regressions in Table 7. For brevity, we report only the estimated coefficients and *t*-statistics for the uncertainty proxies from each individual regression (Columns 1 and 2), along with the significance of the

³⁰ Because the two dependent variables have different distributions, we use standardized transformations so that the coefficients can be compared across regressions. As a consequence, the estimated coefficients in Column 1 are different from the estimated coefficients in Table 6 Panel A, which models the untransformed dependent variable.

Table 7Sensitivity of *quantitative* vs. *non-quantitative* earnings-related forward-looking disclosures to increased uncertainty.

	(1) Quantitative, earnings-related	(2) Non-quantitative, earnings-related	(3) P-value of (1) vs. (2)
Loss	-.0888*** (-10.43)	-.0569*** (-6.111)	< .01
Earnings volatility	-.499*** (-4.040)	-0.109 (-0.897)	.01
Expectations Gap	-.794*** (-6.479)	-.304** (-1.972)	.012
Implied volatility	-.148*** (-7.218)	-.0604*** (-2.962)	< .01
Analyst dispersion	-.166*** (-6.890)	-.0810*** (-3.173)	< .01

Notes: The table summarizes the results from several OLS regressions explaining the proportion of different types of forward-looking sentences in quarterly earnings announcements where we vary the quantitative/non-quantitative dimension, but hold the earnings dimension constant. Columns 1 and 2 each show one coefficient estimate for each of 5 separate regressions, with Column 1's regressions explaining the percentage of *quantitative* earnings-related statements and Column 2's regressions explaining the percentage of *non-quantitative* earnings-related statements. (In other words, each cell shows the coefficient estimate for the uncertainty proxy and suppresses all other coefficients from that regression.) Column 3 reports the statistical significance of the difference in coefficient estimates for each proxy, based on a system of seemingly unrelated regressions that takes into account correlations across the regressions. The forward-looking disclosure measures have been standardized to allow for coefficient comparisons across regressions. Variables are defined in [Appendix B](#) and standard errors are clustered by firm. Robust *t*-statistics are in parentheses. *** $p < .01$, ** $p < .05$, * $p < .10$.

difference across dependent variables (Column 3). Column 1 shows the effect of uncertainty on the issuance of quantitative, earnings-related statements. For all proxies, quantitative earnings statements are significantly less likely when uncertainty is higher.

Column 2 shows the effect of uncertainty on non-quantitative, earnings-related statements. As in Column 1, uncertainty has a negative association with this type of forward-looking statement. What is important to us is the difference in sensitivity between quantitative and non-quantitative earnings statements; the significance of that difference is shown in Column 3. The sensitivity to uncertainty is different for all of the uncertainty proxies, with statistical significance at about the 1% level for each variable. Uncertainty is more likely to deter quantitative earnings-related forward-looking statements than non-quantitative earnings-related forward-looking statements.

We perform a similar analysis for earnings-related vs. non-earnings forward-looking statements. We again employ a system of two seemingly unrelated regressions, this time with one regression modeling the choice to issue quantitative, earnings-related statements and the other regression modeling quantitative, non-earnings statements. In other words, we vary the earnings/non-earnings dimension, but hold the quantitative/non-quantitative dimension constant. The results are presented in [Table 8](#).

As in [Table 7](#), Column 1 of [Table 8](#) shows the relation between uncertainty and the issuance of quantitative, earnings-related statements. Again, the relation between uncertainty and these statements is uniformly negative. Column 2 shows the relation between quantitative, non-earnings statements and uncertainty. Here, the relation is positive and significant for 3 of the 5 proxies for uncertainty, with the other 2 proxies not significantly different from zero. The third column shows the differential in sensitivity to uncertainty (Column 1 compared to Column 2): uncertainty has a much stronger negative effect on quantitative *earnings*-related statements compared to quantitative *non-earnings* statements (all *p*-values < 1%).

