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Strategic Disclosure and Debt Covenant Violation *

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Abstract

This study examines how managers change their forecasting behavior as a debt covenant violation (DCV) approaches. Consistent with a change, we find that management forecasts are more optimistic in the quarter before a DCV, and this result is stronger when firms face a higher risk of shifting control rights to lenders in the event of a DCV. Furthermore, we find that managers combine their forecast optimism with actions that are favorable to shareholders but would likely be curtailed by lenders after the DCV. Specifically, we find that managers who are more optimistic in their forecasts also increase R&D, take on more risk, and increase dividend payouts before violations. Lastly, we find managers who are more optimistic in their forecasts are less likely to be replaced after a DCV. Overall, our results are consistent with managers changing their disclosure behavior in an attempt reduce lenders' awareness of an impending DCV, and thus, buy themselves time to take actions favorable to equity investors. Furthermore, our results suggest that the actions taken by managers, though likely opposed by debtholders ex ante, may improve, on average, firms' prospects, which in turn increases managers' job security following a DCV. Our results are consistent with managers working in the interest of equity holders to minimize the costs associated with a impending DCV.

Keywords: Debt Covenant Violation, Strategic Disclosure, Risk-Shifting

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1 Introduction

This paper examines how managers strategically alter their provision of voluntary disclosure to capital market participants before a debt covenant violation (hereafter, DCV). The accounting literature has extensively studied managers' incentives to voluntarily disclose part or all of the private information they possess about firms' future fundamentals (e.g., Beyer et al., 2010). The repetitive nature of the decision to disclose additional information leads managers to have incentives to credibly commit to a truthful disclosure regime. However, prior studies also provide evidence that managers are more likely to intentionally bias the voluntarily disclosed information when there are benefits to do so for managers and their firms (e.g., Rogers and Stocken, 2005; Kross et al., 2011; Hilary et al., 2014). In this paper, we show that managers strategically bias the information disclosed prior to a DCV, by issuing optimistic forecasts, in order to lower the costs associated with DCVs. In so doing, managers are able to gain additional time in which to take actions that are favorable to equity investors, but that would likely be curtailed by debtholders after a violation. We find that, ultimately, these actions taken in the interest of shareholders improve managers' job security after a DCV.

A large body of research in accounting and finance has documented the costs and consequences of DCVs. DCVs lead to large negative stock price reactions, increases in interest rates, and difficulty in securing further financing (Beneish and Press, 1993, 1995; Roberts and Sufi, 2009a). Additionally, recent research provides evidence that DCVs are associated with a shift of firm control towards lenders (see e.g., Roberts and Sufi, 2009b, for a survey of this literature). The shift of control rights can be significant, resulting in CEO turnover, corporate restructuring, and reductions in dividend payouts to shareholders (Nini et al., 2012). In extreme cases, lenders can even step in and obtain greater control rights *before* an actual DCV if lenders successfully petition the courts and argue that a borrower has experienced a

"material adverse change" in its financial position.[1] Prior research provides strong evidence that managers use both real actions and accruals manipulation to *avoid* violating a covenant (Sweeney, 1994; DeFond and Jiambalvo, 1994; Dichev and Skinner, 2002; Beatty and Weber, 2003). However, there is no evidence related to whether managers have incentives to modify their disclosure behavior before a DCV is disclosed, even if it *does not* help to avoid a DCV (i.e., a DCV is given). This paper intends to fill this gap.

We argue that managers strategically alter their voluntary disclosure behavior prior to a DCV in order to reduce the costs associated with a DCV to both managers and their shareholders. Specifically, after a DCV debtholders may gain many of the same control rights that they would in the event of a payment default. For example, prior studies find that some lenders require borrowers to decrease dividend payments and capital expenditures after a DCV – actions that benefit debtholders with a fixed payoff but are not desired by shareholders (e.g., Chava and Roberts, 2008; Nini et al., 2012). Additionally, if managers expect that a DCV is approaching, they have an incentive to reduce the likelihood of being replaced if control rights shift towards lenders after a DCV. We argue that one way for managers to do this is to issue optimistic management earnings forecasts (hereafter, MFs) which delay lender actions related to DCVs. In other words, with the optimistic MFs given in quarter t, given that an actual DCV is still going to be disclosed in the 10-K or 10-Q filings for quarter t's financial results sometime in quarter $t+1$, debtholders are less likely to be aware that a DCV is approaching until a firm's filing of the financial results, or at least the earnings announcement. As a result, debtholders are less likely to preempt a DCV (for example during quarter t) using the "material adverse change" legal argument, and they are less prepared to use any newly-gained control rights when they learn of the DCV (ex., to cut certain projects, replace the CEO, etc).

Furthermore, we expect that managers will take actions in advance of a DCV that place shareholders' interests ahead of debtholders' because shareholders have bargaining power in

[1]See for example, BNP Paribas SA & Ors v Yukos Oil Company, Court of Appeal - Chancery Division, June 24, 2005, [2005] EWHC 1321 (Ch).

selecting and retaining managers (Hall and Liebman, 1998). However, overly shareholder-friendly actions that are in opposition to debtholder interests may raise lenders' awareness about an approaching DCV and are likely to result in a negative backlash if debtholders gain control rights following a DCV, both to shareholders and managers themselves (Jensen and Meckling, 1976; Becker and Stromberg, 2012). We expect, therefore, that managers are likely to use optimistic forecasts prior to a DCV in order to buy themselves time in which to take actions that are favorable to shareholders, such as making additional investments or selecting new projects, which will payout over time but which would be opposed by debtholders in the short-term. Issuing optimistic forecasts provides management disclosure consistent with the actions they are taking on behalf of shareholders, thereby reducing the likelihood of protest by lenders. The additional time gained by managers to improve firm prospects as well as the actions taken directly for the benefit of shareholders (i.e, dividend payouts), leads to their having a greater likelihood of equity holders retaining them after a DCV is revealed.

