Can You Believe It? Managerial Discretion and Financial Analysts' Responses to

Management Earnings Forecasts

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ABSTRACT

Financial analysts act as crucial conduits of information between firms and stakeholders. However, comparatively little is known about how these information intermediaries evaluate the believability and importance of corporate disclosures. We argue that a firm's level of managerial discretion, or latitude of executive action, acts as a cue for financial analysts, which helps them interpret and respond to voluntary management earnings forecasts. Our study provides strong, robust evidence that financial analysts find management forecasts significantly less believable in low-discretion than in high-discretion environments, and therefore tend to be much less responsive to these forecasts. We also show that managerial discretion is especially impactful on analysts' responses in those circumstances where analysts are typically most uncertain about how to interpret management forecasts.

How do stakeholders evaluate, and make sense of, a firm's actions? In particular, how do disparate groups of stakeholders – such as citizens, consumers, suppliers, and employees – decide how to assess and act upon difficult-to-interpret, but economically meaningful, firm announcements and disclosures? Increasingly, answers to these questions in the organization science literature invoke the importance of third parties known as information intermediaries, or "infomediaries" (Fombrun, 1996; Fombrun and Shanley, 1990). Infomediaries – such as financial analysts, regulatory bodies, and the media – help stakeholders to interpret the nature and veracity of firm disclosures (e.g., Deephouse and Heugens, 2009, Pollock and Rindova, 2003, Zavyalova et al., 2012). In turn, infomediaries have a strong impact on a firm's reputation, prestige, social approval, and, therefore, competitive advantage (Deephouse and Carter, 2005, Martins, 2005, Pollock, Rindova, and Maggitti, 2008).

However, although helpful, these answers merely shift the locus of decision-making one link further along the chain. If stakeholders interpret firm disclosures based on infomediaries' insights, how, then, do infomediaries generate these insights in the first place? When faced with uncertain, materially-important, forward-looking statements – such as R&D projections or new product-market proposals – how do infomediaries decide what to believe?

In our study, we focus on one particular type of infomediary – financial analysts – and one form of voluntary firm disclosure – corporate earnings forecasts. There are two main sources of quarterly earnings per share forecasts for public firms: analysts and company management (Cotter, Tuna, and Wysocki, 2006). Analysts typically issue an earnings forecast for the next quarter immediately following the firm's release of actual earnings for the previous quarter. Sometimes, but not always, company management will subsequently release its own earnings forecast ("management guidance") for that quarter. Analysts are generally incentivized to be as

accurate as possible in their forecasts (Hong and Kubik, 1993), and therefore are expected to respond to any new information contained in the management guidance and revise their earlier forecast accordingly. However, although management forecasts often represent a firm's best estimate of future earnings, such forecasts may still be inaccurate, and at times may even be intentionally biased (Kasznik, 1999; Rogers and Stocken, 2005). Thus, when a management forecast is materially different from the original analyst forecast, analysts are faced with the question of how much, if at all, to respond. In our paper, we argue that financial analysts evaluate the credibility and meaningfulness of firm disclosures based, at least in part, on a firm's level of managerial discretion, or latitude of executive action (Hambrick and Finkelstein, 1987).

Broadly, we argue that financial analysts will find unexpected firm announcements less believable in low-discretion contexts. In these contexts, factors such as firm-level constraints, low industry dynamism, and minimal means-ends ambiguity are more likely to lead to consistent, path-dependent performance over time (Hambrick et al., 2004). Thus, analysts will be more certain of their *original* earnings predictions and will view guidance more skeptically. In contrast, in high-discretion contexts, characterized by few firm-level constraints, rapid and dynamic industry change, and greater means-ends ambiguity, past performance will be a less useful predictor of future performance. CEOs matter more and will have greater influence on the outcomes of their firms. Thus, analysts will be less certain of their original predictions and less skeptical of management forecasts that depart materially from analysts' original forecasts. We therefore hypothesize that, in high-discretion situations, analysts will make significantly greater revisions to their original forecasts in responding to a management guidance surprise. In subsequent hypotheses, we extend the logic of our main hypothesis by examining the differential impact of discretion as a function of contextual characteristics (forecast direction and timing)

that affect analysts' levels of uncertainty. To test our hypotheses, we use an 11-year sample of 1,051 firms that provided a total of 5,373 management earnings forecasts.

Our study offers several important contributions. First, we provide a deeper understanding of the role, function, and influence of financial analysts in interpreting firm behavior. Whereas prior research has demonstrated that infomediaries make sense of firm actions for stakeholders, our study offers a theoretically-grounded explanation of how this process actually unfolds. Second, we further develop the construct of managerial discretion. To our knowledge, this is the first study to examine the impact of discretion on external stakeholders' responses to economically-meaningful firm announcements. In summary, our study integrates strategy and finance research to generate a deeper understanding of the interactions between firms and external stakeholders.

CORPORATE EARNINGS FORECASTS

Although the general topic of corporate earnings forecasts has been considered at length within finance and accounting research (Ramnath, Rock, and Shane, 2008; Verrecchia, 2001), there is relatively little work on this topic in the management literature. However, the work that does exist (e.g., Benner, 2010; Benner and Ranganathan, 2012; Pfarrer, Pollock, and Rindova, 2010; Westphal and Clement, 2008; Wiersema and Zhang, 2011) suggests that analyst and management forecasts provide great scope to explore questions of fundamental relevance to management scholars (Zhang and Gimeno, 2010; Zhu and Westphal, 2011).

Analyst Earnings Forecasts

Financial analysts provide most corporate earnings forecasts. Based on financial, operational, and strategic analyses, an analyst generates periodic reports on a small number of public firms (usually 10-20 in a particular industry or sector). The primary output of an analyst's

report is a "buy, sell, or hold" decision (Schipper, 1991). Arguably the most important contributing input to this decision is the analyst's forecast of the firm's future quarterly earnings per share (EPS, or earnings). Investors perceive earnings to be the accounting variable possessing the most information content, and, therefore, to be the most important variable for determining the value of the firm (Givoly and Lakonishok, 1984). Analysts tend to issue next-quarter earnings forecasts immediately after a firm's previous-quarter earnings announcement (Cotter et al., 2006; see Figure 1). Analysts are generally incentivized to be as accurate as possible in their forecasts (e.g., Hong and Kubik, 1993; Dechow, Hutton, and Sloan, 2000).

---- Figure 1 about here ----

Management Earnings Forecasts

A second, less common, source of company earnings forecasts is the firm itself. Management forecasts are voluntary disclosures that fulfill a similar function as analysts' reports – providing market participants with information about a firm's expected future earnings (Hirst, Koonce, and Venkataraman, 2008) – and therefore act as explicit information asymmetry-reducing signals (cf. Connelly et al., 2011; Riley, 2001). These forecasts tend to be released approximately mid-way between the original analyst forecasts and the actual earnings announcement (see Figure 1).[1] We use the term "management guidance surprise" (or simply "guidance surprise") to describe the difference between an earlier analyst earnings forecast and a subsequent management forecast. If the management forecast is higher than the prior analyst forecast, this is an upward guidance surprise; if lower, a downward guidance surprise. For example, if the prior consensus (i.e., mean) analyst forecast for a firm were $2.00 per share and the management forecast were $1.50, this would represent a $0.50 downward guidance surprise.

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[1] Occasionally, managers will release earnings guidance after the accounting period has ended, but before actual earnings are released. These "earnings preannouncements" are theoretically and empirically distinct from earnings forecasts (Hirst et al., 2008); therefore, we do not include earnings preannouncements in our sample.

A range of studies have examined the factors that influence the likelihood and frequency of management forecast issuance (Anilowski, Feng, and Skinner, 2007; Tucker, 2007). For instance, firms operating in environments with less volatility (Waymire, 1985) provide more regular forecasts, as do better performing firms (Miller, 2002). More generally, though, most research suggests that managers provide earnings forecasts in order to decrease information asymmetry between firms and investors (Ajinkya and Gift, 1984; Coller and Yohn, 1997). In a survey of several hundred CFOs, over 80% believed that voluntary guidance reduced the information risk that investors assigned to a stock, and over 90% believed that it promoted a firm's reputation for transparent and accurate reporting (Graham, Harvey, and Rajgopal, 2005). Early disclosure of bad news (i.e., lower expected earnings) is associated with especially strong perceptions of management credibility (Mercer, 2005).

In turn, a stronger reputation for transparency can have substantial economic benefits, as it is associated with a reduction in the firm's cost of capital (Leuz and Verrecchia, 2000), greater liquidity (Diamond and Verrecchia, 1991), and lower risk of litigation (Brown, Hillegeist, and Lo, 2005; Cao and Narayanamoorthy, 2011; Skinner, 1994). Investors are more likely to invest in firms that provide greater disclosure (Ajinkya, Bhoraj, and Sengupta, 2005), and a reputation for providing accurate forecasts is associated with a stronger positive stock-market reaction to good news (Hutton and Stocken, 2007). Accordingly, management forecasts "represent one of the key voluntary disclosure mechanisms by which managers establish or alter market earnings expectations, preempt litigation concerns, and influence their reputation for transparent and accurate reporting" (Hirst et al., 2008: 315).

Of course, such benefits can only accrue to the extent to which a firm issues accurate management guidance. Forecasting errors, particularly repeated errors, can be quite harmful to a

firm (Graham et al., 2005). Thus, the incentives of managers and market participants are often aligned (Hirst et al., 2008). However, at times, managers may be relatively more likely to issue inaccurate or even biased forecasts. Most simply, some forecasts are harder to make than others, resulting in a higher possibility of honest inaccuracy. For instance, less-experienced managers (Chen, 2004), and managers whose firms are facing exogenous shocks (Kasznik, 1999), tend to make less accurate forecasts. Somewhat more nefariously, bad-news forecasts – which tend to temporarily depress a firm's stock price – are significantly more common around the times when managers' stock option awards are issued (Aboody and Kasznik, 2000), and are also more likely to be followed by insider trading (Rogers and Stocken, 2005). And, firms may be inclined to intentionally issue pessimistic guidance in order to encourage analysts to reduce their forecasts and thereby make it easier for the firm to exceed expectations (Baik and Jiang, 2006). Therefore, although many management forecasts do indeed represent a firm's unbiased estimate of future earnings, analysts tend to be wary in their evaluations and are often hesitant to take forecasts at face value (Hassell, Jennings, and Lasser, 1988).

