Does More Effective Board Monitoring Make Management Guidance More Credible?

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Abstract

We study the impact of board monitoring on the credibility of firm voluntary disclosures. In particular, we examine whether analysts react more strongly to the news contained within management guidance released by firms with more effective board monitoring. We find that both increased board independence and increased director attention are associated with subsequent increases in analyst reactions to the news in management guidance. These associations are particularly strong in guidance conveying good news, as opposed to bad news, consistent with good news being generally less believable and requiring additional certification. In addition to large sample results, identification is achieved by verifying our results in specific settings that include exogenous shocks to governance associated with (1) director deaths, (2) mandated independence required by Sarbanes-Oxley (SOX), and (3) changes in board member attention due to M&A activities that eliminate board positions at other firms. Overall, our findings suggest that the quality of firm's voluntary disclosures are assessed not only based on the firm and the information released, but also on the monitoring capacity of the firm's corporate board, which helps certify the credibility of the disclosure.

1. Introduction

Prior research identifies various corporate board roles, including monitoring, advising, and providing expertise (Mace, 1971; Adams et al., 2010). These roles, and more specifically the various director traits that proxy for effectiveness of these roles, have been linked to firm characteristics and stock performance (Gompers et al., 2003; Fich and Shivdasani, 2006; Chhaochharia and Grinstein, 2007; Fracassi and Tate, 2012; Coles et al., 2014, among others). There is also recent evidence that corporate boards impact the frequency and accuracy of firm voluntary disclosures (Karamanou and Vafeas, 2005; Ke et al., 2019).

We extend this literature by assessing whether analysts recognize the importance of directors in shaping and verifying these voluntary disclosures at the time they are released. While Karamanou and Vafeas (2005) document a link between corporate boards and the frequency and accuracy of management guidance issued as a point forecast, they fail to document a link between analyst responses to the guidance and characteristics of corporate boards. Specifically, we study whether analysts use corporate director characteristics in forming their opinions on the credibility of management guidance. If a certain director, or directors, are viewed as having a better ability to monitor a firm, we hypothesize that the firm's guidance forecasts will be viewed as more credible and therefore trigger analyst reactions that are more strongly tied to the news contained in the guidance. In addition, we extend the analysis to range forecasts as the majority of recent management guidance, following the passage of Regulation Fair Disclosure (Reg-FD) in 2000, is provided as a range (Jensen and Plumlee, 2019).

We explicitly identify two channels by which a director's monitoring behavior could be heightened or reduced: independence and attention. First, more independent directors are more likely to provide *unbiased* validation of the guidance forecast (Weisbach 1988, Byrd and Hickman 1992). We measure board independence as both the percentage of independent directors and directors who are not co-opted by the current CEO (tenure longer than current CEO, Coles et al., 2014). Second, busier directors have less availability to assess the management guidance and its suitability for public release, which leads to less effective monitoring (Fich and Shivdasani, 2006). Similarly, directors that serve in monitoring-intensive roles on the corporate board will be incentivized to focus their attention on monitoring activities. In this

study, we propose that market participants view management guidance issued by firms with boards of directors that provide better monitoring, either through greater independence or more attention, as more credible—truthful and unbiased.

In a broad sample of management guidance, we find that both of these channels, director independence and attention, have important impacts on how analysts assess the credibility of these voluntary disclosures. In particular, analysts react more strongly to management guidance disclosed by firms with greater director independence, more available (fewer busy) directors, and more intense monitoring activity.[1] This evidence suggests analysts interpret the management guidance as more believable in the presence of more effective monitors, who are either more independent or pay more attention to the monitoring activities of the board.

These initial results suggest that analysts utilize governance traits in assessing the credibility of management guidance. There are, however, significant potential endogeneity concerns with pooled, cross-sectional analysis. In particular, it could be that "better" firms simply have more effective directors and therefore issue more believable forecasts due to manager/firm quality and not director attributes. Or, it could be that firms with more credible voluntary disclosures attract higher quality directors, such that the association runs in the opposite direction. To mitigate these endogeneity concerns, we conduct several additional empirical tests where we significantly mitigate the possibility of alternative explanations or reverse causality.

First, following Duchin et al. (2010), we use the mandated independence rule of Sarbanes-Oxley (SOX) to identify an exogenous shock to board independence. Only firms that previously had audit committees that were not fully independent were impacted by this rule change. This creates a natural treatment group to compare with the control firms that were already compliant with the regulation prior to its adoption. In addition to exogenously changing board independence, this regulation impacts monitoring

[1] Among the broad sample, board co-option does not appear to be significantly related to management forecast credibility. However, this lack of significance could be related to the presence of endogeneity concerns that we address in subsequent empirical tests.

intensity, as the audit committee is one of the three committees that primarily functions in a monitoring role. Thus, since monitoring intensity is based on independent directors serving on these monitoring committees, intensity receives a similar exogenous increase with the introduction of SOX. Consistent with our hypothesis, we find that exogenous increases in both board independence and monitoring intensity around the mandated independence regulation of SOX result in more credible management guidance forecasts. These findings corroborate our full sample results in a more robust setting where corporate board characteristics are not endogenously determined.

Second, to mitigate endogeneity concerns for directors that are not co-opted, we evaluate changes in board characteristics related to director deaths. We find that decreases in board independence due to deaths of not co-opted directors lead to significantly weaker analyst reactions to subsequent management guidance. This result suggests that when a strong monitor is exogenously removed from serving as a director, analysts display a relative lack of confidence in the subsequent management guidance. These findings have a particularly strong impact, because whether or not a new board member is elected, the non-co-opted director death will, by definition, exogenously reduce independence, since any newly elected board member will have shorter tenure than the CEO.

Third, to mitigate endogeneity concerns with regard to available (not busy) directors, we utilize changes in a director's workload due to acquisitions of firms where an individual holds their other directorship(s). Following Fich and Shivdasani (2006), busy directors are those that hold at least three directorships. If one of these other directorships is eliminated due to that firm being acquired, there is an exogenous *reduction* in the director's overall workload leading to an exogenous *increase* in the director's availability to conduct monitoring efforts at the firm in question. We find that management guidance is viewed as more credible when a firm's directors lose external board seats due to acquisitions. This result is consistent with increased board monitoring when there is an exogenous reduction in a director's overall

workload. Stated differently, the director is less busy and thereby better able to monitor the activities of the firm, as suggested by Fich and Shivdasani (2006).[2]

These additional empirical settings provide confidence that the general positive association between more effective monitoring and the credibility of management guidance is not likely to be driven by endogeneity concerns. Our remaining tests examine whether there are certain settings where board monitoring activities might have a particularly strong impact on the credibility of management guidance. Prior research has documented that the credibility of management guidance is influenced by the sign of the earnings forecast news. In particular, market participants view negative news as more credible than positive news. In this way, there is a larger potential role for governance to validate good news forecasts, as their releases are viewed more skeptically by users. Additionally, the governance role could be especially impactful in verifying management guidance for firms with more difficult information environments. For example, firms with low analyst following may be less well-known and could receive larger benefits from effective monitoring. We find support for both of these hypotheses, as differences in monitoring appear to be particularly informative in helping certify good news forecasts and in validating the forecasts of firms with low analyst following.