We examine the above predictions using quarterly management earnings forecasts around financial covenant violations. We do so for several reasons. First, recent studies have documented that the majority of debt contracts contain an earnings-based debt covenant and that the use of earnings-based covenants has increased substantially over time (Demerjian, 2011). While firms may violate both financial and non-financial (general) covenants, we employ a sample of financial covenant violations. And, while not all financial covenants are directly related to earnings (e.g., leverage ratio covenants), most contracts in our sample contain earnings-based covenants and we assume that management earnings forecasts will inform debtholders about the likelihood of an upcoming DCV. This assumption seems reasonable given that prior studies show that earnings forecasts are a critical component of successful corporate decisions (e.g., Goodman et al., 2014). Second, management earnings forecasts represent the most important voluntary disclosure channel for managers to set or change the market's earnings expectation and drive the majority of market movement relative to other types of voluntary disclosure (Beyer et al., 2010). It suggests that market participants

consider managers, as corporate insiders, to have better information about a firm's future prospects, and earnings forecasts are a key mechanism through which managers convey their private information to the market. Third, another important implicit assumption in our study is that a DCV is predictable by managers who take strategic actions accordingly. We focus on quarterly forecasts because managers are more likely to possess precise information (e.g., an approaching DCV) when they issue short-term (e.g., quarterly) forecasts compared to long-term (e.g., annual) forecasts (Fuller and Jensen, 2002; Hirst et al., 2008; Gong et al., 2011; Kross et al., 2011; Hilary et al., 2014).[2]

Our empirical evidence is consistent with our predictions. First, we find that management forecasts issued in the quarter before a DCV are more optimistically biased (relative to the eventually realized earnings) than forecasts not preceding a DCV. These results are both economically and statistically significant. For example, we document that the magnitude of management forecast bias increases by approximately 70% of one-standard-deviation for firms approaching a DCV compared to firms not approaching a DCV.

Next, we perform a series of cross-sectional analyses to test the prediction that managers who take actions that are beneficial to shareholders but may be detrimental to debtholders are more likely to bias their forecasts. Consistent with this conflict-of-interest argument, we find that managers who invest more in R&D, authorize large increases ($> 50\%$) in dividend payouts in the quarter before a DCV is announced, or take on more risky projects, relative to the same quarter in the preceding year, are more likely to optimistically bias their forecasts.

[2]Importantly, we are also concerned about examining annual, longer-term, earnings forecasts because of the severe alternative explanation related to a behavioral CEO overconfidence argument (e.g., CEO overconfidence). Earnings forecasts, especially those with longer horizons, are issued further from actual earnings realizations, and there is greater uncertainty surrounding a firms' future performance (e.g., because of unpredictable shifts in market demand and competitor strategies) (Gong et al., 2011; Hribar and Yang, 2016). For example, Hribar and Yang (2016) show that overconfidence increases forecast optimism and precision among annual forecasts. In other words, providing similar evidence using annual forecasts would raise the concern that this alternative explanation drives our results. We believe that using quarterly short-term rather than annual long-term forecasts provides us with the more conservative evidence because the effect may be underestimated. Furthermore, short-term forecasts are made closer to the realization of actual earnings and managers have more information to make more accurate predictions about actual future performance, and a key assumption in our setting is that managers strategically issue biased forecasts. We discuss further and examine the above alternative explanation in Section 5.

Taken together, these findings are consistent with managers taking actions that are consistent with their high, but ultimately optimistic, forecasts.

Furthermore, we predict and find that the intensity of managers strategically altering their forecasts prior to an upcoming DCV increases with the costs of a DCV but is constrained by the costs or opportunities of biasing forecasts. Specifically, on the one hand, we find that our results are more pronounced for borrowers facing a higher risk of losing some of their control rights to lenders, as measured by financial distress and the importance of private debt in overall debt financing (Baird and Rasmussen, 2006; Ivashina et al., 2016). On the other hand, we find that managers are less likely to optimistically bias their forecasts if outsiders have a greater ability to detect a bias (Rogers and Stocken, 2005) or when managers have greater reputation concerns and incentives related to issuing biased forecasts (e.g., Kreps et al., 1982; Gao et al., 2014; Scheele et al., 2018). These results suggest that biasing forecasts is not the optimal strategy for all firms. It depends on, for example, how likely debtholders can see through such strategic behavior, preventing managers' ability to lower the costs associated with an impending DCV, or the negative impact of missing earnings targets on a manager's reputation.

Next, we investigate whether the decision to issue optimistic forecasts before a DCV provides personal benefits to managers. We show that issuing biased forecasts before a DCV is associated with a *decrease* in the likelihood of a CEO being replaced. This finding further supports the prediction that managers personally benefit from the additional time they gain from delaying lenders' knowledge about when a DCV will occur and from aligning their earnings forecasts with the actions they take to favor shareholders leading up to a DCV. This evidence is consistent with our argument that delaying news of a DCV to "buy time" can be valuable to managers.