Analysts' Responses to Management Forecasts.

Researchers have examined a range of consequences of management forecasts, focusing primarily on stock market reactions (e.g., Baginski, Conrad, and Hassell, 1993). In our study, we examine the reactions of financial analysts. The term "analyst forecast revision" (or "analyst revision") represents the difference between an earlier analyst forecast and a subsequent analyst forecast for the same quarter (see Figure 1). Continuing the example from the section above, if the subsequent consensus analyst forecast were $1.75, this would represent a $0.25 analyst revision. Analysts often respond to management forecasts by revising their own forecasts, based in part on the management guidance surprise (Hassell et al., 1988). However, the extent to which

the revised analyst forecast matches the management forecast varies considerably across firms and situations (Clement, Frankel, and Miller, 2003).

This empirical context is notable for several reasons. First, as argued above, management forecasts are economically meaningful corporate communications, and analysts are incentivized to be as accurate as possible in their own forecasts (e.g., Dechow et al., 2000). Second, although analysts are motivated to respond accurately to management forecasts, evaluating the believability of such forecasts is often highly challenging (Waymire, 1985). Third, the format of management forecasts is highly similar across industries and over time, thus aiding comparability (Hirst et al., 2008). This research context is therefore ideally suited to addressing the broad question of how infomediaries evaluate the credibility of meaningful firm announcements.

MANAGERIAL DISCRETION

Over the last several decades, a growing body of work has examined the construct of managerial discretion, which Hambrick and Finkelstein (1987: 378) defined as the extent to which an executive possesses a wide range of alternative actions that fall within the "zone of acceptance of powerful parties." Discretion exists when there is an absence of constraint – an executive is free to select from a range of strategic options – and considerable means-ends ambiguity – the impact of any given action is unclear *a priori,* and there are multiple, equally-plausible alternative approaches (cf. Hambrick, 2007). Research in this domain suggests that firms differ greatly in the capacity of their executives to engage in a wide range of strategic actions (e.g., Hambrick and Abrahamson, 1995; Finkelstein and Boyd, 1998).

In low-discretion contexts – such as stable industries like utilities, where individual executives have much less influence – path-dependence and inertia mean that future firm actions

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and performance are heavily predictable based solely on past actions and performance (Hambrick et al., 2004). Irrespective of an executive's cognitions, experience, characteristics, or motivation, firm behavior and performance will be highly predictable based on previous firm and industry performance (Hambrick et al., 2004). In high-discretion contexts, though – such as rapidly-changing industries like computer software, where there are few constraints and considerable ambiguity between means and ends – executives have great scope to impart their own idiosyncratic stamps on their firms (Hambrick and Abrahamson, 1995). Thus, firm actions and performance can vary greatly from one time period to the next, and accurate long-term predictions will be much more difficult to make.[2]

Most empirical work within this domain has examined the implications of firm-level and industry-level sources of managerial discretion (e.g., Abrahamson and Hambrick, 1997; Keegan and Kabanoff, 2008; Peteraf and Reed, 2007). This work can be divided into two broad streams. First, a number of studies have shown that managerial discretion influences the extent to which organizations are a reflection of their top managers (Hambrick and Mason, 1984). Executives' cognitions and characteristics are reflected in firm-level outcomes to the extent to which executives possess discretion (Hambrick, 2007). For example, the link between CEO hubris and firm risk taking (Li and Tang, 2010) is stronger in a high-discretion context.

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[2] A related but distinct construct, also termed managerial discretion, appears in the financial economics literature (e.g., Williamson, 1963). Authors within this stream of research tend to assume that firm rents are a combined function of heterogeneous resource allocation across firms (rent-enhancing) and discretionary decisions by top managers (rent-inhibiting) (Amit & Schoemaker, 1993; Levinthal & Myatt, 1994). Thus, discretion refers to the extent to which managers have the capacity to engage in opportunism and self-dealing, and is therefore associated with shareholder wealth expropriation (e.g., Gedajlovic and Shapiro, 2002; Stulz, 1990). For example, Fox and Marcus (1992) argued that bank debt covenants are associated with a restriction in cash flow and, thus, a reduction in agency problems arising from discretion. In a recent synthesis, Shen and Cho (2005) distinguished between these two versions of discretion as representing "latitude of actions" (Hambrick and Finkelstein, 1987) versus "latitude of objectives" (Williamson, 1963). Although these two different conceptions have some theoretical overlap, in our paper we follow Hambrick and Finkelstein (1987) in using the term managerial discretion to refer to latitude of actions. We make no assumptions concerning the normative implications of discretion, nor the relationship between discretion and firm performance valence.

A second stream of research examines the implications of boards' recognition of managerial discretion differences. This work is based on the premise that boards implicitly or explicitly recognize variability in the magnitude of discretion and take actions accordingly, especially with regard to executive compensation. When CEOs are seen to have the potential to make a consequential impact on firm outcomes (for good and ill), they tend to be compensated in line with this assumption (Finkelstein and Hambrick, 1988). Thus, in high-discretion contexts, CEOs receive greater total compensation and a greater proportion of incentive-based compensation (e.g., Boyd and Salamin, 2001; Cho and Shen, 2007; Finkelstein and Boyd, 1998).

We therefore see evidence that discretion varies across contexts, and initial evidence that decision-makers within firms recognize these differences. However, to this point, no research has examined whether or not observers and stakeholders outside the firm interpret firm actions differently in line with differences in discretion. We address this shortcoming with our current study by examining how financial analysts use managerial discretion as a type of contextual cue to help them respond to meaningful firm announcements.

Managerial Discretion and Analysts' Responses to Management Forecasts

If a firm issues a management earnings forecast that is the same or very similar to the prior consensus analyst forecast (i.e., a small guidance surprise), there is little pressure on analysts to substantially amend their forecast. However, when the surprise is large, analysts need to make a rapid assessment of the accuracy of the management forecast in order to decide whether and how comprehensively to respond (Williams, 1996). On the one hand, a large guidance surprise might be a legitimate source of credible, material information about earnings. If so, this should influence analysts to substantially revise their initial forecasts, resulting in an updated consensus forecast quite close to the management forecast. On the other hand, though,

guidance could be viewed more skeptically, as an attempt by management to influence analysts toward a more desirable earnings prediction (Ajinkya and Gift, 1984). If so, this should influence analysts to *not* revise their original forecast.

In low-discretion situations, firm performance variability from one time period to the next tends to be lower (Crossland and Hambrick, 2007; Hambrick et al., 2004). First, because individual managers experience greater levels of constraint, they have fewer opportunities to make broad changes in the strategic goals and actions of the firm. Second, because there is lower means-ends ambiguity, there will be greater consensus concerning a firm's most appropriate course of action, and thus fewer distinct strategic options from which to select. Overall, therefore, external observers are far better able to predict future performance from past performance. Analysts making their initial earnings forecasts in such situations will be heavily influenced by prior firm-level and industry-level earnings announcements. The magnitude and trajectory of past performance will be more informative, and analysts will be more certain that their initial forecasts are accurate. External observers will therefore be more skeptical of management forecasts that differ substantially from prior consensus analyst forecasts, and thus will discount the information disclosed in the management forecasts to a greater extent.

However, in high-discretion situations, performance variability from one time period to the next can be considerable. First, because mangers operate under fewer constraints, they have more scope to idiosyncratically decide upon different strategic courses of action. Second, because there is greater means-ends ambiguity, powerful firm stakeholders are likely to allow managers to pursue a wider range of competitive approaches. In contexts such as these – often characterized by resource munificence, few governance constraints, rapid changes in customer demand, and discontinuous shifts in technology – past performance provides far less guidance

toward future performance. Analysts will be less convinced of the accuracy of their initial forecasts, more attuned to managerial pronouncements, more open to the possibility that expected earnings will differ from their original forecasts, and more likely to find large management guidance surprises more believable.

Therefore, we argue that the impact of management guidance surprise on analyst revision will be significantly affected by managerial discretion. In low-discretion contexts, the relationship between guidance surprise and analyst revision may still be positive, but will be much weaker. In high-discretion contexts, the guidance surprise-analyst revision relationship will be significantly stronger (more positive). Thus, we hypothesize:

> *Hypothesis 1: Managerial discretion will positively moderate the relationship between management guidance surprise and analyst forecast revision.*

Our main hypothesis predicted that analysts' responses to management forecasts will be influenced by managerial discretion, with our core logic being that discretion acts as a cue to help analysts resolve their uncertainty in interpreting management forecasts. If our logic is correct, and if managerial discretion does indeed help to reduce analysts' uncertainty, we would expect to see that the impact of managerial discretion will be strongest in those circumstances where analysts are typically most uncertain.[3] To examine this idea, we draw upon insights from work in the accounting literature that explores the characteristics of corporate earnings forecasts. We focus on two important forecast dimensions – direction and timing. We argue that the positive moderating effect of discretion will be stronger: 1) when there is an upward (rather than downward) guidance surprise, and 2) when a management forecast is issued in the fourth quarter (rather than earlier quarters).

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[3] Note that we are referring here to *analysts'* uncertainty. This is distinct from the means-ends ambiguity (or environmental uncertainty) that characterizes a high-discretion context. In other words, we argue that analysts use the characteristics of a firm's context, and specifically the level of managerial discretion available to the firm, as a cue to reduce their own uncertainty in interpreting management earnings forecasts.

Upward Guidance Surprises versus Downward Guidance Surprises

A management forecast may be categorized as an upward surprise (when the management forecast is higher than the prior consensus analyst forecast), a downward surprise (when the management forecast is lower than the prior consensus analyst forecast), or neutral (when the management forecast confirms the analyst forecast). Accounting research suggests that analysts tend to be more convinced of the accuracy of downward guidance surprises (Skinner, 1994). First, managers that are aware of, but do not disclose, material negative information prior to the actual earnings announcement are at greater risk of legal action from shareholders alleging the firm should have disclosed such information more quickly (Alexander, 1991). Second, beyond formal legal obligations, firms' informal reputations in the eyes of market participants may suffer in light of one or more negative earnings surprises (Graham et al., 2005). Analysts therefore tend to perceive downward surprises as being more credible. In contrast, analysts will experience greater uncertainty when faced with an upward guidance surprise.