4.5. Comparing the relative effects

The prior results imply that uncertainty has a negative effect on the issuance of both quantitative forward-looking statements and earnings-related forward-looking statements. In order to statistically assess which effect – quantitative or earnings-related – is greater, we perform a final set of seemingly unrelated regressions. In this case, we compare the issuance of quantitative forward-looking statements to the issuance of earnings-related forward looking statements, both as a function of uncertainty. In Column 1, we predict the issuance of earnings-related statements. In Column 2, we predict the issuance of quantitative statements.³¹

The results of the comparison are shown in [Table 9](#). Column 1 shows a generally negative relation between uncertainty and earnings-related statements (significant at the $p < .01$ level for all 5 of the proxies). Column 2 shows a weakly negative association between uncertainty and quantitative statements (significant at the $p < .05$ level for 3 of the 5 proxies). The

³¹ Note that the dependent variable in Columns 1 and 2 are not mutually exclusive. Quantitative statements will include those statements that are forecast-like, as will earnings-related statements. As shown in [Table 2](#), Panel C, the forecast-like statements represent a minority of both quantitative statements and earnings-related statements.

Table 8
Sensitivity of *earnings vs. non-earnings* quantitative forward-looking disclosures to increased uncertainty.

Uncertainty proxy	(1) Quantitative, <i>earnings-related</i>	(2) Quantitative, <i>non-earnings</i>	(3) P-value of (1) vs. (2)
Loss	−.0888*** (−10.43)	.0355*** (3.351)	<.01
Earnings volatility	−.499*** (−4.040)	.383*** (2.841)	<.01
Expectations Gap	−.794*** (−6.479)	.455*** (2.771)	<.01
Implied volatility	−.148*** (−7.218)	0.0109 (0.465)	<.01
Analyst dispersion	−.166*** (−6.890)	0.0138 (0.385)	<.01

Notes: The table summarizes the results from several OLS regressions explaining the proportion of different types of forward-looking sentences in quarterly earnings announcements where we vary the earnings/non-earnings dimension, but hold the quantitative dimension constant. Columns 1 and 2 each show one coefficient estimate for each of 5 separate regressions, with Column 1's regressions explaining the percentage of quantitative *earnings-related* statements and Column 2's regressions explaining the percentage of quantitative *non-earnings-related* statements. (In other words, each cell shows the coefficient estimate for the uncertainty proxy and suppresses all other coefficients from that regression.) Column 3 reports the statistical significance of the difference in coefficient estimates for each proxy, based on a system of seemingly unrelated regressions that takes into account correlations across the regressions. The forward-looking disclosure measures have been standardized to allow for coefficient comparisons across regressions. Variables are defined in [Appendix B](#) and standard errors are clustered by firm. Robust *t*-statistics in parentheses. *** $p < .01$, ** $p < .05$, * $p < .10$.

Table 9
Sensitivity of *earnings-related vs. quantitative* disclosures to increased uncertainty.

Uncertainty proxy	(1) <i>Earnings-related</i>	(2) <i>Quantitative</i>	(3) P-value of (1) vs. (2)
Loss	−.0924*** (−10.61)	−.0209** (−2.285)	<.01
Earnings volatility	−.396*** (−3.225)	−0.0138 (−0.117)	<.01
Expectations Gap	−.685*** (−5.206)	−0.107 (−0.736)	<.01
Implied volatility	−.130*** (−6.479)	−.0647*** (−3.105)	<.01
Analyst dispersion	−.152*** (−6.150)	−.0751** (−2.546)	<.01

Notes: The table summarizes the results from several OLS regressions explaining the proportion of different types of forward-looking sentences in quarterly earnings announcements. Columns 1 and 2 each show one coefficient estimate for each of 5 separate regressions, with Column 1's regressions explaining the percentage of *earnings-related* forward-looking statements and Column 2's regressions explaining the percentage of *quantitative forward-looking statements*. (In other words, each cell shows the coefficient estimate for the uncertainty proxy and suppresses all other coefficients from that regression.) Column 3 reports the statistical significance of the difference in coefficient estimates for each proxy, based on a system of seemingly unrelated regressions that takes into account correlations across the regressions. The forward-looking disclosure measures have been standardized to allow for coefficient comparisons across regressions. Variables are defined in [Appendix B](#) and standard errors are clustered by firm. Robust *t*-statistics are in parentheses. *** $p < .01$, ** $p < .05$, * $p < .1$.

third column shows a comparison between the two types of forward-looking statements. In each case, there is a significantly stronger negative effect (at the $p < .01$ level) on earnings-related statements than on quantitative statements. Taken together, these results provide evidence that the earnings vs. non-earnings decision is more sensitive to uncertainty than the quantitative vs. non-quantitative decision. Furthermore, consistent with [Graham et al. \(2005\)](#), the results suggest that managers are more likely to change the content of their disclosures (earnings vs. non-earnings), rather than their form (quantitative vs. qualitative), in the face of greater uncertainty.