Finally, we perform several additional tests to ensure the robustness and validity of our inferences. Our main concern is that our results may be driven by over-optimistic managers (instead of rational managers) modifying their forecasts based on their true belief

of a firms' future prospects before a DCV. Additionally, if over-optimistic managers tend to overestimate their ability and judgment when managing firms (e.g., Ben-David et al., 2013), then they may also be more likely to violate covenants. The positive correlation between covenant violations and optimistic forecasting arising from this omitted variable could potentially bias our estimated effect upwards. Thus, our results may be driven by over-optimistic managers taking on more risk, rather than by rational managers deliberately altering the characteristics of their own forecasts in order to favor equity holders before the occurrence of a DCV.

To rule out this concern, we first test for and fail to find a difference in forecast bias prior to a DCV between firms with prior good versus bad performance. This plausibly mitigates the concern that our results are driven by behavioral traits because prior research finds that the behavioral bias of optimism in forecasting arises predominantly in firms that have experienced recent success (Hilary et al., 2016). Second, our inferences are not affected after including CEO, firm, or firm-CEO fixed effects, suggesting that a slow-moving characteristic does not drive our results. In addition, we also investigate the role of overconfidence because prior studies suggest that overconfidence could be a part of the underlying mechanism of over-optimism (Hilary et al., 2016). We find that the width of management forecasts increases in the quarter preceding the DCV, which is inconsistent with prior research suggesting that managers' behavioral biases (i.e., overconfidence) are associated with decreased forecasting width (Hilary and Hsu, 2011; Hilary et al., 2016), but is more consistent with their strategic choice on the forecast precision because lower precision reduces outsiders' ability to be aware of forecast bias (e.g., Cheng et al., 2013; Smith and Koonce, 2019). Besides, we fail to find that our results are more pronounced for managers with a longer history of better past forecast accuracy, which also suggests that a behavioral bias (overconfidence) cannot explain our findings (Hilary and Hsu, 2011). Lastly, we find that our results are robust to considering trend effects, the effect of the omitted variable issue following Nini et al. (2012) (e.g., considering various proxies for the *actual* firm performance of the DCV quarter t that

the earnings forecasts correspond to), or the selection bias in either the propensity to issue forecasts or the likelihood of violating a debt covenant. Therefore, we believe that it is unlikely for genuinely optimistic managers to drive the results, though we acknowledge that we cannot rule it out completely.

Our study makes three contributions to the literature. First, we add to the literature investigating covenant violation. Prior research has documented that covenant violation is costly and that managers take actions to *avoid* DCVs (e.g., Sweeney, 1994; DeFond and Jiambalvo, 1994; Beneish and Press, 1995; Beatty and Weber, 2003). Taking an upcoming DCV as *given*, we provide evidence consistent with managers altering their voluntary disclosure choices beforehand in an attempt to delay, and possibly reduce, the costs associated with the DCV ex post. We also document that these strategic actions before a DCV are associated with managers' career outcomes. Our findings help explain why some managers are replaced after a DCV while others are not (Nini et al., 2012).

Second, we add to the large literature on voluntary management disclosure. Specifically, our results complement previous findings that managers intentionally introduce bias in their earnings forecasts. For example, Cheng and Lo (2006) and Cheng et al. (2013) find that managers use their forecasts to influence stock prices before selling or buying shares of their firm. Prior studies also document that managers strategically use earnings forecasts to "walk down" market expectations to a beatable level (e.g., Gong et al., 2009), and Kross et al. (2011) investigate the benefits to shareholders if managers issue pessimistic forecasts. These studies, however, do not fully examine the costs of these strategies or have largely ignored the benefits of issuing optimistic forecasts. Several other studies including Kothari et al. (2009) and Baginski et al. (2018) show that career concerns encourage managers to withhold bad news in the hope that they may never have to disclose it if the firm's status improves before the required information release (Graham et al., 2005). Additionally, Ge and Lennox (2011) find no evidence that managers issue optimistic forecasts before an acquisition using stock and argue that "deception by commission" is too costly in terms of litigation risk in

their setting. Our results do not intend to dispute the costs of issuing optimistic forecasts to shareholders documented in prior studies (e.g., negative stock price reactions to missing earnings targets or litigation risk) (Skinner, 1994, 1997; Skinner and Sloan, 2002), but rather, we provide an alternative view and evidence that managers have incentives to issue optimistic earnings forecasts when the benefits outweigh the costs of misleading investors in the setting of the conflict of interest between shareholders and debtholders around a DCV.[3]

Lastly, we offer interesting insights into the agency considerations that exist as managers choose actions before a DCV that differently affect debt and equity holders. We provide evidence that managers use their voluntary earnings forecasts to justify and buy the time to take the exact actions that lenders are likely to discourage, while also increasing their odds of being retained at the firm following a violation – a set of findings of interest to researchers, practitioners, and regulators. Consistent with several recent studies in finance that highlight the relative shift of control rights to creditors after a DCV (Roberts and Sufi, 2009a; Nini et al., 2012), we find that managers *prepare* for a shift of control rights towards lenders by taking actions that benefit shareholders and themselves in advance of covenant violation.

In the next section we develop our hypotheses. We describe the sample selection procedures and variables in Section 3. Section 4 presents the main empirical results, and Section 5 presents the results of additional analyses. A summary and conclusions appear in Section 6.