Therefore, following an upward surprise, when analysts are relatively less sure of the correct interpretation, contextual cues such as managerial discretion will become especially salient. Analysts will rely even more heavily on discretion in evaluating managerial guidance surprises and thus the moderating influence of discretion will be larger; there will be a substantial difference in the guidance surprise-analyst revision relationship across low- and high-discretion contexts. In contrast, following a (more believable) downward guidance surprise, when analysts will be more confident in the accuracy of the management forecast, cues such as managerial discretion will be relatively less important and less useful to an analyst. The moderating impact of discretion will be smaller; for a downward guidance surprise of a particular

magnitude, we should see a relatively similar extent of analyst revision in both low- and high-discretion contexts. We therefore hypothesize a second-order moderating relationship:

> *Hypothesis 2: The moderating impact of managerial discretion on the guidance surprise-analyst revision relationship will vary as a function of the direction of the guidance surprise; specifically, managerial discretion will be a significantly stronger positive moderator when an upward surprise occurs versus when a downward surprise occurs.*

Fourth-quarter Forecasts versus Earlier-quarter Forecasts

We propose a related argument for our next hypothesis. Just as prior research has shown that analysts' levels of certainty tend to vary as a function of the direction of the guidance surprise, other work indicates that the timing of the management forecast is also important (Baginski and Hassell, 1990). Firms may issue management forecasts in interim quarters (first, second or third quarter) or the fourth quarter. Analysts tend to be significantly more uncertain when evaluating fourth-quarter disclosures than earlier-quarter disclosures because of the nature of the information being conveyed (e.g., Baginski and Hassell, 1990; Jeter and Shivakumar, 1999). Earlier-quarter management forecasts provide more information about underlying firm quality, which is more fundamental and less subject to unexpected changes. In contrast, managers often incorporate more transient, short-term information in fourth quarter forecasts, as managers are more likely to release such information closer to the financial year-end (Stickel, 1989). Transient information is more difficult to evaluate, but is crucial for making accurate forecasts, resulting in greater analyst uncertainty when evaluating fourth-quarter forecasts.

Accordingly, in the fourth quarter, when analysts are less certain of how to respond to management forecasts, they will tend to rely more heavily on cues such as managerial discretion. The moderating impact of discretion will therefore be larger in the fourth quarter; there will be a substantial difference in the guidance surprise-analyst revision relationship across low-discretion

and high-discretion contexts. However, in earlier quarters, when analysts are more certain and

relatively more confident in the believability of management guidance surprises, discretion will

be a less important cue with which to evaluate firm announcements. The moderating impact of

discretion will be smaller; an earlier-quarter guidance surprise of a particular magnitude will be

associated with a relatively similar extent of analyst revision in both low- and high-discretion

contexts. Therefore, we hypothesize a further second-order moderating relationship:

> *Hypothesis 3: The moderating impact of managerial discretion on the guidance*
> *surprise-analyst revision relationship will vary as a function of the timing of the*
> *guidance surprise; specifically, managerial discretion will be a significantly*
> *stronger positive moderator when a management forecast is issued in the fourth*
> *quarter versus when it is issued in earlier quarters.*

METHODS

Sample

We used the First Call database to create an initial sample of all quarterly management

forecasts issued by U.S. public firms from 1997 to 2007 inclusive. We retained all management

forecasts where the firm was rated by at least three analysts (both before and after the

management forecast). If a firm issued more than one management forecast in a specific quarter,

we used the forecast which was closest to the actual earnings announcement date. A management

forecast can be in several forms: point (e.g., $1 per share), range (e.g., $0.90 - $1.10 per share),

open-ended (e.g., greater than $0.90 per share), or qualitative (no numerical estimates).

Following prior research (e.g., Anilowski et al., 2007), we used the exact value of point (i.e., $1

per share in the example above) and open-ended forecasts (i.e., $0.90 per share), the midpoint for

range forecasts (i.e., $(0.90+1.10)/2 = $1 per share), and omitted qualitative management

forecasts. In addition, we omitted "earnings pre-announcements" (management forecasts issued

after the end of the fiscal quarter), because they are actually preliminary earnings announcements

rather than forecasts (Rogers and Stocken, 2005), and also omitted firms for which accounting

data (from Compustat) or market data (from CRSP) was incomplete. This procedure yielded a

final sample of 5,373 management forecasts from 1,051 firms.

Variables

Analyst forecast revision. To capture the responsiveness of analysts to management

guidance surprises, we examined the extent to which analysts updated their prior forecasts.

Consistent with other work in this area, we focused on the consensus analyst forecast (instead of

individual analyst forecasts), which is equivalent to the mean of all earnings forecasts from

analysts covering the same company for the same quarter (e.g., Cotter et al., 2006, Williams,

1996). As Figure 1 indicates, we labeled the analyst forecast consensus prior to the management

forecast as PAF_{it} for firm i in quarter t (PAF_{it} is the most recent consensus forecast available 30

days before the management forecast (Feng, Li, and McVay, 2009)). We labeled the

corresponding analyst forecast consensus following the management forecast as AF_{it}. To

maximize the likelihood that analysts were reacting to the management guidance surprise instead

of other exogenous events, we only included consensus updates that were issued within five days

of the management forecast (Cotter et al., 2006).[4] Our dependent variable – *analyst forecast*

revision (AFR_{it}) – was calculated as AF_{it} minus PAF_{it}, scaled by the share price at the end of the

prior quarter (Baginski and Hassell, 1990).

Management guidance surprise. We operationalized *management guidance surprise*

(MGS_{it}) as the difference between the management forecast (MF_{it} in Figure 1), and the prior

analyst forecast consensus (PAF_{it}), scaled by the share price at the end of the prior quarter.

Upward and downward guidance surprises. Depending on the valence of the difference,

we further categorized guidance surprises into three groups. A positive value of MGS_{it} indicates

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[4] In a robustness test we used 15 days as the response window (Feng et al., 2009). Results were unchanged.

that management has guided the forecast upward (Baginski and Hassell, 1990). Thus, we operationalized the variable *upward surprise* as the value of MGS_{it} if MGS_{it} was positive, and zero otherwise. In contrast, a negative value of MGS_{it} indicates that management has guided the forecast downward. We operationalized the variable *downward surprise* as the value of MGS_{it} if MGS_{it} was negative, and zero otherwise. The third group includes those (relatively few) cases where MGS_{it} was zero, with the management forecast confirming the prior analyst forecast.[5] In our empirical analyses of Hypothesis 2, this third group is the omitted one.

Fourth-quarter forecast. We operationalized *fourth-quarter forecast* as a binary variable, equal to one if a management forecast concerned earnings in the fourth quarter of the firm's financial year, and zero otherwise.

Managerial discretion. Following prior literature, we used a suite of different measures to operationalize *managerial discretion* (e.g., Hambrick and Abrahamson, 1995; Li and Tang, 2010). We used three industry-level measures (capital intensity, market volatility, and market munificence), based on quarterly data at the 3 digit SIC industry level, and three firm-level measures (firm size, firm age, and R&D intensity).

Capital intensity was operationalized as the industry average of net value of property, plant, and equipment divided by the number of employees (Hambrick and Abrahamson, 1995; Hay and Morris, 1979). A higher level of capital intensity induces strategic rigidity and commits firms to long-term courses of action (Ghemawat, 1991). Thus, greater capital intensity is a reflection of lower managerial discretion. To ease the interpretation of our results, we reverse-coded this variable in our analyses (e.g., H1 will receive support if the management guidance-capital intensity interaction is a positive and significant predictor of analyst forecast revision).

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[5] In our sample, 24% of management forecasts were upward surprises, 68% were downward surprises, and 8% confirmed the prior consensus analyst forecast.

Market volatility was operationalized as the volatility of industry sales (Bergh and Lawless, 1998; Keats and Hitt, 1988), which we calculated as the standard error of the regression slope for industry sales over the previous five years, divided by the mean of industry sales over the same period. Market volatility suggests demand instability, which creates mean-ends ambiguity and enhances managerial discretion. In contrast, a highly stable market leaves little room for executives to make critical changes in important domains, such as production capability and staffing, thus reduces managerial discretion (Hambrick and Finkelstein, 1987). Therefore, greater market volatility is a reflection of greater managerial discretion.

Market munificence was operationalized as the average growth in industry sales over the previous five years (Keats and Hitt, 1988; Li and Tang, 2010). Industries with high growth rates are accompanied by unprogrammed decision making, competitive variation, and ambiguous means-ends linkages. Thus, greater market munificence is a reflection of greater discretion.

Firm size, measured by log-transformed total assets, is an important indicator of organizational inertia (Hambrick and Finkelstein, 1987). The larger the firm, the greater its inertia, and the smaller the amount of managerial discretion (Finkelstein and Hambrick, 1990). Large firms have established routines and experience greater difficulty in enacting dramatic change (Aldrich, 1979; Audia and Greve, 2006); thus, their behavior is more path-dependent. We reverse-coded this variable in our analyses to ease the interpretation of our results.

Firm age is another determinant of organizational inertia, which will act as a constraint upon managerial discretion (Hambrick and Finkelstein, 1987). The greater a firm's age, the more likely that the firm has established routines and tends to engage in fewer exploratory activities (Nelson and Winter, 1982). By contrast, managers in younger firms tend to have greater opportunities to shape the organization and its scope. Firm age was measured by the number of

years the firm had been listed on the relevant stock exchange (Feng et al., 2009). Data were collected from CRSP. Similar to firm size, we reverse-coded this variable.

R&D intensity is a measure of product differentiability (Hay and Morris, 1979). Managers in firms characterized by high R&D intensity have greater discretion in allocating firm resources. Relatedly, such firms are less likely to have stable and smooth earnings over times. We operationalized R&D intensity as R&D expenses divided by total sales. We replaced missing data with zero (Villalonga, 2004).

Control variables. We drew from the finance and accounting literatures to generate a comprehensive list of control variables in our analyses, including firm characteristics, management forecast characteristics, and earnings characteristics. Firm characteristics included *firm profitability* (return on assets) and *acquisition activities* (a dummy variable indicating whether the focal firm had engaged in a merger or acquisition in the prior, current, or next quarters). We also controlled for the effect of corporate governance conditions by including *CEO duality* (a dummy variable coded as one if the CEO was also board chair) and *outsider ratio* (the percentage of independent directors on the board).