Overall, these results contribute to the vast and growing literature on voluntary disclosures by documenting that users of management guidance glean information from not only the manager and the firm but also from the corporate board. In particular, analysts appear to find management guidance as more credible when corporate boards are more independent and pay more attention to monitoring efforts. In addition, our results further the literature on corporate board influence on guidance, by showing that in addition to impacting the frequency and accuracy of the message that is delivered in management guidance, corporate board characteristics can also influence how that message is received. These results also speak to

[2] In unreported results, we also find that when busy directors are exogenously removed from the board due to death, subsequent guidance is viewed as more credible. These results are consistent with relatively stronger board monitoring when a weak monitor is exogenously removed. However, we do not present these results as they are based on only 17 deaths of busy directors and it is difficult to distinguish whether the board itself will be more or less busy as a result of losing a busy director. These additional results are available from the authors upon request.

cross-sectional differences in the impact of governance in certifying voluntary disclosures. We find that more effective monitoring is especially beneficial in settings where the information content of the forecast might otherwise be viewed more skeptically, either because it contains positive earnings news or is issued by a firm with a more opaque information environment.

2. Prior Literature

Management Guidance

Foundational results in the management guidance literature suggest that forecast characteristics such as the earnings news of the forecast, the type or "form" of the forecast (point, range, upper/lower bound, qualitative), and the horizon of the forecast are all important in determining the user reaction. In addition, certain manager and firm characteristics have been shown to alter the information content of management guidance. More recently, and especially since the adoption of Reg-FD in 2000, firms shifted away from offering guidance as point or upper/lower bound forecasts and the vast majority now issue range forecasts. For instance, Jensen and Plumlee (2019) find that in the years from 2001 – 2015, over 82% of annual management forecasts were issued as ranges. This fact lead to an increased focus on interpreting range forecasts and determining which source of information within the range forecast is most informative.

Ciconte et al. (2014) advocate that the upper bound of a management forecast is the most accurate predictor of eventual earnings, while Tang et al. (2015) document that analysts appear to place more weight on the lower bound rather than the upper bound when revising their forecasts. Jensen and Plumlee (2019) find that using all potential sources of news in the range forecast (upper bound news, lower bound news, range news, and midpoint news) significantly improves both the ability to explain user reactions and consistently classify forecasts as good or bad news.

All of these prior studies help to better inform the literature about what forecast users are gleaning from the contents of management forecasts. In our study, we seek to better understand if, and how, analysts use director attributes to help them verify the contents of those management forecasts.

To our knowledge, there have only been a few studies that have looked at the impact of corporate governance on management guidance. Karamanou and Vafeas (2005) provide a strong foundation for our

study by establishing significant evidence that the frequency, accuracy, and precision of a management forecast is significantly impacted by firm governance. Although not a primary focus of their study, it is noteworthy that they fail to find a significant association between analyst forecast revisions and firm governance, perhaps due to the small sample size concerns that they cite. Building on Karamanou and Vafeas (2005), we explicitly test for an association between analyst forecast revisions and director characteristics in a setting where we are better able to identify the possible mechanisms by which directors could monitor voluntary disclosures. In particular, we have a significantly larger sample, which is drawn from a time period starting in 2001 after the passage of Reg FD. More importantly, we have established individual governance characteristics (namely, independence and attention) for which we can specifically identify exogenous variation that allows for causal inference about how firm governance can help forecast users assess management guidance. These two incremental improvements to prior literature will help us to better elucidate the association between analyst revisions and governance that Karamanou and Vafeas (2005) were unable to uncover.

More recently, Ke et al. (2019) find that the advising role of directors is important in determining the accuracy of management forecasts. Using a novel empirical procedure that employs directors from related industries (DRIs) as sources of information about the firm's external environment, they show that these important advisors lead to more accurate management guidance. Consistent will the dual role of corporate boards, the Ke et al. (2019) study shows that directors can help advise management to make more accurate guidance forecasts, whereas our study tests whether the monitoring role of corporate boards can change the credibility of those guidance forecasts when they are issued.

Corporate Governance

The impacts of corporate governance on aspects of firm behavior, firm performance, and various stakeholders are wide ranging. Broad surveys of this literature, especially in reference to boards of directors, are provided by Hermalin and Weisbach (2003) and Adams et al. (2010). One takeaway from these two surveys is the importance of explicitly identifying the relevant corporate governance mechanism and providing robust identification of that mechanism. To that end, in this section we provide supporting

evidence from prior literature for our governance variables. In the next section, we detail the empirical procedures we employ to achieve identification for the board monitoring mechanisms that we intend to capture. For an overview of the extant literature on how boards of directors impact the corporate environment, we direct the reader to the aforementioned surveys, Hermalin and Weisbach (2003) and Adams et al. (2010).

As mentioned above, we explore whether more effective board monitoring impacts the credibility of management guidance. The ability of a corporate director to be an effective monitor relies on two basic principles: independence and attention. Independence implies a director is able to give an honest, credible opinion about the validity of the firm's activities without bias or influence from management. Attention implies a director is available and have the necessary bandwidth to study the firm's activities in order to provide that unbiased opinion.

We rely on the prior literature to provide effective proxies for director independence and availability. A direct measure of directors' independence is whether they serve as an outside director (one not affiliated with the company or the manager). Of the many studies to examine director independence, one of the earliest and most well-cited works is Byrd and Hickman (1992), which shows that bidder firms with more outside directors appear to make more valuable acquisitions. This finding is one of many to suggest that having more independent directors can lead to better firm outcomes. Additionally, Karamanou and Vafeas (2005) use outside directors as a proxy for better governance and document significant impacts on the occurrence, accuracy, and precision of management guidance.

We also use director co-option (Coles et al. (2014)) as a measure of independence. Coles et al. (2014) conclude that directors that join a corporate board more recently than the current CEO are "co-opted" and thereby are less effective monitors. We utilize this same definition to examine whether the percentage of directors with longer tenure than the CEO—those that are *not* co-opted—increases the credibility of management guidance.

On the second trait, attention, we utilize director availability (the inverse of director busyness) as one proxy for a corporate board member's attention to monitoring activities at the firm. Following Fich and

Shivdasani (2006), we define available directors as those serving in fewer than three directorships. Fich and Shivdasani (2006) document that directors with a significant workload serve as less effective monitors, as their attention is more dispersed across the numerous firms that they monitor.

As an alternative measure related to director attention, we use board monitoring intensity defined as the percentage of outside board members who serve on at least two of the three committees that are primarily related to the monitoring role (audit, compensation and nominating/governance) (Faleye et al.; 2011). Including both of these proxies allows us to assess whether directors have the bandwidth to monitor the firm (availability) and whether they serve in a role that places particular importance on monitoring (monitoring intensity).

The prior literature supports that use of these four measures—independent, not co-opted, available and monitoring-intensive—to capture board monitoring through independence and attention. Given the potential for both omitted variable problems and reverse causality, we also must provide compelling identification for these four variables. We explain this identification strategy in the next section as we detail our methodology and hypotheses.

3. Empirical Methods and Hypotheses

Our initial empirical setting begins with the I/B/E/S universe of company issued guidance (CIG database) from January 2001 through June 2017. Our analysis begins in January 2001 due to the passage of Reg-FD in 2000, which significantly altered the voluntary disclosure landscape. The I/B/E/S data are matched with consensus analyst forecasts in the month prior to and the month after the management guidance is issued. This allows us to assess how the guidance changes analyst expectations. We gather additional firm and guidance characteristics, which also explain analyst reactions to the guidance. Finally, we include governance measures from the prior fiscal year end to analyze whether analyst reactions are influenced by these board characteristics.