2 Background and Hypothesis Development

As capital providers, lenders focus on ensuring the timely repayment of the principal and interest that are their claims on a borrower's future cash flow and assets. Because debtholders suffer from borrowers' economic losses but do not share in the benefits of economic gains,

[3]It is important to note that shareholders may prefer to lower the agency cost of debt as ultimately shareholders bear debt-financing costs due to higher interest rates and/or refinancing existing debt. Our results of better future performance for firms with optimistic forecasts in Section 4 could be consistent with this notion. However, our study does not speak directly to this incentive of shareholders which is beyond the scope of this paper.

they seek to gain control of the firm and prevent the firm from taking further risk as soon as possible when a firm faces potential credit or solvency issues(see e.g., Aghion and Bolton, 1992). Debt covenants are included in lending contracts in order to reduce the ability of managers to extract rents from debt holders and to yield some firm control to creditors during bad economic states of the firm (Jensen and Meckling, 1976).[4] Debt covenants are financial tripwires that shift control rights towards lenders when activated, and they restrict the actions that managers are allowed to take after debt issuance. Managers accept the costs of including debt covenants, however, because their commitment to restrict their actions and forfeit control during bad states *ex ante* generates more favorable borrowing terms (Bradley and Roberts, 2004).

Covenant violation is costly to shareholders (see, e.g., Beneish and Press, 1993, 1995; Sufi, 2009; Nini et al., 2012; Gao et al., 2015; Stice, 2018). Following a DCV, lenders are entitled to demand immediate repayment of the loan, or they can renegotiate the contract or grant a waiver. Dichev and Skinner (2002) document that the most common outcomes of a DCV are obtaining a waiver and renegotiating the contract. Both of these outcomes, however, can be costly. Beneish and Press (1993) estimate that the average cost of a DCV attributable to increased interest rates and renegotiation or waiver fees is between one and two percent of the market value of equity for their sample of firms. DCVs may also lead to costs through the inclusion of additional covenants to the debt contract during the negotiation process (Core and Schrand, 1999).

In addition to the above negative consequences of DCVs, recent research provides evidence that DCVs are associated with a shift of firm control towards lenders and other consequences that are also costly to both shareholders and managers (see e.g., Roberts and Sufi, 2009b, for a survey of this literature). For example, Chava and Roberts (2008) report that capital investment decreases after financial covenant violation, and Roberts and Sufi

[4] Jensen and Meckling (1976) list unwarranted distributions to shareholders, issuance of higher-priority debt claims, and investments in negative net present value projects for purposes of empire building and diversification as potential actions that the inclusion of debt covenants attempts to prevent. Ma et al. (2021) also document a lender-specific preference for including debt covenants in contracts.

(2009a) find that DCVs increase borrowers' interest rates and restrict firms' access to debt markets. Moreover, Nini et al. (2012) find that DCVs lead to an increase in the likelihood of corporate restructuring, slowdowns in mergers and acquisitions, reductions in dividend payouts, and CEO turnover. These studies provide evidence that firms with DCVs incur costs related to the relative shift in control rights to lenders *even before* formal payment default.

Note that it is also possible for lenders to step in and exert greater control over a borrower even before a violation takes place if they can convince a judge that a material adverse change (MAC) has occurred. The purpose of an MAC is to protect a lender's position if there is a detrimental change in circumstance affecting a borrower's ability to repay the loan, even in the absence of a technical covenant violation (Doulai and Wells, 2013). In one notable example of a lender stepping in before an actual covenant violation, in the case of BNP Paribas v Yukos Oil Co, the High Court determined that a lead arranger for a syndicate of banks was justified in accelerating a loan because a recent significant adverse tax determination on the borrower "might reasonably be expected to have a material adverse effect." The court held that the acceleration by the loan syndicate was not wrongful. If lenders believe that an upcoming DCV is imminent and unavoidable, they may attempt to argue that an accelerated transfer of control rights is justifiable. Importantly, lenders can use the threat of legal action using the MAC argument in order to renegotiate with borrowers, *even before* a DCV takes place. Thus, while we do not often observe lenders *taking* legal action using the MAC, the ever-present threat of legal action influences managers' behavior.[5]

Given the severity of the cost of DCVs, managers exercise their reporting discretion on financial statements to avoid DCVs. For example, Sweeney (1994) finds that firms in technical

[5]This is consistent with the view of prior legal studies that the frequency of actual lawsuits reflects the outcome from both the threat of lawsuits and the actions taken by managers to counter such threats. Specifically, a low number of observed lawsuits could be due to managers' successful actions to mitigate the likelihood of being sued (e.g., Donelson and Yust, 2014). However, we acknowledge that we are unable to provide direct evidence of lenders or managers taking actions because of a potential MAC legal action. It is important to note that this argument could also apply to other *observed* costs related to DCVs, such as CEO turnover, higher interest rates, or reductions in dividend payouts.

default make more income-increasing accounting changes. Using measures of "discretionary" accruals, DeFond and Jiambalvo (1994) find that firms use more abnormal accruals to avoid debt covenant constraints. Beatty and Weber (2003) find that firms with debt covenants are more likely to adopt income-increasing accounting policies than are firms without debt covenants. An unanswered question is whether managers have incentives to modify their disclosure behavior before a DCV is disclosed, even if it does *not* help to avoid the violation (i.e., a DCV is given).