In terms of management forecast characteristics, we controlled for *stock market reaction* to the management forecast, which was operationalized as the three-day cumulative abnormal return surrounding the forecast date (Pfarrer et al., 2010). Prior research suggests that the market reaction increases the believability of the management forecast and thus has a positive effect on the analyst forecast revision (Williams, 1996). Another factor influencing analysts' interpretations is *prior accuracy* of management forecasts, which we operationalized as the absolute difference between the most recent prior management forecast and actual earnings, scaled by the share price at the end of prior quarter (Williams, 1996). We also controlled for

management *forecast horizon*, measured by the number of days between the date of the management forecast and the date of the actual earnings announcement.

Our earnings quality variables included *auditor opinion* (a dummy variable indicating that an auditor issued an unqualified, or "clean," opinion of the firm's financial statements, which indicates the auditor believed that the audited company's statements were presented fairly according to Generally Accepted Accounting Principles (GAAP)), and *earnings volatility* (the standard deviation of earnings per share over the last 12 quarters). We also controlled for prior analyst *forecast dispersion* (the standard deviation of the individual analyst forecasts prior to the management forecast*).* These factors reflect the general information environment, which might potentially influence analysts' abilities to make accurate predictions concerning firm earnings.

Correction for Potential Endogeneity

Providing a management forecast is voluntary and managers that do issue a forecast are likely to have distinct reasons for doing so. Therefore, in our analyses, we needed to address the reasons why some firms issue forecasts in a particular quarter and others do not. To address this potential estimation bias, we used a two-stage Heckman selection model. In the first stage, we regressed a firm's decision to issue a forecast (a dummy variable equal to one if a firm issued a management forecast in a quarter) on a number of factors that have been documented in prior literature to influence the likelihood of issuing a management forecast (Feng et al., 2009). These variables included management incentives (industries with higher litigation risks, the existence of corporate restructuring), firm characteristics (firm size, profitability, firm beta, market-to-book ratio), and analyst forecasting environment (individual analysts' forecast dispersion, earnings volatility, number of analysts following the firm). To successfully control for endogeneity, at least one independent variable needs to be identified that is associated with the dependent

variable in the first-stage model, but is not related to the dependent variable in the second-stage model (Larcker and Rusticus, 2010). This variable is the number of analysts following the firm. Previous studies have documented that this variable is positively related to management forecast issuance (Feng et al., 2009). However, the number of analysts following the firm is not significantly associated with management forecast accuracy and analyst forecast revision. The detailed results of this first-stage model are reported in Appendix 1. All variables were found to be significant predictors of guidance likelihood. Based on the first-stage regression, we calculated the Inverse Mills ratio and included it into our second stage models, which we used to test our hypotheses.

Model Specifications

We created a panel dataset for our empirical analyses in which the level of analysis is the firm-quarter. In all our empirical tests we used fixed-effect regression models, in which we also included year dummies. The model we used to test Hypothesis 1 is:

$$\text{AFR}_{it} = \beta_0 + \beta_1 \text{MGS}_{it} + \beta_2 \text{MD}_{it} + \beta_3 \text{MGS}_{it} * \text{MD}_{it} + \text{Controls} + e_{it} \qquad \text{(Equation 1)}$$

Where AFR_{it} is the analyst forecast revision for firm i in quarter t; MGS_{it} is the management guidance surprise for firm i in quarter t; and MD_{it} is managerial discretion measured by three industry-level indicators (MD-capital intensity, MD-market volatility, and MD-market munificence) and three firm-level indicators (MD-firm size, MD-firm age, and MD-R&D intensity). We also created interaction terms between MGS_{it} and each indicator of MD_{it}, for a total of six distinct interactions (and six β_3 coefficients). Hypothesis 1 will receive support if the coefficients for the β_3 variables are positive and significant.

The model we used to test Hypothesis 2 is:

$$AFR_{it} = \beta_0 + \beta_1 \text{ Upward surprise}_{it} + \beta_2 \text{ Downward surprise}_{it} + \beta_3 \text{ MD}_{it} + \beta_4 \text{ MD}_{it} *$$

$$\text{Upward surprise}_{it} + \beta_5 \text{ MD}_{it} * \text{Downward surprise}_{it} + \text{Controls} + e_{it} \qquad \text{(Equation 2)}$$

Where Upward surprise$_{it}$ is the value of management guidance surprise when the management

forecast is higher than the prior analyst consensus; and Downward surprise$_{it}$ is the value of

management guidance surprise when the management forecast is lower than the prior analyst

consensus. We also created interactions between Upward surprise$_{it}$ and MD$_{it}$, and interactions

between Downward surprise$_{it}$ and MD$_{it}$. Hypothesis 2 is a second-order interaction; we argue

that the moderating impact of discretion on the guidance surprise-analyst revision relationship

will be significantly stronger when the guidance surprise is upward than when the guidance

surprise is downward. Thus H2 will receive support if β_4 is greater than β_5 and the difference is

statistically significant.

Similar to H2, Hypothesis 3 is a second-order interaction; we argued that the moderating

impact of discretion on the guidance surprise-analyst revision relationship would be significantly

stronger when a forecast was issued in the fourth quarter than when it was issued in earlier

quarters. The full model is as follows:

$$AFR_{it} = \beta_0 + \beta_1 \text{ MGS}_{it} + \beta_2 \text{ MD}_{it} + \beta_3 \text{ Qtr4} + \beta_4 \text{ MGS}_{it} * \text{Qtr4} + \beta_5 \text{ MD}_{it} * \text{MGS}_{it} + \beta_6$$

$$\text{MD}_{it} * \text{Qtr4} + \beta_7 \text{ MD}_{it} * \text{MGS}_{it} * \text{Qtr4} + \text{Controls} + e_{it} \qquad \text{(Equation 3)}$$

Where Qtr4 is a dummy variable indicating the management forecast was issued for fourth

quarter earnings, and all other variables are as described above. However, to avoid the

difficulties of interpreting a three-way interaction (β_7), we followed prior research (e.g., Ho, Wu,

and Xu, 2011) and instead used the same model as for H1 (see equation 1), but ran this model

separately for two groups: 1) management forecasts issued for earlier quarters, and 2)

management forecasts issued for the fourth quarter. For H3 to be supported, we would expect to

see that β_3 (MGS_{it} * MD_{it}) in our fourth-quarter model is significantly greater than β_3 in our earlier-quarter model.[6]

RESULTS

Table 1 reports descriptive statistics and correlations for all variables used in our analyses. Table 2 reports our tests of Hypothesis 1. Model 1 includes all control variables. Consistent with prior research (e.g., Baginski and Hassell, 1990), the effect of guidance surprise is positive and significant. Note that the coefficient ($\beta = 0.5067$) is less than 1.00, suggesting that analysts tend to respond to, but partially discount, management forecasts when updating their prior forecasts. For instance, if the management guidance surprise were $1.00, the expected analyst forecast revision would be only $0.51. In other words, in our sample, analysts discounted management guidance surprises by 49.33% (i.e., 1-0.5067=0.4933).

---- Tables 1 & 2 about here ----

Models 2-7 include six proxies of managerial discretion, and the interactions of these six proxies and guidance surprise. We found, as predicted, that managerial discretion was a positive and significant moderator of the guidance surprise-analyst revision relationship (except for Model 4 in which managerial discretion was measured by market munificence). Specifically, the interactions between guidance surprise and, respectively, MD-capital intensity ($\beta = 1.1812$, $p < .01$), MD-market volatility ($\beta = 0.6772$, $p < .01$), MD-firm size ($\beta = 0.0934$, $p < .01$), MD-firm age ($\beta = 0.0033$, $p < .05$) and MD-R&D intensity ($\beta = 2.1275$, $p < .01$), were all positive and significant. Thus, we found strong support for Hypothesis 1.

To provide an overall indication of the practical significance of our results for H1, we created a managerial discretion index (MD-Index), which was the sum of the standardized scores

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[6] We also ran a three-way regression based on Equation 3, and found significant results for the coefficient of MD_{it} * MGS_{it} * Qtr4. Results are available upon request.

of our six managerial discretion proxies. We then ran a regression including a) the control variables shown in Model 1 (from ROA to fourth quarter forecast), b) guidance surprise, c) MD-Index, and d) the interaction between guidance surprise and MD-Index. The main effect of guidance surprise was significant (β=0.5281, $p < 0.01$), and the interaction coefficient was also significant (β=0.1154, $p < 0.01$). This suggests that, if managerial discretion increases by one standard deviation, the main effect of management guidance on analyst revision increases by 11.54%. Analysts discount management guidance surprises by 35.65% (i.e., 1-0.5281-0.1154) in high-discretion contexts, but 47.19% in low-discretion contexts.

Table 3 reports our tests of Hypothesis 2. Model 1 includes all control variables. In these analyses, we separately reports the effects of upward surprises and downward surprises (with zero guidance (i.e., $MGS_{it} = 0$) being the omitted variable). In Model 1, note that the coefficient for upward surprise is 0.4185 and the coefficient for downward surprise is 0.7878. The difference in these coefficients is statistically significant (Chow test: F=226.14, $p < 0.001$).The interpretation of these coefficients is as follows. If, for example, the prior analyst forecast were $2.00 and the management forecast were $3.00 (a $1.00 upward surprise), the expected updated analyst forecast would be $2.42 ($2.00 + $0.4185). However, if the management forecast were $1.00 (a $1.00 downward surprise), the expected updated analyst forecast would be $1.21 ($2.00 - $0.7878). Consistent with prior research (e.g., Williams, 1996), we therefore see evidence that analysts discount upward guidance surprises (58.15%) considerably more than downward guidance surprises (21.22%).

---- Table 3 about here ----

Models 2-7 in Table 3 include the main effects of our measures of managerial discretion and the interactions between discretion and: 1) upward surprise, and 2) downward surprise. All

discretion-upward surprise interactions, except for Model 4 in which managerial discretion was measured by market munificence, were positive and significant (MD-capital intensity: β = 0.8200, p < .01; MD-market volatility: β = 0.8153, p < .01; MD-firm size: β = 0.1676, p < .01; MD-firm age: β = 0.0118, p < .01; MD-R&D intensity: β = 2.8832, p < .01). The discretion-downward surprise interactions were also significant (again except for Model 4), although the coefficients were smaller than those of discretion-upward surprise interactions (MD-capital intensity: β = 0.3471, p < .01; MD-market volatility: β = 0.1217, p < .01; MD-firm size: β = -0.0869, p < .01; MD-firm age: β = 0.0061, p < .01; MD-R&D intensity: β = 0.4911, p < .01).