We use the following general model to explain analyst reactions to guidance:

$$\Delta ACF = \alpha + \beta 1 * JPNews + \beta 2 * Monitoring + \beta 3 * Monitoring * JPNews + \beta n * Ctrls + \varepsilon \quad (1)$$

Where ΔACF is the percentage change in median analyst consensus forecast (MCAF) from the month prior to when the guidance was issued to the month after issuance. *JPNews* is the management guidance news proxy from Jensen and Plumlee (2019), where the news calculation is conditional on the location of the entire guidance range relative to the MCAF from the prior month. In particular, if the entire management guidance range is above (below) the prior MCAF, guidance news is calculated relative to the lower (upper) bound of the guidance. If the prior MCAF falls within the management guidance range, guidance news is calculated relative to the midpoint of the management guidance. This variable, as well as all other variables, is defined in detail in Appendix A. *Ctrls* includes various controls suggested by prior literature, including indicators for the fiscal quarter the guidance was issued (Qtr1, Qtr2, Qtr3), an indicator for whether the guidance is bundled with an earnings release (*Bundled*), the percentage earnings surprise if the guidance is bundled (*EarnSurp*), the percentage earnings volatility from last year to current year (*Evol*), the natural log of the number of analysts following the firm (*ln(Analysts*)), firm book-to-market (*B/M*), firm size (*Size*), firm leverage, and prior fiscal year stock return.

Our main variable of interest, *Monitoring*, is defined based on the composition of the corporate board. We utilize four specific variables to proxy for the effectiveness of board monitoring; in all four cases the variable captures the percentage of the corporate board-members that exhibit a certain trait. These four traits are: independent, not co-opted by CEO, available, and monitoring-intensive. We expect each of these four traits to directly correspond with a director's ability to effectively monitor the firm either through the director's independence or her ability to pay specific attention to monitoring the firm.

With respect to the first mechanism, independence, we expect a more unbiased board to be represented by more independent directors or more directors that are not co-opted by the CEO. Thus, we hypothesize that, if this channel improves the unbiased nature of director opinions, analysts will find guidance more believable when issued by firms with more independent boards. This leads to our first hypothesis, stated in the alternative form:

H1: Management guidance issued by firms with more independent boards will prompt analyst reactions that correspond more strongly with the news conveyed by management guidance.

Thus, the primary coefficient of interest in the model (1) above is β3, which captures whether analyst reactions to *JPNews* differs when the board is more independent. To test this hypothesis, we capture board independence with either the percentage of board members that are independent or the percentage of board members that are not co-opted by the CEO.

The second channel of director influence is attention to monitoring activities, where more available board members (those that hold fewer than three directorships) are better monitors (Fich and Shivdasani, 2006). Further, we expect that, if independent directors are also monitoring-intensive (serve on at least two of the three monitoring committees: audit, compensation and nominating/governance), this will improve the total monitoring-effectiveness of the board. Thus, we expect that a higher percentage of attentive directors on the board, either due to the director's availability or their role as a monitoring-intensive director, will lead to more effective monitoring. This mechanism motivates our second hypothesis, stated in the alternative form:

H2: Management guidance issued by firms with more attentive boards will prompt analyst reactions that correspond more strongly with the earnings news of the guidance forecast.

Prior literature also suggests that different types of forecasts are more credible in general. Most notably, Rogers and Stocken (2005) document that bad news forecasts are more believable than good news forecasts. Their findings suggest that forecast users find good news as less credible than bad news, since managers have personal incentives to provide positive news to the market. Thus, good news provides an opportunity for director monitoring to play a larger role in helping to validate these forecasts. Stated another way, bad news forecasts are already seen as relatively believable, so further verification of their credibility may be unnecessary or ineffective. Along a similar dimension, if the information environment of a given firm is more opaque, the verification role of board members may be viewed as more meaningful. This leads to our final two related hypotheses, stated in alternative form:

H3a: The influence of more effective director monitoring will be more impactful for guidance with positive news compared to negative news.

H3b: The influence of more effective director monitoring will be more impactful for guidance issued by firms with low analyst following.

We provide evidence on all of these hypotheses using the broad sample described above and empirical model (1).

The pooled cross-sectional analysis is subject to some endogeneity concerns, given the non-random nature of director assignment to corporate boards. To address this issue, we conduct several additional analyses with cleaner identification. First, using regulations from SOX, we identify an exogenous change in corporate board independence. As part of these regulations, corporate boards were required to have a majority of independent directors and a fully independent audit committee. As some firms were already compliant with this regulation prior to its passage, only non-compliant firms were required to increase their board independence. Following Duchin et al. (2010), we use non-compliance with these two rules (non-majority independence, and not fully independent audit committee) as exogenous treatment effects. We set up a propensity-score matched sample procedure to compare these treated firms with the firms that were already compliant with the SOX regulations, the control firms.. We use the matched sample to conduct a "difference in difference" procedure where we assess whether analysts respond differently to management guidance issued by the treated firms, post-SOX. Specifically, we estimate regression model (2) to explain changes in analyst responses to guidance:

$$\Delta ACF = \alpha + \beta 1 * JPNews + \beta 2 * Treatment * PostSOX + \beta 3 * JPNews * PostSOX + \beta 4 * Treatment * JPNews + \beta 5 * Treatment * JPNews * PostSOX + \beta n * Ctrls + \varepsilon \quad (2)$$

ΔACF is the percentage change in *MCAF* from pre-guidance to post-guidance. *Treatment* is an indicator variable for firms that were not compliant with the independence regulation as of 2000. *PostSOX* is an indicator variable for years 2005 and later, consistent with the start of the post-SOX sample period in

Duchin et al. (2010) and Guo and Masulis (2015). *JPNews* is the management guidance news variable from Jensen and Plumlee (2019). In this model, a positive $\beta 5$ would provide further support for H1, as an exogenous increase board independence in the treated firms would result in a stronger correspondence between management guidance and analyst reactions in the post-SOX period.

We use the same empirical procedure to provide evidence on H2 with regard to monitoring-intensive boards. A board is defined as monitoring-intensive if a majority of its independent directors serve on at least two of the three board monitoring committees (audit, compensation, and nominating). Since the SOX mandated-independence regulation required a fully independent audit committee, this rule also exogenously increases monitoring intensity for firms that previously did not have a fully independent audit committee. By adding independent directors to the audit committee, these firms likely increase the percentage of outside directors which serve on at least two monitoring-related committees.

Both of these identification strategies rely on a market-wide event, the introduction of SOX, to provide an exogenous shock to board monitoring. Another way to improve identification of our governance mechanisms is to evaluate a firm-specific exogenous change in board characteristics due to director deaths. Similar to other studies (e.g., Nguyen and Nielsen, 2010), we use director deaths as an exogenous shock to board composition. We evaluate the strength of the association between management guidance and analyst reactions before and after the deaths of directors with certain characteristics. Thus, model (3) is similar to model (2), but rather than using the SOX implementation as an exogenous shock to board independence, we use director deaths. We conduct a matched sample procedure to estimate the effects of deaths of certain types of directors (*Treatment = 1*) compared to the control group of firms that do not experience a death of the same type of director (*Treatment = 0)*. In particular, the empirical model is:

$$\Delta ACF = \alpha + \beta 1 * JPNews + \beta 2 * Post\text{-}death + \beta 3 * Treatment * JPNews + \beta 4 * Treatment * Post\text{-}death + \beta 5 * JPNews * Post\text{-}death + \beta 6 * Treatment * JPNews * Post\text{-}death + \beta n * Ctrls + \varepsilon \quad (3)$$

Where *Post-death* is an indicator variable to track if the management guidance is released after the death of the director. In Table 5, we specifically examine deaths of directors who were not co-opted by the CEO.

For the matched sample, the treatment group is firms that experience the death of a non-co-opted director. The control group is matched on two-digit SIC code, year, firm size, and level of board co-option. Control firms do not experience the death of a non-co-opted director.[3] Additionally, we restrict our control firm sample to have the same level of board co-option in the pre- and post-death years to ensure that we measure the difference due to an exogenous shock to co-option for the treatment firm relative to no change in co-option for the control firm.