Management earnings forecasts are voluntary disclosures that provide managers' estimate of expected earnings over a given period. This channel is one of the main mechanisms for managers to set or change the market's earnings expectation. A long literature in accounting has found that management earnings forecasts provide relevant information to market participants. For example, prior studies have found that management forecasts are associated with changes in stock prices (e.g., Nagar et al., 2003), decreases in cost of capital (Frankel et al., 1995; Coller and Yohn, 1997; Demerjian et al., 2019), and revisions in analysts' forecasts (Waymire, 1986; Cotter et al., 2006). Over 90 percent of managers surveyed by Graham et al. (2005) confirm that managers issue voluntary forecasts, including management earnings forecasts, to develop and maintain a reputation for accurate and transparent reporting.[6]

Despite the reputation incentives to be accurate and consistent when issuing management earnings forecasts, prior research does find that managers can be strategic in their forecasting behavior. Starting in the 1990s, managers are, on average, pessimistic in their quarterly earnings forecasts; this trend is often explained as a result of management's desire to walk down the market's – particularly analysts' – earnings expectations in order to increase the likelihood of beating market expectations (Matsumoto, 2002; Cotter et al., 2006; Bergman and Roychowdhury, 2008). Prior studies also document other factors that influence management forecasting behavior. Lang and Lundholm (2000) show that management forecasts

[6]See Hirst et al. (2008) and Beyer et al. (2010) for a review of the management earnings forecast literature.

are more likely to be optimistically biased leading up to an equity offering, while Aboody and Kaznik (2000) provide evidence that managers issue bad-news earnings forecasts around stock option award dates in an attempt to temporarily drive down prices. Similarly, Rogers and Stocken (2005) and Cheng and Lo (2006) show that insider trading is related to bad-news management forecasts. Taken together, these studies provide evidence that managers alter their earnings forecasting behavior when the benefits of doing so outweigh the costs of reducing their perceived accuracy and credibility (e.g., Lang and Lundholm, 2000; Nagar et al., 2003; Rogers and Stocken, 2005; Ge and Lennox, 2011; Kross et al., 2011; Ciftci and Salama, 2018; Brazel and Lail, 2019).

We predict that an upcoming covenant violation will provide a setting in which managers have incentives to modify their forecasting behavior. If managers believe that lenders are likely to take actions that will be unfavorable to shareholders and themselves when a covenant is violated, then they may choose to change their disclosure behavior prior to a DCV in order to delay debtholders' actions, and possibly reduce the costs of a violation. We argue that issuing optimistic earnings forecasts serves this purpose. Facing a potential shift of control rights towards lenders after a DCV, managers have greater concerns related to their job security (Nini et al., 2012). This increase in career concerns encourages managers to take actions that are favorable to shareholders, but which will likely be opposed by lenders after a DCV, because shareholders have greater bargaining power in selecting and retaining managers (e.g., Denis et al., 1997; Hall and Liebman, 1998; Wei and Zhang, 2017). Therefore, it is reasonable to expect that managers will take precautionary measures before a DCV, for example, providing a rosier picture of firm performance that is in line with the underlying actions taken by managers that favor shareholders. Specifically, we argue that managers will issue optimistically biased forecasts before a DCV, even though this does not help to avoid a DCV.

Another reason that managers may issue optimistic forecasts is that it buys them time in which to take actions that will improve the firm's fundamentals. For example, if lenders

know that a DCV will likely occur far in advance (e.g., several months before a DCV is reported), then they will have more time to consider their response and are more likely to intervene and take more drastic actions when control rights shift towards them following a DCV (e.g., replacing the CEO). So, if managers can reduce the perceived likelihood of a DCV for lenders, then lenders will not have considered for as long what to do when a DCV occurs. At the same time, managers are able to use this additional time without lender scrutiny to take actions that are favorable to shareholders but that may also improve the fundamental prospects of the company in the future (e.g., more investment in risky projects and R&D). Those actions already taken by managers before a DCV is revealed may also end up benefiting debtholders if the risky investments pay off, even if debtholders would have opposed the actions ex ante. Taken together, optimistic forecasts by managers will help justify their actions that benefit shareholders, and they may also serve to buy time for managers in which to take actions that will improve firm fundamentals.

Note that managers could privately communicate a very optimistic view about firm performance to lenders, but it would be difficult for managers to disclose information to the general public conveying vastly different firm prospects than those they have given lenders privately. Therefore, we hold the view that the public disclosure can act as a proxy for what managers may be communicating to lenders. On the one hand, public disclosure that is consistent with what managers are potentially communicating to lenders increases the credibility of the information privately disclosed. On the other hand, no public disclosure is likely to be interpreted as bad news by outsiders (a la, the comprehensive review in Beyer et al., 2010), which could make lenders question the credibility of any private communication. Therefore, it collectively leads to the notion that optimistic public disclosure increases the effectiveness of and ability to delay the discovery of an impending DCV by lenders.

Stated formally, we predict:

H1: Management forecasts issued before a debt covenant violation display larger forecast biases and are more optimistic than forecasts issued before quarters with no covenant

violation.

We do not formalize our predictions related to the actions taken by managers in H1. However, we expect that managers who engage more in activities that will be opposed by lenders after a DCV will be more likely to optimistically bias their forecasts. Empirically, in cross-sectional tests, we examine whether the effects of H1 become larger for managers who increase R&D, invest in risky projects, and issue large dividend increases - all actions that benefit shareholders but which would be opposed by lenders.