Hypothesis 2 predicted that the discretion-upward surprise interactions would be stronger than the discretion-downward surprise interactions (i.e., β_4 in equation 2 would be larger than β_5). Consistent with H2, we see that the coefficients for five of the upward surprise interactions were indeed significantly larger than the corresponding downward surprise interactions. Using a series of Chow tests, we found that β_4 was significantly greater than β_5 for five of the six discretion measures: MD-capital intensity (F =193.17, p < .001), MD-market volatility (F =423.98, p < .001), MD-firm size (F =576.83, p <0.001), MD-firm age (F=19.12, p <0.01), and MD-R&D intensity (F=450.56; p <0.001). Therefore, we found strong support for Hypothesis 2.

Table 4 reports our analyses for Hypothesis 3. As noted above, to test H3 we first divided our full sample into two sub-samples: 1) management forecasts issued in quarters 1-3 (N = 4112), and 2) management forecasts issued in quarter 4 (N = 1261). Table 4 contains 12 distinct Models. Models 1, 3, 5, 7, 9 and 11 (odd models) represent the six discretion-guidance surprise interactions for the earlier-quarter forecast sub-sample. Models 2, 4, 6, 8, 10 and 12 (even models) represent the six discretion-guidance surprise interactions for the fourth-quarter forecast sub-sample. Hypothesis 3 will receive support if the managerial discretion-guidance surprise

interactions are stronger in the fourth-quarter sub-sample (even models) than the earlier-quarter sub-sample (odd models).

---- Table 4 about here ----

Results indicate that all interactions were positive and significant in the fourth-quarter sub-sample (MD-capital intensity: $\beta = 2.1940$, $p < .01$; MD-market volatility: $\beta = 1.1164$, $p < .01$; MD-market munificence: $\beta = 0.1985$, $p < .05$; MD-firm size: $\beta = 0.1711$, $p < .01$; MD-firm age: $\beta = 0.0442$, $p < .01$; MD-R&D intensity: $\beta = 2.4500$, $p < .01$). Three of the six interactions were positive and significant in the earlier-quarter sub-sample (MD-capital intensity: $\beta = 0.6947$, $p < .01$; MD-firm age: $\beta = 0.0071$; $p < 0.01$; MD-R&D intensity, $\beta = 0.6726$, $p<0.01$), one interaction was negatively significant (MD-firm age: $\beta = -0.0374$, $p<0.01$), and the remaining two interactions were non-significant (MD-market volatility: $\beta = -2.0234$, n.s.; MD-market munificence: $\beta = 0.0239$, n.s.).

Again using Chow tests, we see that the coefficients for each of the discretion-guidance surprise interactions were significantly larger in the fourth-quarter sub-sample than in the earlier-quarter sub-sample (MD-capital intensity: $F = 281.17$, $p < .001$; MD-market volatility: $F = 1300.97$, $p < .001$; MD-market munificence: $F = 6.07$, $p < .05$; MD-firm size: $F=1137.31$, $p <0.001$; MD-firm age: $F = 19.17$, $p<0.01$; MD-R&D intensity: $F= 642.43$, $p< 0.001$). We therefore found strong support for Hypothesis 3.

We used the combined MD-index described above to illustrate the overall effect of managerial discretion in terms of our two second-order moderators. We ran similar regression models as those presented in Table 3, and found that the coefficient for the interaction of MD-Index and upward surprise was positive and significant ($\beta = 0.1216$, $p < 0.001$), while the coefficient for the interaction of MD-index and downward surprise was marginally significant (β

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= 0.0057, p=0.07). The difference in the coefficients was statistically significant (F=687.91, p <0.001). In practical terms, when the management forecast was upward, a one standard deviation increase in discretion was associated with a 12.16% increase in the main effect of guidance surprise on analyst revision. However, when the management guidance was downward, a one standard deviation increase in discretion was only associated with a 0.57% increase in the main effect of guidance surprise on analyst revision.

Next, when we ran similar models as those presented in Table 4, we found that the coefficient for the interaction of MD-Index and guidance surprise was positive and significant in both the Quarter 4 sub-sample ($\beta = 0.1042$, $p < 0.01$) and the earlier-quarter sub-sample ($\beta = 0.0195$, $p < 0.01$). The difference in these coefficients was statistically significant (F= 1128.85, p< 0.001). In practical terms, when a forecast was issued in the fourth quarter, a one standard deviation increase in managerial discretion was associated with a 10.42% increase in the main effect of guidance surprise on analyst revision. When a forecast was issued in earlier quarters, though, the corresponding effect of guidance surprise on analyst revision was only 1.95%.

Supplementary Analyses

We conducted several supplementary analyses. First, we examined how management earnings guidance related to firms' (subsequent) actual earnings announcements. See Table 5 for an illustration of the mean prior analyst forecasts (PAF), management forecasts (MF), revised analyst forecasts (AF), and actual earnings for the sample of 5,373 firm-quarters used in our study. As discussed above, analysts were more responsive following downward guidance than upward guidance. However, as shown in Table 5, management forecasts were on average quite accurate in predicting subsequent actual earnings, supporting the idea that firms tend to be incentivized to provide accurate guidance generally (Hirst et al., 2008).

In addition, we further explored the relationship between managerial discretion and management forecast characteristics. We generated a *management forecast error* variable, which was operationalized as the management forecast minus actual earnings, scaled by the share price. A negative value of this variable indicates a pessimistic forecast (actual earnings beat the forecast), while a positive value indicates an optimistic forecast (actual earnings fell short of the forecast). We found that management forecast error was positively and significantly correlated with all six measures of managerial discretion ($0.04 < r < 0.08$, $p < .01$), which suggests that management forecasts issued in high-discretion contexts tend to be systematically more optimistic than is justified by actual results.

Next, we examined whether managerial discretion is actually a "helpful" cue to analysts, i.e., whether discretion helps analysts to be more accurate in predicting actual reported earnings. We calculated the eventual accuracy of all 5,373 consensus forecast revisions (accuracy was operationalized as the reverse of the absolute difference between the final consensus analyst forecast and actual reported earnings, scaled by the share price at the end of last quarter). We then regressed accuracy on MD-Index, the absolute value of analyst forecast revision, the interaction of these two predictors, and all control variables reported in Model 1 of Table 2. Results showed that the interaction term was a positive and significant predictor of accuracy ($\beta = 0.3327$, $p<0.01$). This finding suggests that analysts who update their forecasts more in high-discretion environments (and less in low-discretion environments) do in fact tend to be more accurate in predicting actual earnings.

Finally, we conducted a supplementary analysis to examine the issue of forecast revision heterogeneity at the level of individual analysts (recall that our main analyses are based on

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consensus (i.e., mean) analyst forecasts). We were particularly interested to see if experienced analysts responded differently than inexperienced analysts. We began by creating a sample comprised of all firm-quarters where an analyst had issued an initial earnings forecast and then an updated forecast following the release of a management earnings forecast (N = 10,571 analyst-quarters). We then regressed analyst forecast revision on a vector of available controls, along with MD-index, analyst firm-specific experience (the number of years that the focal analyst had covered the focal firm), and the interaction of these two variables (see Table 6). Results from this model showed that more experienced analysts were significantly more likely to update their original forecasts following management guidance ($\beta = 0.0093$, $p < .01$), perhaps suggesting that analysts become more trusting of individual firms over time. Of more relevance, we also found that the interaction of MD-index and analyst firm-specific experience was positive and significant ($\beta = 0.026$, $p < .01$). This finding offers suggestive evidence that analysts increasingly rely on cues such as managerial discretion as they become more experienced.

---- Table 6 about here ----

DISCUSSION

A growing body of research has begun to explore how information intermediaries – such as financial analysts – assist stakeholders in interpreting economically-meaningful firm disclosures (Pfarrer et al., 2010). In this study, we examined how analysts use managerial discretion to help them evaluate the believability of one particular type of forward-looking firm disclosure, voluntary management earnings forecasts. Using an 11-year sample of analysts' consensus responses to over 5,000 management forecasts, we found strong evidence that the impact of management guidance surprise on the extent of subsequent analyst forecast revision is significantly influenced by managerial discretion. In low-discretion contexts, analysts find large

management guidance surprises less believable and react more conservatively. In contrast, in high-discretion contexts, analysts find guidance surprises more believable and update their prior forecasts far more comprehensively. We also found robust evidence that analysts were influenced by managerial discretion most strongly in those situations where they could be expected to be most uncertain. Specifically, the moderating impact of managerial discretion was especially strong when guidance surprises were upward (vs. downward) and management forecasts were issued in the fourth quarter (vs. earlier quarters).

Implications and Future Research

Our results have implications for research in a number of distinct domains within strategic management. First, we see potential for extending our work in the domain of symbolic management. This research builds on Pfeffer's (1981:4) argument that a fundamental role of management is to "provide explanations, rationalizations, and legitimation for the activities undertaken in the organization." Relatedly, management forecasts can be viewed as not just instrumental decisions arising from a desire to mitigate information asymmetry, but also as an important symbolic act (Fiss and Zajac, 2006). Future work could examine the extent to which discretion relates to the use of management disclosures as symbolic actions. We expect that, in low-discretion firms where substantive actions are more constrained, management will be more likely to engage in symbolic actions. However, our results suggest that observers may also be conscious of this possibility and may therefore be more likely to discount such symbolic actions.

Second, and more generally, we believe that our study helps to inform research into stakeholder and market reactions to corporate announcements, especially those related to major planned changes to a firm's strategic direction or posture (e.g., Woolridge and Snow, 1990). Reports of such announcements are often accompanied by a change in firm valuation, especially

when the announcement was unexpected or unplanned. Although market reactions are often viewed as being an endorsement (or vilification) of a particular strategic decision, they may also be illustrative of the extent to which stakeholders believe that such an approach is likely or even possible. Our results suggest that market participants might be using contextual factors such as managerial discretion to frame their interpretations of, and responses to, such transitions.