5. Summary

Extant empirical accounting literature has devoted considerable attention to examining quantitative management earnings forecasts, but suggests that a majority of firms choose not to issue such forecasts. Focusing on forward-looking statements more broadly (including qualitative and non-earnings-related disclosures), we show that forward-looking disclosures are far more prevalent than prior research would indicate, as the vast majority of firms include some type of forward-looking statements in their earnings press releases. Moreover, these other forward-looking disclosures are consequential, resulting in stronger investor responses and greater changes in analyst forecast accuracy in the announcement period.

We find that the decision to issue forecast-like versus other forward-looking statements is quite different in the face of uncertainty. While managers issue fewer forecast-like statements when uncertainty is higher (consistent with prior research), our work demonstrates that they issue more non-forecast-like forward-looking statements as uncertainty increases. As to why these other statements are more appealing to managers when uncertainty is high, the evidence suggests that managers are more reluctant to discuss earnings-related projections than to make quantitative projections when uncertainty is high.

Our findings highlight the need to distinguish between the varying types of earnings-related and quantitative forward-looking statements managers provide, and the need for researchers to be cautious in using standard point and range earnings forecasts (i.e., earnings-related and quantitative forward-looking statements) as summary measures of voluntary disclosure. As the measurement of forward-looking statements is relatively straightforward and replicable, we encourage researchers to adopt broader measures of forward-looking statements as additional measures of firms' disclosure policies.

Appendix A – examples of FLS

Quantitative, earnings-related

Operating **income** margins, excluding the restructuring charges, **are projected** to be in the range of 4.5% to 4.8%, and interest expense and other **income are forecasted** to be approximately \$18 **million** and \$6 **million**, respectively.

...for the second fiscal quarter of 2013, **we anticipate** revenue to be up 15 **percent** year-over-year with better than normal seasonality to approximately \$420 **million** with non-GAAP diluted **earnings** per share of \$0.47.

Non-Quantitative, Earnings-Related

While operating performance **is expected** to remain strong, Agribusiness **profits are expected** to be lower in the third and fourth quarters as pricing for subsequent sales **will** not match the high level of the June delivery.

In 2010, the Company expects that occupancy levels will begin to stabilize, but also expects earnings to be negatively impacted by continued rent pressures and higher lease incentives while the economy recovers.

Quantitative, non-earnings-related

...the **Company projects** produced coal shipments for the full year 2009 **will** be between 38 and 41 **million** tons, with average produced coal realization between \$60.00 and \$63.00 per ton.

...the **Company expects** its capital expenditures in 2008 to be approximately \$300 **million**, an 8% reduction from 2007 capital expenditures of \$326 **million**.

Non-Quantitative, Non-Earnings-Related

...the **company plans** to reduce costs by streamlining manufacturing and administrative operations primarily in North America and Europe, creating an even more competitive platform for growth and margin improvement.

During the third quarter, the company made further progress implementing the strategic cost reductions that **will** support the targeted growth investments announced in July 2005.