3 Sample Selection and Empirical Specification

3.1 Sample Selection and Data Source

To make our study more comparable with previous studies, we use the sample of covenant violation data developed by Nini et al. (2009), Roberts and Sufi (2009a), and Nini et al. (2012).[7] This dataset covers DCVs in the universe of Compustat non-financial U.S. firms from 1996 to 2009.[8] However, we start our testing sample period after Reg FD (effective in October 2000). This sample period allows us to identify MFs directly and to mitigate missing data issues prior to Reg FD (Chuk et al., 2013). Accordingly, we merge this dataset with management forecast data obtained from First Call and use managerial estimates on quarterly earnings per share (EPS) reported in the First Call starting from October 2000. We focus on *quarterly* instead of *annual* forecasts because managers are more likely to possess more precise information about quarterly forecasts than annual forecasts, which have a longer horizon. Consistent with this notion, prior studies demonstrate that managers use

[7] We retrieve this dataset from Amir Sufi's website (http://faculty.chicagobooth.edu/amir.sufi/data.html).

[8] This sample of DCVs is comprised of both earnings-based and non-earnings based (e.g., leverage) covenant violations because firms are not required to disclose the exact covenant that was violated. However, even if we cannot determine whether a given DCV is related to an earnings covenant, it does not invalidate our empirical design if MFs inform debtholders about the likelihood of an upcoming DCV. This assumption is probably reasonable given that recent studies have documented that the majority of debt contracts contain an earnings-based debt covenant and that the use of earnings-based covenants has increased substantially over time (Demerjian, 2011). To the extent that the likelihood of a DCV is not informed by MFs, then this should bias against our finding results consistent with our predictions.

quarterly forecasts to strategically manage market expectations (Fuller and Jensen, 2002; Hirst et al., 2008).[9] Using quarterly forecasts for each fiscal quarter, we keep all forecasts that are issued before the corresponding fiscal period end to calculate the propensity to issue forecasts and forecast frequency. In addition, we retain only the point and range guidance observations to calculate forecast bias and width, because these variables are less clearly defined for other forms of MFs (such as open-ended and qualitative MFs). Furthermore, in calculating forecast bias and width, we only keep the last forecast issued by a firm before the corresponding fiscal period end and remove any forecasts issued after the fiscal quarter end (i.e., pre-announcements) to avoid the possibility that pre-announcements may differ in nature from manager earnings estimates (e.g., McNichols, 1989; Rogers and Stocken, 2005; Hilary and Hsu, 2011; Rogers and Van Buskirk, 2013). Last, we retrieve accounting information from Compustat's quarterly data files, and we obtain stock price and returns data from the daily CRSP files. This procedure provides a sample of 15,677 firm-quarter observations.

3.2 Empirical Specification

To test our first and second hypotheses, we estimate the following regression:

$$MFVar_{i,t} = \beta_0 + +\beta_1 Viol_{i,t} + \sum_{x=1}^{n} \beta_x Control_{i,t} + \epsilon_{i,t} \quad (1)$$

In this empirical model, *MFVar* stands for *MFE* and *Optim.* *MFE* is the magnitude of forecast optimism, measured as the difference between MF and realized earnings, scaled

[9] We acknowledge that the MFE would mechanically be the same between an annual MF issued for the 4th quarter and the quarterly one issued for the same period. There are rare cases that managers issue annual MFs rather quarterly MFs for the 4th quarter. We follow prior studies (Hilary and Hsu, 2011; Kross et al., 2011) and omit all MFs related to annual earnings. Including annual MFs for the 4th quarter would increase our sample by 328 observations (compared to our final sample of 15,677 observations). Our results of both forecast bias and the propensity of issuing MFs are not affected if we include these additional observations (untabulated). Our results continue to hold if we drop all MFs (both annual and quarterly) issued for the 4th quarter's earnings (untabulated).

by price. *Optim* is forecast optimism, measured as an indicator variable equal to one if the MF is greater than the realized earnings of quarter t, and zero otherwise. Our variable of interest, *Viol*, is an indicator variable equal to one if a firm violates a debt covenant in quarter t, and zero otherwise. By our definition, a manager issues a forecast for quarter t's earnings during quarter t (e.g., 10/30, two months before the end of the fiscal period end, 12/31). We indicate whether there is a DCV in quarter t, corresponding to firm performance of quarter t. However, information about the occurrence of a DCV will not be available until a firm discloses realized firm performance of quarter t to the public some time in quarter t+1. Debtholders may be able to infer whether a DCV is likely to have taken place based on the disclosure at the earnings announcement (e.g., 1/31, one month after the end of the fiscal period end, 12/31), but a DCV need be formally disclosed until the filing of the financial statements for quarter t sometime later (e.g., 2/28, two months after the end of the fiscal period end, 12/31). Therefore, there is a sequential relationship between MF and the reporting of a DCV. As per our *H1*, we expect the coefficient β_1 to be positive and statistically significant when the dependent variable is *MFE* or *Optim*.