Third, our study also has cross-disciplinary implications, in particular for the large body of research in finance and accounting that considers the topic of voluntary firm disclosures. Although there is no comprehensive theory of disclosure (Verrecchia, 2001), underpinning most of this work is the assumption that managers disclose information when it is economically rational to do so, i.e., when the potential benefits of the disclosure outweigh the potential costs (e.g., Heitzman, Wasley, and Zimmermann, 2010). For example, there is evidence that management forecasts reduce costs associated with information asymmetry, and thus reduce a firm's cost of capital (Leuz and Verrecchia, 2000). However, most work focuses on factors internal to the firm. Our approach illustrates the usefulness of also considering the characteristics of a firm's context when trying to understand responses to firm actions.

Finally, our results suggest that managers of low-discretion firms have a harder time convincing external observers of the believability of their announcements and predictions than their counterparts in high-discretion environments. If our logic holds, we would expect to see evidence that managers from low-discretion firms take greater efforts to be persuasive when providing voluntary disclosures, perhaps by pointing to past evidence of accurate predictions, or by providing greater quantitative evidence to support their claims and predictions. Future research might be able to fruitfully explore such a possibility.

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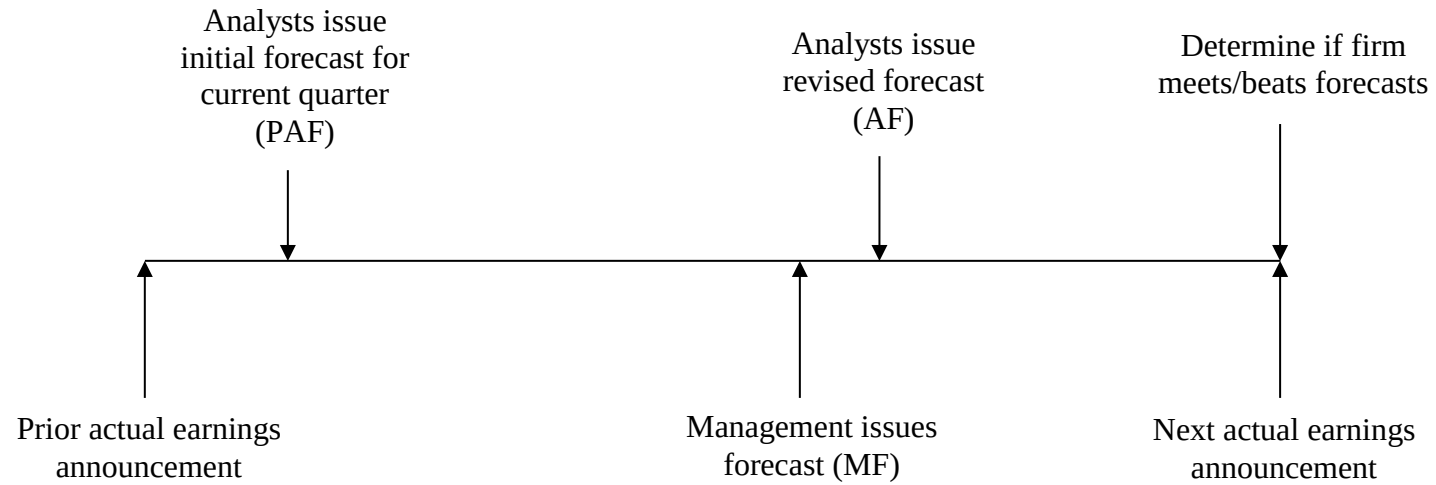
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FIGURE 1
Earnings Announcement Timeline (Adapted from Cotter, Tuna, and Wysocki, 2006)

Analysts issue
initial forecast for
current quarter
(PAF)

Analysts issue
revised forecast
(AF)

Determine if firm
meets/beats forecasts

Prior actual earnings
announcement

Management issues
forecast (MF)

Next actual earnings
announcement

Management Guidance Surprise (MGS) = MF – PAF

Analyst Forecast Revision (AFR) = AF – PAF

TABLE 1
Descriptive Statistics and Correlations

		Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1	Analyst forecast revision	-0.001	0.008																					
2	Guidance surprise	-0.001	0.014	0.66																				
3	Upward surprise	0.001	0.012	0.47	0.91																			
4	Downward surprise	-0.002	0.006	0.59	0.46	0.05																		
5	ROA	0.013	0.049	0.04	-0.05	-0.14	0.17																	
6	Acquisition activities	0.429	0.495	0.03	0.02	0.00	0.04	-0.01																
7	CEO duality	0.598	0.490	-0.01	-0.02	-0.04	0.02	0.02	0.02															
8	Outsider ratio	0.758	0.128	0.06	0.04	0.00	0.11	0.04	0.05	0.11														
9	Stock market reaction	0.002	0.110	0.20	0.14	0.05	0.23	0.04	0.00	-0.01	0.09													
10	Prior accuracy	0.003	0.008	0.07	0.01	-0.02	0.07	0.17	0.03	-0.07	-0.01	0.05												
11	Forecast horizon[a]	3.187	0.511	0.08	0.07	0.02	0.13	0.02	0.05	-0.03	0.02	0.11	0.02											
12	Auditor opinion	0.891	0.496	0.02	0.03	0.03	-0.01	0.02	-0.02	-0.02	-0.17	-0.03	-0.01	-0.05										
13	Earnings volatility	0.355	6.155	0.03	0.00	-0.01	0.02	0.07	0.00	-0.01	0.01	0.01	0.03	-0.03	0.03									
14	Forecast dispersion	0.535	0.525	-0.03	-0.03	-0.02	-0.02	-0.01	0.03	0.01	0.02	-0.05	0.00	-0.03	0.00	-0.01								
15	Endogeneity control	0.171	0.125	0.03	0.04	0.07	-0.05	-0.01	0.01	0.02	-0.18	0.02	0.06	-0.38	0.10	0.02	-0.10							
16	Fourth quarter forecast	0.234	0.423	0.02	0.03	0.05	-0.04	0.00	0.10	-0.03	-0.02	0.01	0.03	0.04	0.06	0.00	-0.01	-0.01						
17	MD-capital intensity[b]	-0.244	0.160	-0.01	-0.01	-0.04	0.06	-0.02	0.04	-0.15	-0.04	0.03	0.10	0.09	0.05	-0.01	-0.02	-0.06	0.00					
18	MD-market munificence	0.095	0.150	-0.02	0.01	0.03	-0.04	0.00	0.00	-0.01	-0.15	-0.04	-0.05	-0.06	0.04	0.01	-0.01	0.09	0.02	-0.16				
19	MD-market volatility	0.067	0.051	-0.02	-0.03	-0.03	-0.01	-0.07	0.03	0.05	-0.09	-0.04	-0.07	0.01	0.08	0.01	0.01	0.09	-0.06	0.18	-0.07			
20	MD-firm size[ab]	-6.801	1.541	-0.01	-0.03	-0.02	-0.03	-0.06	-0.13	-0.12	-0.24	-0.03	0.01	0.01	0.18	-0.06	0.01	0.34	0.01	0.21	-0.03	0.23		
21	MD-firm age[b]	-10.78	10.502	0.00	0.02	0.04	-0.03	-0.06	0.02	-0.07	-0.18	-0.02	-0.01	0.01	0.09	-0.03	0.02	-0.01	-0.01	0.08	0.05	0.17	0.47	
22	MD-R&D intensity	0.084	0.158	-0.03	-0.02	-0.01	-0.05	-0.16	-0.01	-0.08	0.00	-0.01	-0.07	0.04	0.00	-0.06	0.02	-0.10	0.01	0.27	-0.06	0.07	0.11	0.05

N = 5373; Correlations of 0.03 or higher are significant at the .05 level;
[a] log-transformed; [b] reverse-coded

TABLE 2
Models Predicting Analyst Forecast Revision

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ROA	0.0052+	0.0034+	0.0080**	0.0051+	0.0085**	0.0051+	0.0032
	(0.0027)	(0.0018)	(0.0023)	(0.0027)	(0.0025)	(0.0027)	(0.0020)
Acquisition activities	0.0004	0.0000	0.0002	0.0004	0.0003	0.0004	0.0002
	(0.0003)	(0.0002)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0002)
CEO duality	-0.0003	-0.0006+	-0.0003	-0.0003	-0.0002	-0.0002	-0.0003
	(0.0004)	(0.0003)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0003)
Outsider ratio	0.0010	0.0010	0.0009	0.0010	0.0012	0.0010	0.0015
	(0.0016)	(0.0011)	(0.0014)	(0.0016)	(0.0015)	(0.0016)	(0.0012)
Stock market reaction	0.0048**	0.0015*	0.0018*	0.0049**	0.0032**	0.0049**	0.0049**
	(0.0011)	(0.0007)	(0.0009)	(0.0011)	(0.0010)	(0.0011)	(0.0008)
Prior accuracy	0.0072**	0.0027*	0.0051**	0.0072**	0.0067**	0.0071**	0.0052**
	(0.0018)	(0.0012)	(0.0015)	(0.0018)	(0.0017)	(0.0018)	(0.0013)
Forecast horizon	0.0000	-0.0000	-0.0000	0.0000	-0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Auditor opinion	0.0001	-0.0000	0.0001	0.0001	0.0002	0.0001	0.0003
	(0.0003)	(0.0002)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0002)
Earnings volatility	0.0000	-0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Forecast dispersion	-0.0002	-0.0002	-0.0002	-0.0002	-0.0003	-0.0002	-0.0003
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Endogeneity control	0.0007	0.0021+	0.0017	0.0006	-0.0000	0.0006	0.0013
	(0.0018)	(0.0012)	(0.0016)	(0.0018)	(0.0017)	(0.0018)	(0.0014)
Fourth quarter forecast	-0.0003	-0.0002	-0.0006+	-0.0003	-0.0004	-0.0003	-0.0002
	(0.0004)	(0.0003)	(0.0003)	(0.0004)	(0.0004)	(0.0004)	(0.0003)
MD-capital intensity	0.0180	0.0114	0.0198+	0.0158	0.0183	0.0186	0.0141
	(0.0118)	(0.0079)	(0.0103)	(0.0117)	(0.0112)	(0.0118)	(0.0090)
MD-market munificence	0.0021	0.0012	0.0018	-0.0001	0.0021	0.0021	0.0025
	(0.0022)	(0.0015)	(0.0019)	(0.0001)	(0.0021)	(0.0022)	(0.0017)
MD-market volatility	0.0063	-0.0213	-0.0596	0.0069	0.0206	0.0054	-0.0488
	(0.0718)	(0.0480)	(0.0627)	(0.0719)	(0.0678)	(0.0718)	(0.0546)
MD-firm size	0.0008+	0.0006+	0.0008*	0.0008+	0.0003	0.0008+	0.0006+
	(0.0004)	(0.0003)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0003)
MD-firm age	0.0001	0.0000	-0.0007	0.0001	-0.0001	0.0001	0.0004
	(0.0006)	(0.0004)	(0.0005)	(0.0006)	(0.0006)	(0.0006)	(0.0005)
MD-R&D intensity	-0.0016	-0.0012+	-0.0013	-0.0016	-0.0015	-0.0016	-0.0002
	(0.0011)	(0.0007)	(0.0010)	(0.0011)	(0.0011)	(0.0011)	(0.0009)
Guidance surprise	0.5067**	0.6909**	0.6762**	0.5055**	0.5954**	0.4950**	0.4646**
	(0.0095)	(0.0071)	(0.0102)	(0.0098)	(0.0102)	(0.0110)	(0.0073)
MD - Capital intensity *		1.1812**					
Guidance surprise		(0.0384)					
MD - Market volatility *			0.6772**				
Guidance surprise			(0.0236)				
MD – Market munificence *				0.0123			
Guidance surprise				(0.0202)			
MD – Firm size *					0.0934**		
Guidance surprise					(0.0052)		
MD – Firm age *						0.0033*	
Guidance surprise						(0.0016)	
MD – R&D intensity *							2.1275**
Guidance surprise							(0.0487)
Constant	0.0092	0.0053	-0.0001	0.0086	0.0041	0.0092	0.0112
	(0.0100)	(0.0067)	(0.0088)	(0.0100)	(0.0095)	(0.0100)	(0.0076)
R-squared	0.67	0.85	0.75	0.67	0.71	0.67	0.81