In this model, our coefficient of interest is $\beta 6$, which captures analysts' incremental reactions to guidance when boards have weaker monitoring ability after the exogenous shift to a more co-opted board, due to the death of a not co-opted director. Of all four of the traits we examine, non-co-opted director deaths provide the cleanest identification of a change in governance. When a board member that is not co-opted by the CEO (has a longer tenure than the CEO) dies, the firm loses an effective monitor that less likely to be influenced by management. By definition, since any newly appointed board member will have a shorter tenure than the current CEO, the board will remain more co-opted until at least the next CEO turnover.[4] For this reason, deaths of directors that are not co-opted provide an exogenous and unambiguous signal of a reduction in board independence.

Our third identification strategy for the effect of board monitoring on the credibility of management guidance is to use exogenous changes in director availability due to acquisitions of firms where directors hold their other board seats. By definition, directors with seats on three or more different boards are "busy." When one of these firms is acquired, a director's board seat is eliminated and that director is now more

[3] In unreported results, we create matched samples based on non-co-opted deaths and co-opted deaths, as well as non-co-opted deaths and deaths of co-opted directors in the same industry. The empirical results are qualitatively similar for these alternative matches. We choose to match on industry, year, size, and level of board co-option as we believe it provides a comparison of the most similar-looking firms, and best estimates the true effect of an exogenous decrease in independence for the pseudo-randomly treated firms that experience the death of a non-co-opted director.

[4] We also empirically examine deaths of directors with other characteristics (available directors and monitoring-intensive directors) and find some evidence that these events are informative in changing how analysts react to management guidance. We do not present these results and limit our reliance on them as the samples are quite small (17 for busy directors and 19 for monitoring-intensive directors). It is also less clear that the death of a director with these characteristics provides a consistent signal of improved/weakened governance. For instance, when a busy director dies, the firm loses a relatively poor monitor. However, the remaining directors will either now be forced to retain a higher workload or the firm will elect a new director with unknown busyness.

available to focus on monitoring efforts at her other remaining directorships. For example, if a director serves on the board of firms A, B, and C and firm C is acquired by firm X, that director's availability will increase at firms A and B with the loss of the directorship at firm C. We predict that these newly more-available directors will be more attentive, and therefore more effective, monitors. Similar to the empirical methods described for examining director deaths, we compare firms that are matched on two-digit SIC code, year, and board busyness. The treatment (control) firms are those that have (do not have) a director that loses a board seat at another firm due to that firm being acquired. In this way, we replicate the empirical model (3) above, but with the treatment defined based on an exogenous increase in attentiveness rather than a director death. The coefficient on the triple-interaction term is of interest, as it captures whether an exogenous improvement in availability leads to an incremental analyst reaction to management guidance made after the director becomes less busy.

Employing these four empirical proxies and providing strong identification for their validity allows us to provide robust results that link board of director characteristics with the credibility of management guidance. Altogether, our study provides an incremental contribution to the literature by investigating the novel question of whether analysts use board monitoring to validate voluntary disclosure. We then employ novel empirical methods to explicitly identify these effects, which reduces concerns around endogeneity issues.

Results

Our primary analysis examines whether analyst reactions to management guidance are influenced by governance, and board monitoring in particular. Our sample includes all annual management guidance issued as a range from the I/B/E/S Company Issued Guidance database (CIG) from January 2001 through June 2017. We examine changes in the MCAF from the month prior to guidance to the month following guidance, which reflects analysts' reactions to the information contained in the guidance. The information content of the forecast will be measured using the JPNews measure (Jensen and Plumlee, 2019), which compares the prior analyst expectation with one of three points within the management guidance range, depending on the location of the entire guidance range. Specifically, information content is measured as the

difference between the guidance lower bound (upper bound) and the prior MCAF if the entire guidance range lies above (below) the prior MCAF. The information content is the difference between the guidance range midpoint and the prior MCAF if the guidance range includes the prior MCAF. Thus, for management guidance that is viewed as more credible, we expect the analyst reaction to be more strongly-tied to JPNews in the guidance forecast.[5] In other words, if analysts find the forecast to be more believable, they will adjust their expectations to coincide more strongly with the management guidance.

To assess how board monitoring influences analyst reactions to guidance, we utilize four director traits: independent, not co-opted, available and monitoring-intensive. Utilizing these four proxies, we are able to provide evidence on both of our proposed channels of influence on analyst forecasts: board independence (independent directors and not co-opted directors) and board attentiveness (available directors and monitoring-intensive directors). For our initial analysis, we use the percentage of the board members that exhibit each of these four traits individually as a proxy for the effectiveness of board monitoring at the firm.

In our regression analysis, we also control for numerous forecast and firm characteristics including: indicators for quarter of guidance issuance (Quarter 1, Quarter 2, Quarter 3), whether or not the guidance is bundled with an earnings announcement (Bundled, an indicator that takes a value of 1 if the guidance is issued within three days of an earnings announcement), the percent earnings surprise in the corresponding earnings release if the guidance is bundled (Earnings surprise, announced earnings less prior month analyst expectation, all scaled by prior month analyst expectation; takes a value of 0 for unbundled forecasts), earnings volatility (absolute value of percentage change in earnings from prior year to current year), analyst following (natural log of number of analyst estimates), horizon (natural log of days between guidance and end of fiscal year), book-to-market (book value of equity as of prior fiscal year end scaled by market equity as of prior December), firm size (market capitalization as of prior fiscal year end), book leverage (total

[5] As an alternative to JPNews, we repeat our analysis with the "traditional" proxy for earnings news, which is based on the difference between the guidance range midpoint and the MCAF and find qualitatively-similar results. These results are available from the authors upon request.

book value of debt scaled by total book value of assets) and prior stock return (firm-specific, market-adjusted stock return from prior fiscal year).

Table 1 presents the number of observations, as well as mean, 25th percentile (Q1), 50th percentile (median), 75th percentile (Q3), and standard deviation for each of these variables. In Panel A, we find that once we merge the CIG management forecast data with consensus analyst forecasts, forecast characteristics, firm characteristics and governance variables, we are left with 25,860 observations of management guidance. Across all of these voluntary disclosures, the average analyst reaction is slightly negative (-0.004), although the median is zero (0.000). A slight departure, the midpoint news in the average forecast is slightly positive (0.007), while again the median news is zero (0.000). As suggested by Rogers and Van Buskirk (2013), we find that the vast majority of management guidance is issued in conjunction with earnings releases (77.0%). Additionally, average earnings surprises of bundled guidance are positive (0.061) and earnings volatility, analyst following, and horizon are generally consistent with prior literature.

Panel B of Table 1 documents that boards are overwhelmingly independent (mean 76%, median 80%), consistent with other literature in the area and influenced by regulation stemming from SOX. We find that roughly half of a board's directors are co-opted (53%), meaning that slightly more than half of the sample's directors have shorter tenure than their CEO. Only a relatively small portion of the sample consists of busy monitors (24% mean, 22% median), while a larger proportion are classified as monitoring-intensive directors (46% mean, 44% median).

Finally, the firm characteristics examined in Panel C of Table 1 suggest that our observations contain a relatively representative cross-section of larger firms with significant variation in book-to-market, leverage, and stock returns. As expected, requiring data on management guidance, analyst consensus, firm governance, and firm characteristics leads to a sample of relatively large firms.

We next analyze the association between board monitoring and analyst forecast revisions around the time management guidance is issued. Table 2 presents results from regressing changes in analyst consensus forecasts from pre-guidance to post-guidance on guidance news, board monitoring, their interaction, and various controls. We present four models to document results with each of our four

empirical proxies for effective monitoring: independent, not co-opted, available, and monitoring-intensive. Our variable of interest is the interaction between guidance news (JPNews) and board monitoring: *Monitoring * JPNews*. This coefficient captures whether analyst responses to the earnings news in the forecast are accentuated or attenuated by board monitoring.