Appendix B – variable definitions

<i>I/B/E/S forecast</i>	Indicator variable equal to 1 if the firm issued an earnings forecast within one day of the current period earnings announcement, as identified by the I/B/E/S forecast dataset.
<i>Book-to-Market</i>	Shareholders' equity divided by pre-earnings announcement market value.
<i>Lagged Return</i>	Cumulative stock return measured from three trading days following the prior earnings announcement to three trading days before the current earnings announcement.
<i>Lagged Volatility</i>	Standard deviation of the natural log of daily stock returns measured from three trading days following the prior earnings announcement to three trading days before the current earnings announcement.
<i>Log(Market Value)</i>	Natural log of the firm's equity value measured three trading days prior to the current earnings announcement.
<i>Analyst Following</i>	Number of analysts following the firm, based on the summary I/B/E/S file immediately prior to the earnings announcement.
<i>Loss</i>	Indicator variable equal to 1 if current period earnings are negative.
<i>Expectations Gap</i>	Analyst expectations for period $t + 1$ earnings minus actual $t + 1$ earnings, deflated by stock price, measured three trading days prior to the period t earnings announcement date.
<i>Earnings Volatility</i>	Standard deviation of the firm's earnings before extraordinary items (deflated by lagged total assets), measured over the prior 12 quarters.

<i>Analyst Dispersion</i>	Standard deviation of analyst forecasts of the current period's quarterly earnings, from I/B/E/S.
<i>Implied Volatility</i>	The firm's implied volatility three trading days prior to the earnings announcement, taken from 30 day standardized options.
# <i>Forward-Looking Sentences (FLS)</i>	The number of sentences containing a forward-looking term (e.g., "company expects" or "firm projects") from the firm's current earnings announcement.
# <i>FLS, Earnings-related</i>	The number of sentences containing a forward-looking term (e.g., "company expects" or "firm projects") and an earnings term (e.g., "income" or "profit") from the firm's current earnings announcement.
# <i>FLS, Non-Earnings-related</i>	The number of sentences containing a forward-looking term (e.g., "company expects" or "firm projects") that do not contain an earnings term (e.g., "income" or "profit") from the firm's current earnings announcement.
# <i>FLS, Quantitative</i>	The number of sentences containing a forward-looking term (e.g., "company expects" or "firm projects") and a quantitative term (e.g., "thousands", "millions", "\$5M", or "\$10B") from the firm's current earnings announcement.
# <i>FLS, Non-Quantitative</i>	The number of sentences containing a forward-looking term (e.g., "company expects" or "firm projects") that do not contain a quantitative term (e.g., "thousands", "millions", "\$5M", or "\$10B") from the firm's current earnings announcement.
# <i>FLS, Earnings-related and Quantitative</i>	The number of sentences containing a forward-looking term (e.g., "company expects" or "firm projects") that contain both an earnings term (e.g., "income" or "profit") and a quantitative term (e.g., "thousands", "millions", "\$5M", or "\$10B") from the firm's current earnings announcement.
# <i>FLS, Other</i>	The number of sentences containing a forward-looking term (e.g., "company expects" or "firm projects") that do not contain both an earnings term (e.g., "income" or "profit") and a quantitative term (e.g., "thousands", "millions", "\$5M", or "\$10B") from the firm's current earnings announcement.
% <i>FLS</i>	The number of sentences containing a forward-looking term (e.g., "company expects" or "firm projects") as a percentage of the number of sentences in the earnings announcement from the firm's current earnings announcement.
% <i>FLS, Earnings-related</i>	The number of sentences containing a forward-looking term (e.g., "company expects" or "firm projects") and an earnings term (e.g., "income" or "profit") as a percentage of the number of sentences in the earnings announcement from the firm's current earnings announcement.
% <i>FLS, Quantitative</i>	The number of sentences containing a forward-looking term (e.g., "company expects" or "firm projects") and a quantitative term (e.g., "thousands", "millions", "\$5M", or "\$10B") as a percentage of the number of sentences in the earnings announcement from the firm's current earnings announcement.
<i>Sentence Count</i>	The number of sentences from the firm's current earnings announcement.
<i>Earnings Surprise</i>	Analyst forecast error measured as actual earnings minus the mean analyst estimate constructed from estimates issued since the last quarterly earnings announcement, scaled by price.
<i>Positive Earnings Surprise</i>	Equal to <i>Earnings Surprise</i> if <i>Earnings Surprise</i> is positive, and 0 otherwise.
<i>Negative Earnings Surprise</i>	Equal to the absolute value of <i>Earnings Surprise</i> if <i>Earnings Surprise</i> is negative, and 0 otherwise.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.jacceco.2017.11.008](https://doi.org/10.1016/j.jacceco.2017.11.008).

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