N = 5373; +: $p<0.10$; *: $p<0.05$; **: $p<0.01$;
Year dummy variables were also included in all models but are not reported to conserve space

TABLE 3
Models Predicting Analyst Forecast Revision (Upward Surprise vs. Downward Surprise)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ROA	0.0006	0.0054**	0.0047**	0.0006	0.0050*	0.0005	0.0050**
	(0.0026)	(0.0017)	(0.0018)	(0.0026)	(0.0022)	(0.0026)	(0.0019)
Acquisition activities	0.0003	-0.0000	-0.0000	0.0003	-0.0001	0.0004	0.0002
	(0.0003)	(0.0002)	(0.0002)	(0.0003)	(0.0002)	(0.0003)	(0.0002)
CEO duality	-0.0003	-0.0004	-0.0003	-0.0003	-0.0004	-0.0002	-0.0003
	(0.0004)	(0.0003)	(0.0003)	(0.0004)	(0.0004)	(0.0004)	(0.0003)
Outsider ratio	0.0006	0.0013	0.0009	0.0006	0.0013	0.0004	0.0009
	(0.0015)	(0.0010)	(0.0011)	(0.0015)	(0.0013)	(0.0015)	(0.0011)
Stock market reaction	0.0028**	0.0027**	0.0023**	0.0028**	0.0028**	0.0028**	0.0031**
	(0.0010)	(0.0007)	(0.0007)	(0.0010)	(0.0009)	(0.0010)	(0.0007)
Prior accuracy	0.0055**	0.0026*	0.0034**	0.0055**	0.0048**	0.0052**	0.0041**
	(0.0017)	(0.0011)	(0.0012)	(0.0017)	(0.0014)	(0.0017)	(0.0012)
Forecast horizon	0.0000	0.0000	-0.0000	0.0000	-0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Auditor opinion	0.0001	0.0000	0.0001	0.0001	0.0002	0.0001	0.0002
	(0.0003)	(0.0002)	(0.0002)	(0.0003)	(0.0002)	(0.0003)	(0.0002)
Earnings volatility	0.0000	-0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Forecast dispersion	-0.0002	-0.0001	-0.0001	-0.0002	-0.0001	-0.0002	-0.0002
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Endogeneity control	0.0008	0.0011	0.0013	0.0007	0.0010	0.0006	0.0004
	(0.0017)	(0.0011)	(0.0012)	(0.0017)	(0.0015)	(0.0017)	(0.0012)
Fourth quarter forecast	-0.0001	-0.0002	-0.0004	-0.0001	-0.0003	-0.0001	-0.0002
	(0.0004)	(0.0002)	(0.0003)	(0.0004)	(0.0003)	(0.0004)	(0.0003)
MD-capital intensity	0.0177	0.0122	0.0141+	0.0151	0.0213*	0.0189+	0.0143+
	(0.0113)	(0.0076)	(0.0079)	(0.0112)	(0.0096)	(0.0113)	(0.0082)
MD-market munificence	0.0021	0.0015	0.0011	-0.0001	0.0021	0.0021	0.0019
	(0.0021)	(0.0014)	(0.0015)	(0.0001)	(0.0018)	(0.0021)	(0.0015)
MD-market volatility	-0.0338	-0.0202	-0.0056	-0.0337	-0.0074	-0.0383	-0.0494
	(0.0690)	(0.0459)	(0.0480)	(0.0690)	(0.0586)	(0.0687)	(0.0497)
MD-firm size	0.0009*	0.0004	0.0004	0.0009*	0.0005	0.0010*	0.0005+
	(0.0004)	(0.0003)	(0.0003)	(0.0004)	(0.0004)	(0.0004)	(0.0003)
MD-firm age	0.0000	0.0000	-0.0005	-0.0000	-0.0001	-0.0000	0.0002
	(0.0006)	(0.0004)	(0.0004)	(0.0006)	(0.0005)	(0.0006)	(0.0004)
MD-R&D intensity	-0.0009	-0.0015*	-0.0015*	-0.0009	-0.0013	-0.0009	0.0019*
	(0.0011)	(0.0007)	(0.0007)	(0.0011)	(0.0009)	(0.0011)	(0.0008)
Upward surprise	0.4185**	0.1676**	0.1541**	0.4147**	0.5848**	0.3689**	0.4122**
	(0.0108)	(0.0088)	(0.0092)	(0.0559)	(0.0106)	(0.0186)	(0.0078)
Downward surprise	0.7878**	0.5816**	0.7462**	0.7960**	0.6689**	0.7799**	0.7534**
	(0.0208)	(0.0234)	(0.0218)	(0.0429)	(0.0202)	(0.0210)	(0.0172)
MD-Capital intensity * Upward surprise		0.8200**					
		(0.0153)					
MD-Capital intensity * Downward surprise		0.3471**					
		(0.0284)					
MD-Market volatility * Upward surprise			0.8153**				
			(0.0158)				
MD-Market volatility * Downward surprise			0.1217**				
			(0.0212)				
MD-Market munificence * Upward surprise				0.0041			
				(0.0569)			
MD-Market munificence * Downward surprise				-0.0092			
				(0.0474)			
MD-Firm size * Upward surprise					0.1676**		
					(0.0055)		
MD-Firm size * Downward surprise					-0.0869**		
					(0.0088)		

TABLE 3 (cont.)
Models Predicting Analyst Forecast Revision (Upward Surprise vs. Downward Surprise)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
MD-Firm age *						0.0118**	
Upward surprise						(0.0037)	
MD-Firm age *						0.0061**	
Downward surprise						(0.0017)	
MD-R&D intensity *							2.8832**
Upward surprise							(0.0611)
MD-R&D intensity *							0.4911**
Downward surprise							(0.0854)
Constant	0.0106	0.0045	-0.0018	0.0098	0.0049	0.0107	0.0086
	(0.0096)	(0.0064)	(0.0067)	(0.0096)	(0.0082)	(0.0096)	(0.0069)
R-squared	0.70	0.87	0.85	0.70	0.78	0.72	0.84
Chow test of β(MD*Upward surprise) = β(MD*Downward surprise)		F=193.17 (p<0.001)	F=423.98 (p<0.001)	F=1.03 (n.s.)	F=576.83 (p<0.001)	F=19.12 (p<0.01)	F=450.56 (p<0.001)

N = 5373; +: p<0.10; *: p<0.05; **: p<0.01

Year dummy variables were also included in all models but are not reported to conserve space