In Model 1, where we utilize director independence as our proxy of board monitoring, we find a significant positive coefficient on the *Monitoring * JPNews* interaction (0.254), suggesting that a board with more independent directors results in analysts reacting more strongly to the information content of the guidance forecast. We also note that midpoint news itself (0.178) and a general higher level of independence (0.011) appear to elicit more positive analyst responses. In Model 2, we fail to document a statistically significant coefficient on the interaction term, where monitoring is captured by the proportion of not co-opted directors. The lack of a significant result in this specification could be due to endogeneity concerns, an issue we address in subsequent empirical tests. In Model 3, we find that the percentage of available directors on a firm's board tends to accentuate the strength of the relation between earnings news (JPNews) announced in the guidance forecast and the analyst reaction to the guidance, suggested by the significant positive coefficient (0.177). This is consistent with prior research that suggests that busy directors are relatively poor monitors, which thereby implies that more available directors are more effective monitors. In this setting, it appears that having a higher percentage of available/not busy directors on the board is associated with analysts having more confidence in the credibility of management guidance. Finally, in Model 4, we find that a higher percentage of monitoring-intensive directors on a corporate board is associated with significantly stronger analyst reactions to midpoint news (0.177). Altogether, our results suggest that analysts assess management guidance based, in part, on the governance structures of the firm issuing the guidance. In particular, it appears that more effective board monitoring is associated with analysts viewing management guidance as more credible and reacting more strongly to the news contained within the guidance.

Documenting a positive association between board monitoring and analyst forecast revisions in a pooled, cross-sectional analysis is consistent with our expectations. There exist concerns with both omitted

variables problems and reverse causality concerns. To mitigate these concerns, we employ several identification techniques for each of our four board monitoring proxies.

First, for board independence, we utilize the SOX rule change as an exogenous shock to independence. This rule change initiates a natural experiment since it impacts only firms that did not have independent boards. This provides us with a treatment sample (non-compliant firms) and control firms (firms already compliant prior to the rule change) and allows us to test whether the exogenous increase in independence for non-compliant firms results in management guidance that is viewed as more credible.

To do so, we follow Duchin et al. (2010) and use a propensity score matched sample approach to compare treatment and control firms. Our objective is to test whether analysts' reactions to management guidance for treatment firms reflect an increase in the credibility of management guidance after the SOX rule change. In Table 3, we again regress changes in consensus analyst forecasts around management guidance on guidance news (JPNews), monitoring, and other controls. In this case, however, our proxy for monitoring is the treatment indicator, which identifies firms that were non-compliant with mandated independence as of 2001. Our primary variable of interest is the triple interaction of *Treatment * JPNews * Post-SOX*, which captures whether analysts find guidance more credible in firms who exogenously increased independence after the SOX rule change.[6] The coefficient on this triple interaction in Table 3 is positive and statistically significant (0.188), suggesting that analysts do find the management guidance of these firms to be more credible after the exogenous increase in independence. It is also noteworthy that the interaction of *Treatment * JP News* is significantly negative, indicating that, prior to this rule change, these firms had relatively less credible guidance compared to their matched-sample peers. One could argue that SOX lead to improvements in the general validity of voluntary disclosures, by improving the monitoring of the least credible guidance firms. Overall, the findings of Table 3 provide robust evidence which supports our earlier finding that board independence is related to improved credibility of management guidance.

[6] Following Duchin et al. (2010) and Guo and Masulis (2015), we utilize 2005 as the first year of the post-SOX period.

This same general empirical procedure can also help to identify our monitoring intensity proxy, since the audit committee is one of the three corporate board committees considered to be monitoring-focused (audit, compensation, nominating). Just as with director independence, the mandated independence of the audit committee provides an exogenous shock to monitoring intensity. As before, only non-compliant firms are forced to increase their monitoring intensity by adding independent board members to the audit committee. Similar to Table 3, Table 4 utilizes a propensity score matched-sample procedure to explain changes in consensus analyst forecasts around management guidance. In this case, the treatment group contains firms without independent audit committees and also without a monitoring-intensive board (at least 50% independent directors sitting on two of the three monitoring-focused committees). Conversely, the control group contains firms without independent audit committees but who do have monitoring intensive boards. Thus, in this analysis, we are comparing two subsets of firms for whom the rule change will necessitate a change in board composition. However, this change can only significantly impact the monitoring intensity of the treatment group, since the control group is made up of firms which are already monitoring-intensive.

In Table 4, we document a significantly positive coefficient (0.340) on the triple interaction variable (*Treatment * JP News * Post-SOX*), suggesting that exogenous increases in monitoring intensity result in more credible management guidance. As in Table 3, the treatment firms appear to have less credible guidance in general, consistent with the negative and significant coefficient on *Treatment * JP News*, which suggests that SOX improved the validity of voluntary disclosures by forcing the least credible forecasters to increase monitoring intensity.

The results in Tables 3 and 4 show that an exogenous change in board characteristics resulted in increases in management guidance credibility due to improvements in both board independence and monitoring intensity. For our remaining two proxies for board monitoring (not co-opted directors and available directors) we employ two different empirical procedures to provide identification. We rely on the findings of Coles et al. (2014) and define board members that are not co-opted by the CEO as more

independent and therefore better able to monitor the firm. To identify this effect, we examine instances of director deaths where the board member was not co-opted. This setting provides particularly strong identification for an exogenous change in board monitoring, since not co-opted board members (those having tenure longer than CEO) that are exogenously removed from the board must, by definition, be replaced with a new board member who is co-opted (having shorter tenure than CEO). Further, even if the board member is not replaced, the exogenous removal of a not co-opted board member will necessarily decrease the number of board members who are less allegiant to the CEO.

To test for this effect, we employ a similar matched-sample regression procedure to Tables 3 and 4 in Table 5. However, we modify the treatment in this instance to be the death of a not co-opted director. Again, our primary interest in this table is the triple interaction term (*Treatment * JP News * Post-death*), which captures the effect of the exogenous loss of a good monitor (due to the death of a not co-opted director) on the credibility of management guidance. From Table 5, this triple interaction term is negative and significant (-0.467) suggesting that analysts find management guidance less credible after a good monitor is exogenously removed from the board. Unlike the previous two tables, however, there does not appear to be a great deal of information contained in any of the other explanatory variables aside from earnings news. The implications of Table 5 again suggest that not co-opted directors improve the credibility of management guidance by providing effective monitoring abilities, and that the exogenous loss of these objective monitors causes analysts to be less confident in subsequent guidance.

To provide identification for our final board monitoring proxy, director availability, we employ exogenous changes in attentiveness due to acquisitions at a board member's other directorships. In Table 6, we again present a similar matched-sample treatment/control group regression analysis, where treated firms differ from control firms by having a director who loses one of her other directorships due to that firm being acquired. The triple interaction term on *Treatment * JP News * Post-shock* is positive and marginally significant (0.237), suggesting that after directors become more attentive (i.e., less busy) their firm's guidance is more credible.

Altogether, the results of Tables 3-6 suggest that, even after mitigating the possibility of endogenous effects of omitted variables and reverse causality, all four of our empirical proxies for effective board monitoring appear to have a positive causal effect on the credibility of management guidance. Incremental to prior literature, these results indicate that corporate governance impacts not only guidance characteristics and accuracy, but also in how market participants view that guidance. These findings suggest that analysts view effective director monitoring as credible verification of these voluntary disclosures and react more strongly to guidance news when these effective monitors are present.