We supplement our model with a series of control variables (*Controls*), and in our sample of firms leading up to a DCV, we particularly include control variables related to firm performance.[10] Prior research has identified various managerial incentives that motivate managers to bias their earnings forecasts for a number of reasons, e.g., to support market expectations during financial distress (Frost, 1997) (*Zscore*), deter potential industry entrants (Newman and Sansing, 1993) (*HHI*), facilitate security issuance (Frankel et al., 1995; Lang and Lundholm, 2000) (*ExtFin*), reduce expected legal costs (Skinner, 1994, 1997) (*Litig*), and guide analysts' forecasts to avoid missing expectations at the earnings announcement (Matsumoto, 2002; Cotter et al., 2006; Gong et al., 2011) (*Insto*). Aside from managerial incentives, prior studies document significant relations between bias and several firm characteristics, including firm performance (*ROA*, *Loss*, and *Return*), accounting accruals (*Bloated*), firm size (*Size*),

[10]We also address this issue by following the approaches of Larcker and Rusticus (2010) and Nini et al. (2012) reported in the section "Correlated Omitted Variables".

analyst coverage (*Coverage*), and growth opportunity (*Btm*) (e.g., McNichols, 1989; Rogers and Stocken, 2005; Gong et al., 2009). Note that we set up all of our tests to utilize all publicly available information at the time of each test without the possibility of look-ahead bias. Specifically, given that a manager issues a forecast for quarter t's earnings during quarter t and the actual earnings for quarter t earnings will be announced in quarter $t+1$, we follow prior studies (e.g., Kross et al., 2011; Gong et al., 2011) and measure all variables prior to quarter t, except for analyst coverage (measured prior to a MF issued) and external financing (measured in quarter t).[11] We provide variable definitions in the Appendix A. Lastly, we augment our empirical model with industry and year-quarter fixed effects. Year-quarter fixed effects account for inter-temporal changes in management forecast characteristics, and industry fixed effects account for cross-industry differences.[12] We winsorize the top and bottom one percentiles of continuous variables to mitigate the influence of potential outliers. The standard errors are corrected for heteroskedasticity and clustered by firm.

3.3 Descriptive Statistics

Table 1 reports the descriptive statistics for the sample of 15,677 firm-quarter observations with MF data based on our sampling procedure described in the previous sub-section. *Viol* has a mean of 0.031 which indicates that approximately 3.1% of firm quarters in our sample contain a DCV, compared to the 7% violation rate reported by Nini et al. (2012) for the universe of Compustat firms over their sample period. This difference indicates that the types of firms that issue MFs are less likely to violate a covenant than the average firm

[11] Our results are not affected when we further control for a firm's consistency in meeting or beating analyst forecasts (Kross et al., 2011; McInnis and Collins, 2011). Likewise, our results are not affected when we replace *Bloated* with either total accruals (Gong et al., 2011) or discretionary accruals (Kasznik, 1999; Gong et al., 2009). Our results are also robust to controlling for internal control quality (Feng et al., 2009), the earnings response coefficient (Das et al., 2011), insider trading (Cheng and Lo, 2006), the value-relevance of earnings (Matsumoto, 2002; Hutton, 2005), and lagged forecast characteristics (Gong et al., 2011). We also conduct two robustness checks in which we 1) exclude management forecasts that are bundled with earnings announcements and 2) control for the actual earnings surprise for bundled forecasts. Our inferences do not change. For brevity, we do not include these additional or alternative controls in our baseline models.

[12] Our results are also robust to considering trend effects. Specifically, we re-estimate our baseline models on an annual basis (i.e., year-by-year regressions) following (Guay et al., 2016) with no change to our inferences (untabulated).

in Compustat, consistent with prior findings that managers at firms with strong financial performance are more likely to issue forecasts (Miller, 2002). The average management forecast bias (*MFE*) in our sample is -0.041, which indicates that, on average, managers are pessimistic in their forecasts. This finding is consistent with prior studies of management forecasts over the quarterly horizon (Hirst et al., 2008). *Optim* has a mean value of 0.225 which indicates that roughly only 23% of forecasts are higher than the actual earnings reported, consistent with the notion that managers have incentives, on average, to lowball their quarterly forecasts in order to help reach earnings targets (e.g., Hilary et al., 2014).

Switching to our control variables, we see that the means of *Zscore*, *HHI*, and *ExtFin* are 1.741, 0.234, and -0.003, respectively. The mean of earnings volatility (*EarnVolt*) is 0.020, and the mean institutional ownership (*Insto*) is approximately 69%. The average ROA and stock return over the last quarter are 0.011 and 0.013, respectively.[13] The average firm size (*Size*) and book-to-market (*Btm*) of the observations in our sample are 6.983 and 0.478, respectively. On average, the firms in our sample are covered by 5.679 analysts (*Coverage*) and have an average net asset bloat (*Bloated*) of 2.625.

Table 2 reports the Pearson correlation matrix of the variables in our sample presented in Table 1. *Viol* is positively correlated with MF biases and MF optimism with statistical significance at the 1% level. These correlations provide univariate evidence consistent with our predictions. *Viol* is also significantly correlated with many of the control variables: specifically, it is positively correlated with net external financing in the current quarter, earnings volatility, losses, net asset bloat, and book-to-market, and it is negatively correlated with Z-score, institutional ownership, ROA, stock return, firm size, and analyst coverage.

[13]Untabulated results show that *Return* becomes negative (-0.057) for the observations of *Viol* equal to 1. It is consistent with Nini et al. (2012) documenting a negative stock return in the quarter before a DCV is disclosed.