TABLE 4
Models Predicting Analyst Forecast Revision (Earlier Quarters vs. Fourth Quarter)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Earlier quarters	Fourth quarter	Earlier quarters	Fourth quarter	Earlier quarters	Fourth quarter	Earlier quarters	Fourth quarter	Earlier quarters	Fourth quarter	Earlier quarters	Fourth quarter
ROA	0.0007	0.0058	-0.0004	0.0554**	-0.0002	0.0086	-0.0007	0.0409**	0.0001	0.0022	0.0002	0.0101
	(0.0018)	(0.0074)	(0.0018)	(0.0099)	(0.0018)	(0.0175)	(0.0018)	(0.0100)	(0.0018)	(0.0173)	(0.0018)	(0.0109)
Acquisition activities	0.0001	-0.0004	0.0001	-0.0002	0.0001	0.0007	0.0001	-0.0008	0.0001	0.0001	0.0001	0.0004
	(0.0002)	(0.0004)	(0.0002)	(0.0005)	(0.0002)	(0.0009)	(0.0002)	(0.0005)	(0.0002)	(0.0009)	(0.0002)	(0.0006)
CEO duality	-0.0007*	-0.0001	-0.0006+	0.0010	-0.0006*	0.0005	-0.0007*	0.0006	-0.0006+	-0.0008	-0.0006*	0.0006
	(0.0003)	(0.0005)	(0.0003)	(0.0007)	(0.0003)	(0.0013)	(0.0003)	(0.0007)	(0.0003)	(0.0013)	(0.0003)	(0.0008)
Outsider ratio	0.0020+	-0.0014	0.0021+	-0.0031	0.0020+	-0.0058	0.0020+	-0.0031	0.0019	-0.0049	0.0022+	-0.0029
	(0.0012)	(0.0022)	(0.0012)	(0.0029)	(0.0012)	(0.0051)	(0.0012)	(0.0029)	(0.0012)	(0.0050)	(0.0012)	(0.0032)
Stock market reaction	0.0044**	0.0007	0.0055**	0.0020	0.0055**	0.0027	0.0059**	-0.0019	0.0057**	0.0002	0.0051**	0.0054**
	(0.0008)	(0.0014)	(0.0018)	(0.0018)	(0.0008)	(0.0032)	(0.0018)	(0.0008)	(0.0008)	(0.0031)	(0.0008)	(0.0020)
Prior accuracy	0.0043**	0.0009	0.0054**	-0.0021	0.0054**	0.0075	0.0054**	-0.0011	0.0052**	0.0081	0.0049**	0.0045
	(0.0013)	(0.0023)	(0.0013)	(0.0031)	(0.0013)	(0.0055)	(0.0013)	(0.0031)	(0.0013)	(0.0054)	(0.0013)	(0.0034)
Forecast horizon	-0.0000	0.0000*	-0.0000	0.0000+	-0.0000	0.0000**	-0.0000	0.0000**	-0.0000	0.0000**	-0.0000	0.0000+
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Auditor opinion	0.0000	0.0003	0.0001	0.0005	0.0001	0.0007	0.0001	0.0002	0.0001	0.0004	0.0001	0.0005
	(0.0002)	(0.0004)	(0.0002)	(0.0005)	(0.0002)	(0.0009)	(0.0002)	(0.0005)	(0.0002)	(0.0009)	(0.0002)	(0.0006)
Earnings volatility	-0.0000	0.0000	-0.0000	0.0001+	-0.0000	0.0001*	-0.0000	0.0001+	-0.0000	0.0001	-0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0001)	(0.0000)	(0.0000)	(0.0000)	(0.0001)	(0.0000)	(0.0000)
Forecast dispersion	-0.0001	0.0001	-0.0001	0.0003	-0.0001	0.0003	-0.0001	-0.0001	-0.0001	0.0002	-0.0002	0.0002
	(0.0002)	(0.0003)	(0.0002)	(0.0004)	(0.0002)	(0.0007)	(0.0002)	(0.0004)	(0.0002)	(0.0007)	(0.0002)	(0.0004)
Endogeneity control	0.0016	0.0067**	0.0012	0.0117**	0.0011	0.0256**	0.0010	0.0127**	0.0005	0.0196**	0.0014	0.0082*
	(0.0013)	(0.0026)	(0.0013)	(0.0034)	(0.0013)	(0.0060)	(0.0013)	(0.0034)	(0.0013)	(0.0059)	(0.0013)	(0.0038)
MD-capital intensity	0.0053	0.0065	0.0040	0.0195	0.0021	0.0233	0.0047	0.0287	0.0066	0.0423	0.0050	0.0135
	(0.0090)	(0.0133)	(0.0091)	(0.0176)	(0.0090)	(0.0307)	(0.0091)	(0.0178)	(0.0090)	(0.0310)	(0.0089)	(0.0195)
MD-market munificence	0.0010	0.0028	0.0012	0.0003	0.0002	0.0007+	0.0012	0.0006	0.0014	0.0111	0.0015	0.0004
	(0.0015)	(0.0036)	(0.0015)	(0.0047)	(0.0002)	(0.0004)	(0.0015)	(0.0048)	(0.0015)	(0.0083)	(0.0015)	(0.0052)
MD-market volatility	-0.0348	-0.0520	-0.0386	-0.1375	-0.0416	-0.0057	-0.0430	-0.0558	-0.0378	0.0775	-0.0514	-0.0145
	(0.0589)	(0.0986)	(0.0600)	(0.1301)	(0.0600)	(0.2323)	(0.0597)	(0.1318)	(0.0594)	(0.2286)	(0.0588)	(0.1446)
MD-firm size	0.0006+	0.0013*	0.0006+	-0.0003	0.0006+	0.0024+	0.0006+	-0.0000	0.0006+	0.0032*	0.0006+	0.0029**
	(0.0003)	(0.0005)	(0.0003)	(0.0007)	(0.0003)	(0.0013)	(0.0003)	(0.0007)	(0.0003)	(0.0013)	(0.0003)	(0.0008)
MD-firm age	-0.0003	-0.0002	-0.0003	-0.0002	-0.0004	-0.0004	-0.0003	-0.0002	-0.0004	-0.0008	-0.0002	-0.0007*
	(0.0004)	(0.0002)	(0.0004)	(0.0003)	(0.0004)	(0.0006)	(0.0004)	(0.0003)	(0.0004)	(0.0005)	(0.0004)	(0.0003)
MD-R&D intensity	-0.0012	-0.0072*	-0.0013+	0.0029	-0.0013+	-0.0008	-0.0014+	-0.0043	-0.0013+	-0.0017	-0.0008	-0.0081+
	(0.0008)	(0.0029)	(0.0008)	(0.0038)	(0.0008)	(0.0067)	(0.0008)	(0.0038)	(0.0008)	(0.0066)	(0.0008)	(0.0042)
Guidance surprise	0.6092**	0.7504**	0.5577**	0.9348**	0.5647**	0.4825**	0.5517**	0.7644**	0.5495**	0.7994**	0.5591**	0.5198**
	(0.0146)	(0.0095)	(0.0145)	(0.0163)	(0.0140)	(0.0224)	(0.0138)	(0.0131)	(0.0137)	(0.0352)	(0.0134)	(0.0124)
MD - Capital intensity * Guidance surprise	0.6947**	2.1940**										
	(0.0815)	(0.0494)										
MD - Market volatility * Guidance surprise			-2.0234	1.1164**								
			(2.8535)	(0.0357)								
MD – Market munificence * Guidance surprise					0.0239	0.1985*						
					(0.0267)	(0.0893)						

TABLE 4 (cont.)
Models Predicting Analyst Forecast Revision (Earlier Quarters vs. Fourth Quarter)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
MD – Firm size * Guidance surprise							-0.0374** (0.0088)	0.1711** (0.0056)				
MD – Firm age * Guidance surprise									0.0071** (0.0011)	0.0442** (0.0054)		
MD – R&D intensity * Guidance surprise											0.6726** (0.0752)	2.4500** (0.0914)
Constant	0.0041 (0.0044)	0.0066 (0.0061)	0.0039 (0.0045)	-0.0038 (0.0080)	0.0037 (0.0045)	0.0085 (0.0142)	0.0044 (0.0045)	0.0010 (0.0081)	0.0048 (0.0045)	0.0168 (0.0141)	0.0038 (0.0044)	0.0118 (0.0089)
Observations	4112	1261	4112	1261	4112	1261	4112	1261	4112	1261	4112	1261
R-squared	0.73	0.88	0.72	0.87	0.73	0.80	0.73	0.87	0.73	0.80	0.74	0.86
Chow test of β(Guidance surprise * Managerial discretion) in odd models = β(Guidance surprise * Managerial discretion) in even models		Model (1) vs. (2) $F=281.17$ (p < 0.001)		Model (3) vs. (4) $F=1300.97$ (p < 0.001)		Model (5) vs. (6) $F=6.07$ (p <0.05)		Model (7) vs. (8) $F=1137.31$ (p <0.001)		Model (9) vs. (10) $F=19.17$ (p <0.01)		Model (11) vs. (12) $F=462.43$ (p <0.001)

+: $p<0.10$; *: $p<0.05$; **: $p<0.01$
Year dummy variables were also included in all models but are not reported to conserve space

TABLE 5
Mean Quarterly Analyst Forecasts, Management Guidance, and Subsequent Earnings Announcements
(scaled by the share price at quarter t-1)

	Prior Analyst Forecast (PAF)	Management Forecast (MF)	Revised Analyst Forecast (AF)	Actual Earnings
All Management Forecasts	0.0084	0.0068	0.0075	0.0069
Upward Management Guidance	0.0071	0.0095	0.0081	0.0094
Downward Management Guidance	0.0091	0.0053	0.0072	0.0054

N = 5,373 Firm-quarters

TABLE 6
Impact of Analyst Experience on Analyst Forecast Revision

	(1)
ROA	-0.2702*
	(0.1365)
Acquisition activities	0.0029
	(0.0163)
Stock market reaction	-0.3192**
	(0.0512)
Prior accuracy	26.5631**
	(1.1940)
Forecast horizon	0.0012**
	(0.0004)
Auditor opinion	0.0150**
	(0.0054)
Earnings volatility	-0.0034**
	(0.0011)
Forecast dispersion	0.0252*
	(0.0121)
Endogeneity control	-0.6586**
	(0.0914)
Fourth quarter forecast	-0.0505**
	(0.0147)
Management guidance	61.523**
	(1.1301)
Number of firms covered by analyst	-0.0008
	(0.0008)
Years that analyst appears in IBES database	-0.0005
	(0.0013)
Analyst firm-specific experience	0.0093**
	(0.0028)
MD-index	0.504**
	(0.093)
MD-index * Analyst firm-specific experience	0.026**
	(0.008)
Constant	0.9166**
	(0.1281)
Observations	10,571
R-squared	0.84

+: $p<0.10$; *: $p<0.05$; **: $p<0.01$; Year dummies not reported
All coefficients and standard errors multiplied by 100 to aid interpretability

APPENDIX 1:

First-stage Regression Model Predicting the Likelihood of Management Forecast Issuance

	DV: Management Guidance Issuance (Dummy)
Industries with higher litigation risk	0.3381**
	(0.0469)
Corporate restructuring (M&A, acquisition etc.)	0.1127**
	(0.0302)
Firm size	0.0829**
	(0.0092)
Firm profitability (ROA)	2.8832**
	(0.3673)
Firm beta	0.0607**
	(0.0142)
Market-to-book ratio	-0.0980*
	(0.0416)
Forecast dispersion	0.0911*
	(0.0420)
Earnings volatility	1.1595**
	(0.2436)
Number of analysts following the firm	0.0035*
	(0.0017)
Constant	-1.3453**
	(0.0719)
Log Likelihood	-10060.819**

N = 21,415; +: $p<0.10$; *: $p<0.05$; **: $p<0.01$

Year dummy variables were also included in all models but are not reported to conserve space