Having shown that director characteristics influence analyst responses to guidance, we next move to analyzing whether these effects play a particularly strong role across three cross-sectional dimensions: good/bad news, bundled/unbundled forecasts, and low/high analyst following. In Table 7, we re-estimate the regression model in Table 2 after partitioning our sample by these three dimensions. In panel A of Table 7, we sort the guidance news into good and bad news. In three of the four cases, the *Monitoring * Good JP news* interaction is positive and statistically significant, while the *Monitoring*BadJPnews* interaction is indistinguishable from zero in all four cases. Consistent with prior literature, these results suggest that board monitoring helps to provide the additional verification that analysts require to substantiate positive news in management guidance.

In Panel B of Table 7, we partition our sample into bundled and unbundled management guidance. Across all three of our board monitoring proxies, we find that the significant interaction between monitoring and midpoint news appears to exist in bundled management guidance. However, for the monitoring-intensity proxy, the effect is positive and significant for both bundled and unbundled forecasts.

Finally, in Panel C of Table 7, we split our sample into high and low analyst coverage to examine whether the effects of board monitoring differ by the quality of the information environment. Following prior studies, if firms with lower analyst following have more opaque information environments, these firms may especially benefit from the validating role of board monitoring. In two of our three monitoring proxies—independence and availability—the credibility of management guidance is significantly increased by monitoring for firms with low analyst following. Further, more intense monitoring is statistically

significant in increasing management guidance credibility for high analyst following firms and marginally statistically significant for low analyst following firms.

The findings in Table 7 suggest that the impact of board monitoring on guidance credibility is especially impactful in certain instances where validation of these voluntary disclosures is especially necessary. In particular, when management guidance conveys good news or analyst following is low, analysts view the monitoring activities of directors as incrementally important in determining how strongly to react to the news. Overall, these results suggest that analysts pay attention to firm governance structures, and that effective monitoring capabilities provide analysts with additional confidence that voluntary disclosures are credible.

Conclusion

This paper studies the impact of board of director monitoring on the credibility of management guidance. In particular, we study whether analysts reactions to the.news in management guidance is impacted by board monitoring. If analysts view director monitoring as validation of the firm's voluntary disclosures, we hypothesize that analysts will react more strongly to voluntary disclosures when the firm employs more effective monitors on the corporate board. We test for these effects using four director traits that capture effective board monitoring: independent, not co-opted, available, and monitoring-intensive.

Any study of corporate governance is likely to suffer from endogeneity concerns. In this case, omitted variables and reverse causality are both potential issues, as board characteristics are endogenously determined. To mitigate these concerns, we provide explicit identification for each of our four board monitoring proxies. We utilize SOX as a natural experiment that results in an exogenous increase to both director independence and monitoring intensity. To identify the effect of non-co-opted directors, we examine the impact of exogenous removal of board members due to deaths. Finally, to identify director availability, we use acquisitions at one of the board member's other directorships to identify an exogenous increase in availability. In all four cases, once these effects are exogenously identified, increases in board monitoring are associated with more credible management guidance.

We also find that these effects are especially impactful in certain, predictable settings. In particular, the positive effect of board monitoring on guidance credibility is especially pertinent among firms with low analyst following and in guidance that provides positive earnings news. These effects are consistent with firms with low analyst following having more opaque information environments and good news forecasts being less believable than bad news forecasts, both of which benefit from improved director monitoring to increase credibility.

This study illuminates an extended role of effective director monitoring, enhancing the credibility of management guidance. The findings extend earlier work that suggests that parties outside the corporate executive suite, including boards of directors, can influence the contents of management guidance. We document that director monitoring not only influences the contents of guidance, but also how management guidance is received and interpreted. Finally, the robust empirical procedures employed in this paper allow for better identification of the effect of governance on voluntary disclosures. This improvement, coupled with a larger, more recent sample which contains only post Reg-FD forecasts, helps shine on a light on the true nature of this relationship, which was not possible in some of the early attempts to link analyst reactions to guidance with firm governance characteristics (e.g. Karamanou and Vafeas, 2005).

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Appendix A - Variable Definitions

Monitoring Effectiveness

Independent	Percentage of board members that are classified as outside directors on SDC as of prior fiscal year end
Not co-opted	Percentage of board members that have longer tenure than the CEO as of prior fiscal year end
Available	Percentage of board members that hold fewer than three directorships
Monitoring-intensive	Percentage of outside directors that serve on two out of the three committees tasked with monitoring activities

Guidance Variables

ACF	Post guidance month analyst consensus less pre-guidance month analyst consensus, scaled by pre-guidance month analyst consensus
JPNews	For cases where the entire guidance range lies above the prior month analyst consensus forecast, JPNews is guidance lower bound less prior analyst consensus, scaled by prior analyst consensus. If the entire guidance range lies below the prior month analyst consensus forecast, JPNews is guidance upper bound less prior analyst consensus, scaled by prior analyst consensus. If the guidance range includes the prior month analyst consensus, JPNews is guidance midpoint less prior analyst consensus, scaled by prior analyst consensus.
EarningsNews	Guidance range midpoint less prior analyst consensus, scaled by prior analyst consensus
Quarter 1	Indicator variable for guidance forecasts that take place after the prior year's earnings are announced and prior to the first quarter earnings announcement
Quarter 2	Indicator variable for guidance forecasts that take place after the first quarter earnings announcement but before the second quarter earnings announcement
Quarter 3	Indicator variable for guidance forecasts that take place after the second quarter earnings announcement but before the third quarter earnings announcement
Bundled	Indicator variable for guidance forecasts that occur in the five-day window around a quarterly earnings announcement (announcement days -2 through +2)
EarnSurp	If guidance is bundled, EarnSurp is the difference between the quarterly earnings announcement value and the previous quarterly analyst consensus expectation, scaled by previous quarterly analyst expectation. If guidance is not bundled, EarnSurp is 0.
EarnVol	The absolute value of the change in annual earnings from previous fiscal year
Ln(Analysts)	Natural log of the number of analyst estimates as of prior period
Ln(Horizon)	Natural log of the number of days between guidance and end of current fiscal year

Firm Variables	
Book-to-market	Book value of assets as of prior fiscal year end scaled by market value of equity as of prior December
Size	Market value of equity as of prior fiscal year end
Leverage	Book value of total debt scaled by book value of total assets as of prior fiscal year end
Prior return	Firm-specific, market-adjusted stock return over the prior fiscal year

Table 1: Summary Statistics

The table reports summary statistics for the management guidance sample from 2001-2015. Panel A reports statistics on management forecast characteristics for 25,860 management forecast observations. Panel B reports statistics on board characteristics for 9,236 firm-years. Panel C reports statistics on firm characteristics for 9,236 firm-years. All variable definitions are included in Appendix A.

Panel A: Management Forecast Characteristics

	Forecasts	Mean	Std. Dev.	Q1	Median	Q3
ΔACF	25,860	-0.004	0.116	-0.016	0.000	0.026
Midpoint news	25,860	0.007	0.156	-0.020	0.000	0.024
Bundled	25,860	0.770	0.421	1.000	1.000	1.000
Earnings surprise	25,860	0.061	0.283	0.000	0.000	0.103
Earnings volatility	25,860	0.188	0.652	-0.019	0.118	0.269
Log(# of estimates)	25,860	2.211	0.656	1.792	2.303	2.708
Log(Horizon)	25,860	5.168	0.481	4.718	5.278	5.635

Panel B: Board Characteristics

	Firm-years	Mean	Std. Dev.	Q1	Median	Q3
Independence (%)	9,236	76%	14%	67%	80%	88%
Co-option (%)	9,236	53%	35%	22%	53%	86%
Busy (%)	9,236	24%	19%	10%	22%	36%
Intense Monitors (%)	9,236	46%	27%	27%	44%	67%

Panel C: Firm Characteristics

	Firm-years	Mean	Std. Dev.	Q1	Median	Q3
Book-to-market	9,236	0.45	0.29	0.25	0.39	0.59
Firm size	9,236	7.60	1.74	6.33	7.53	8.70
Leverage	9,236	0.22	0.19	0.06	0.21	0.34
Stock return	9,236	0.06	0.53	-0.19	0.00	0.22

Table 2: Influence of Board Monitoring on Management Guidance Credibility

The table reports OLS regressions modeling changes in analyst consensus forecasts on guidance news proxies and measures of board monitoring. The dependent variable in each model is the percentage change in analyst consensus forecast from month prior to guidance to the month after guidance (ΔACF). JPNews is the percentage difference in a specific point of comparison from the guidance and prior month analyst consensus forecast, where the specific guidance point is conditional on the location of the guidance range. When the guidance range falls above (below) the prior analyst consensus, the guidance point of comparison is the lower bound (upper bound). When the guidance range includes the prior analyst consensus, the guidance point of comparison is the guidance midpoint. Model 1 includes board independence as the measure of board monitoring. Independent is defined as the percentage of independent directors on the board. Model 2 includes directors who are not co-opted as the measure of board monitoring. Not co-opted directors are the outside directors with tenure greater than the tenure of the current CEO. Model 3 includes director availability as the measure of board monitoring. Available is defined as the percentage of outside directors that hold fewer than three directorships on publicly traded boards. Model 4 includes monitoring-intensity as the measure of board monitoring. Monitoring-intensive is defined as the percentage of outside directors that sit on at least two out of the three main board committees tasked with monitoring activities (audit, compensation, and nominating). All variable definitions are included in Appendix A. All models include industry-by-year fixed effects at the two-digit SIC level. *p*-values based on standard errors clustered at the industry-year level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

Table 2: Influence of Board Monitoring on Management Guidance Credibility (continued)

		Measure of Board Monitoring:			
		Independent (%)	Not Co-opted (%)	Available (%)	Monitoring-intensive (%)
	Predicted Sign	Model 1	Model 2	Model 3	Model 4
JP news		0.121**	0.286***	0.351***	0.227***
		(0.027)	(0.000)	(0.000)	(0.000)
Monitoring		0.009	0.001	0.010**	0.002
		(0.158)	(0.529)	(0.023)	(0.516)
Monitoring x JP	+	0.254***	-0.036	0.177***	0.177***
		(0.001)	(0.403)	(0.004)	(0.004)
Quarter 1		-0.043***	-0.043***	-0.043***	-0.043***
		(0.000)	(0.000)	(0.000)	(0.000)
Quarter 2		-0.025***	-0.026***	-0.026***	-0.026***
		(0.000)	(0.000)	(0.000)	(0.000)
Quarter 3		-0.017***	-0.018***	-0.017***	-0.017***
		(0.000)	(0.000)	(0.000)	(0.000)
Bundled		0.002	0.002	0.002	0.002
		(0.272)	(0.313)	(0.264)	(0.310)
Earnings surp (%)		0.114***	0.115***	0.114***	0.114***
		(0.000)	(0.000)	(0.000)	(0.000)
Earnings vol (%)		0.031***	0.031***	0.031***	0.030***
		(0.000)	(0.000)	(0.000)	(0.000)
Log(Analysts)		0.002	0.002	0.002	0.002
		(0.206)	(0.185)	(0.273)	(0.173)
Log(Horizon)		0.027***	0.027***	0.027***	0.027***
		(0.000)	(0.000)	(0.000)	(0.000)
Book-to-market		-0.019***	-0.019***	-0.021***	-0.020***
		(0.000)	(0.000)	(0.000)	(0.000)
Firm size		0.005***	0.005***	0.006***	0.006***
		(0.000)	(0.000)	(0.000)	(0.000)
Leverage		-0.006	-0.008	-0.008	-0.007
		(0.184)	(0.105)	(0.103)	(0.128)
Prior stock return		0.006**	0.006**	0.006**	0.006**
		(0.023)	(0.019)	(0.021)	(0.026)
Constant		-0.187***	-0.181***	-0.183***	-0.182***
		(0.000)	(0.000)	(0.000)	(0.000)
Observations		25,860	25,860	25,860	25,860
r-squared		0.458	0.454	0.458	0.459

Table 3: Influence of Board Independence on Management Guidance Credibility

The table reports OLS regressions modeling the effect of mandated audit committee independence on changes in analyst consensus forecasts. The sample includes 5,868 guidance observations between 2001 and 2009 for a propensity score matched sample. The matched sample is based on the independence of the firm's audit committee in 2001. Firms with(out) a fully independent audit committee are classified as control (treatment) firms. Post-SOX is an indicator variable equal to one for year 2005 or later, zero otherwise. The dependent variable in each model is the change in analyst consensus forecast. JPNews is the percentage difference in a specific point of comparison from the guidance and prior month analyst consensus forecast, where the specific guidance point is conditional on the location of the guidance range. When the guidance range falls above (below) the prior analyst consensus, the guidance point of comparison is the lower bound (upper bound). When the guidance range includes the prior analyst consensus, the guidance point of comparison is the guidance midpoint. For brevity, forecast and firm controls are included in the model but are not reported. All variable definitions are included in Appendix A. All models include firm and industry-by-year fixed effects at the two-digit SIC level. *p*-values based on standard errors clustered at the industry-year level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

	Predicted Sign	ΔACF
JP news		0.463***
		(0.000)
Treatment x Post-SOX		-0.006
		(0.197)
JP news x Post-SOX		0.026
		(0.514)
Treatment x JP news		-0.248*
		(0.058)
Treatment x JP news x Post-SOX	+	0.188**
		(0.047)
Forecast & Firm Controls		Yes
Observations		5,868
r-squared		0.643

Table 4: Influence of Intense Board Monitoring on Management Guidance Credibility

The table reports OLS regressions modeling the effect of board monitoring intensity on changes in analyst consensus forecasts. The sample includes 1,864 guidance observations between 2001 and 2009 for a propensity score matched sample. The matched sample is based on the monitoring intensity of board in 2001. Firms without a fully independent audit committee and with(out) an intense monitoring board are classified as control (treatment) firms. Post-SOX is an indicator variable equal to one for year 2005 or later, zero otherwise. The dependent variable in each model is the change in analyst consensus forecast. JPNews is the percentage difference in a specific point of comparison from the guidance and prior month analyst consensus forecast, where the specific guidance point is conditional on the location of the guidance range. When the guidance range falls above (below) the prior analyst consensus, the guidance point of comparison is the lower bound (upper bound). When the guidance range includes the prior analyst consensus, the guidance point of comparison is the guidance midpoint. For brevity, forecast and firm controls are included in the model but are not reported. All variable definitions are included in Appendix A. All models include firm and industry-by-year fixed effects at the two-digit SIC level. *p*-values based on standard errors clustered at the industry-year level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

	Predicted Sign	ΔACF
JP news		0.430***
		(0.000)
Treatment x Post-SOX		0.026**
		(0.017)
JP news x Post-SOX		0.103*
		(0.076)
Treatment x JP news		-0.226*
		(0.056)
Treatment x JP news x Post-SOX	+	0.340**
		(0.013)
Forecast & Firm Controls		Yes
Observations		1,864
r-squared		0.616

Table 5: Influence of Board Co-option on Management Guidance Credibility

The table reports OLS regressions modeling the effect of board co-option on changes in analyst consensus forecasts. The sample includes 1,858 guidance observations between 2001 and 2015 for a matched sample based on two-digit SIC industry, year, and board co-option. The matched sample is based on the death of a non-co-opted director. Firms that (do not) experience the death of a non-co-opted directors are classified as treatment (control) firms. Post-death is an indicator variable equal to one for any forecasts made in the year following the director death and equal to zero for any forecasts made in year prior to the death. The dependent variable in each model is the change in analyst consensus forecast. JPNews is the percentage difference in a specific point of comparison from the guidance and prior month analyst consensus forecast, where the specific guidance point is conditional on the location of the guidance range. When the guidance range falls above (below) the prior analyst consensus, the guidance point of comparison is the lower bound (upper bound). When the guidance range includes the prior analyst consensus, the guidance point of comparison is the guidance midpoint. For brevity, forecast and firm controls are included in the model but are not reported. All variable definitions are included in Appendix A. All models include firm and industry-by-year fixed effects at the two-digit SIC level. *p*-values based on standard errors clustered at the industry-year level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

	Predicted Sign	ΔACF
JP news		0.505***
		(0.000)
Post-death		-0.011*
		(0.068)
Treatment x JP news		0.141
		(0.285)
Treatment x Post-death		0.005
		(0.430)
JP news x Post-death		-0.033
		(0.692)
Treatment x JP news x Post-death	–	-0.467**
		(0.028)
Forecast & Firm Controls		Yes
Observations		1,858
r-squared		0.665

Table 6: Influence of Board Attentiveness on Management Guidance Credibility

The table reports OLS regressions modeling the effect of board busyness on changes in analyst consensus forecasts. The sample includes 4,239 guidance observations between 2001 and 2015 for a matched sample based on two-digit SIC industry, year, and board busyness. The matched sample is based on the exogenous loss of a director's additional directorship. Firms with a director that (do not) experience the loss of an external board seat due to the takeover of that firm are classified as treatment (control) firms. Post-shock is an indicator variable equal to one for any forecasts made in the year following the loss of the director's additional board seat and equal to zero for any forecasts made in year prior to the loss of the director's additional board seat. The dependent variable in each model is the change in analyst consensus forecast. JPNews is the percentage difference in a specific point of comparison from the guidance and prior month analyst consensus forecast, where the specific guidance point is conditional on the location of the guidance range. When the guidance range falls above (below) the prior analyst consensus, the guidance point of comparison is the lower bound (upper bound). When the guidance range includes the prior analyst consensus, the guidance point of comparison is the guidance midpoint. For brevity, forecast and firm controls are included in the model but are not reported. All variable definitions are included in Appendix A. All models include firm and industry-by-year fixed effects at the two-digit SIC level. *p*-values based on standard errors clustered at the industry-year level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

	Predicted Sign	ΔACF
JP news		0.741***
		(0.000)
Post-shock		-0.004
		(0.283)
Treatment x JP news		-0.374***
		(0.005)
Treatment x Post-shock		0.011
		(0.331)
JP news x Post-shock		0.019
		(0.692)
Treatment x JP news x Post-shock	+	0.237*
		(0.071)
Forecast & Firm Controls		Yes
Observations		4,239
r-squared		0.834

Table 7: Influence of Board Monitoring on Types of Management Guidance

The table reports OLS regressions modeling changes in analyst consensus forecasts on guidance news proxies and measures of board monitoring. Model 1 includes board independence as the measure of board monitoring. Independent is defined as the percentage of independent directors on the board. Model 2 includes directors who are not co-opted as the measure of board monitoring. Not co-opted directors are the outside directors with tenure greater than the tenure of the current CEO. Model 3 includes director availability as the measure of board monitoring. Available is defined as the percentage of outside directors that hold fewer than three directorships on publicly traded boards. Model 4 includes monitoring-intensity as the measure of board monitoring. Monitoring-intensive is defined as the percentage of outside directors that sit on at least two out of the three main board committees tasked with monitoring activities (audit, compensation, and nominating). Panel A compares the influence of board monitoring measures on good and bad management forecast news. Panel B compares the influence of board monitoring measures on bundled and unbundled management forecast news. Panel C compares the influence of board monitoring measures on management forecast news under high (above sample median) and low (below sample median) analyst coverage. For brevity, forecast and firm controls are included in the model but are not reported. All variable definitions are included in Appendix A. All models include industry-by-year fixed effects at the two-digit SIC level. *p*-values based on standard errors clustered at the industry-year level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

		Measure of Board Monitoring:			
Panel A: Good vs. Bad News		Independent (%)	Not Co-opted (%)	Available (%)	Monitoring-intensive (%)
	Predicted Sign	Model 1	Model 2	Model 3	Model 4
Monitoring		-0.006	-0.001	-0.004	-0.006**
		(0.294)	(0.754)	(0.304)	(0.025)
Good JP news		-0.004	0.150***	0.176***	0.072**
		(0.931)	(0.000)	(0.000)	(0.013)
Monitoring x Good JP news	+	0.204***	0.013	0.121**	0.161***
		(0.002)	(0.757)	(0.020)	(0.005)
Bad JP news		-0.913***	-0.854***	-0.864***	-0.840***
		(0.000)	(0.000)	(0.000)	(0.000)
Monitoring x Bad JP news		0.056	0.028	0.024	-0.062
		(0.663)	(0.600)	(0.761)	(0.284)
Forecast & Firm Controls		Yes	Yes	Yes	Yes
Observations		25,599	25,599	25,599	25,599
r-squared		0.633	0.631	0.633	0.634

Table 7: Influence of Board Monitoring on Types of Management Forecasts (Continued)

Panel B: Bundled vs. Unbundled		Measure of Board Monitoring:					
		Independent (%)		Available (%)		Monitoring-intensive (%)	
		Bundled	Unbundled	Bundled	Unbundled	Bundled	Unbundled
	Predicted Sign	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
JP news		0.094	0.145*	0.390***	0.258***	0.279***	0.132***
		(0.231)	(0.056)	(0.000)	(0.000)	(0.000)	(0.001)
Monitoring		0.007	0.010	0.014***	0.010	0.004	-0.005
		(0.295)	(0.497)	(0.001)	(0.363)	(0.153)	(0.402)
Monitoring x JP news	+	0.351***	0.091	0.148**	0.170	0.163**	0.183**
		(0.001)	(0.380)	(0.019)	(0.157)	(0.032)	(0.042)
Forecast & Firm Controls		Yes	Yes	Yes	Yes	Yes	Yes
Observations		19,923	5,937	19,923	5,937	19,923	5,937
r-squared		0.534	0.271	0.531	0.276	0.532	0.277

Table 7: Influence of Board Monitoring on Types of Management Forecasts (Continued)

Panel C: High vs. Low Analyst Coverage		Measure of Board Monitoring:					
		Independence (%)		Available (%)		Monitoring-intensive (%)	
		High	Low	High	Low	High	Low
	Predicted Sign	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
JP news		0.184***	0.062	0.322***	0.365***	0.215***	0.234***
		(0.008)	(0.468)	(0.000)	(0.000)	(0.000)	(0.000)
Monitoring		0.018***	-0.004	0.002	0.021***	0.002	0.003
		(0.010)	(0.677)	(0.640)	(0.010)	(0.410)	(0.546)
Monitoring x JP news	+	0.164	0.340***	0.068	0.218***	0.219***	0.162*
		(0.116)	(0.003)	(0.494)	(0.003)	(0.003)	(0.053)
Forecast & Firm Controls		Yes	Yes	Yes	Yes	Yes	Yes
Observations		13,226	12,634	13,226	12,634	13,226	12,634
r-squared		0.491	0.441	0.488	0.444	0.496	0.439