4 Empirical Results

4.1 Main Results

Before we examine H1 in relation to optimistic forecast bias, we acknowledge that managers may have discretion over the forecast issuance decision. Hence, an association between DCV and forecast bias may not represent the true relationship in a complete series of MFs (including both issued and unissued MFs) due to the non-random sample selection. To examine this effect, we first examine whether managers alter the likelihood of forecast issuance or forecast frequency as a DCV approaches. Appendix B reports the results and shows that there are no significant changes in forecast issuance or frequency in the quarter of DCVs. This is consistent with prior studies that managers have less discretion over the decision of whether or not to issue a forecast because of litigation or reputation concerns. For example, (Hirst et al., 2008) argue that the decision to issue a forecast is influenced by preexisting conditions and precedent, and these disclosure decisions are not easily changed in the short term. These results also mitigate the concern that the potential change in forecast bias is potentially related to changes in forecast issuance.

Next, we move to examine whether managers issue optimistically biased forecasts for firms issuing MFs. Before turning to our multivariate analyses, we present some graphical evidence. One potential concern is that the change in disclosure characteristics may already be present several years before the occurrence of the covenant violation, which would make it unlikely that the expected DCV is driving managers' changes in disclosure. Focusing on the firms with a DCV in quarter t, the first graph in Figure 1 plots the likelihood of issuing an optimistic MF centered around the DCV, and we observe a clear increase in the likelihood compared to the previous periods with a drop after the DCV. In the second graph in Figure 1, we present the average MF bias around the DCV. We observe that the forecast bias peaks around the DCV itself, again indicating that managers significantly alter their disclosure right before a DCV. Together, these visual results provide evidence consistent with

our predictions.

Table 3 reports results from estimating equation (1) with *Optim* and *MFE* as the dependent variables. Columns (1) and (2) show that the coefficients on *Viol* are positive and statistically significant in both specifications with a value of 0.280 and 0.233 for *Optim* excluding and including control variables, respectively. Columns (1) and (2) show that the coefficients on *Viol* are positive and statistically significant in both specifications with a value of 0.006 for *MFE* excluding and including control variables, respectively. In addition to being statistically significant, the coefficients on *Viol* are also economically significant in size. The magnitude of the coefficient on *Viol* in Column (4) is approximately three times the magnitude of the effect of *Btm*.[14]

Many of the included control variables are statistically significant as well. MF optimism is increasing in financial health (*Zscore*), recent net external financing (*ExtFin*), financial leverage (*Leverage*), losses (*Loss*), book-to-market (*Btm*), and analyst coverage (*Coverage*), but decreasing in earnings volatility (*EarnVolt*), stock returns (*Return*), and firm size (*Size*). In addition to that, the magnitude of MF optimism, as implied by *MFE*, is related to institutional ownership (*Insto*), profitability (*ROA*), and net asset bloat (*Bloated*). Taken together, the results presented in Table 3 support H1.[15]

[14]It is customary to evaluate the economic effect by comparing it to the mean or median of the dependent variable. In our case, however, this would result in division by a number very close to zero (See Table 1). Instead, we compare the effect of *Viol* to that of *Btm* in order to obtain economic significance in a relative manner. To do so, we multiply the coefficient on *Viol* by the standard deviation of *Viol*, and scale this by the corresponding product for *Btm*. We continue to use a similar procedure to calculate the economic magnitude of our key variables in estimations.

[15]In an untabulated additional test, we consider borrowers with multiple DCVs over our sample period, and we examine the reaction to the first DCVs versus the subsequent ones. Interestingly, we do not find that MFs are significantly less optimistic for the subsequent (i.e., second, third, etc.) DCVs in our sample. One explanation is that it is difficult for debtholders to identify opportunistic forecasts before DCVs, and, hence, the penalties are low. Therefore, managers employ a similar strategy for the subsequent DCVs as well. In addition, as we argued before, although debtholders may not approve of managers' proposed actions after the occurrence of a DCV, there is potential value created by actions already taken, benefiting debtholders. This arises because risky investments facilitated by optimistic MFs (e.g., R&D) could potentially help improve firm performance and benefit debtholders accordingly. Lastly, DCVs may occur infrequently enough that lenders' memories have faded over time, a new CEO may be in place (restarting expectations about MFs), or the borrower has refinanced their debt with a new lender.

4.2 Cross-Sectional Variation of Main Results

To reinforce our finding that managers strategically issue optimistically biased forecasts prior to a DCV, we also perform cross-sectional tests and identify the incentives and costs of biasing earnings forecasts before a DCV. Specifically, we partition our sample into quintiles of risk-taking (R&D expenditure and firm-specific return volatility), benefits to shareholders (dividend payout), risk of losing control rights (financial distress and proportion of private debt), opportunities to bias forecasts (analyst forecast dispersion), and reputation concerns (media coverage). We then re-estimate equation (1) with *Optim* and *MFE* as the dependent variables and compare the effect of a DCV on *Viol* in the low group to that in the high group.[16] We discuss each of these tests in the following sections.

Managerial Actions: Risk Taking

Because equity holders are the residual claimants on a firm's assets, they disproportionately benefit from high-risk projects, in contrast to debtholders whose claims on the firm are fixed (e.g., Aghion and Bolton, 1992). Managers may choose to invest more or in riskier projects as a last resort, knowing that a high payoff could keep the firm from violating a covenant and preventing further financial deterioration. Given the prior work documenting increases in CEO turnover following a DCV (Nini et al., 2012), managers may believe that these actions increase their chances of retaining employment at the firm. Shareholders may not necessarily object to the increased riskiness of the projects chosen by managers because it increases the value of their claim on the firm (Jensen and Meckling, 1976). While we do not observe the portfolio of projects chosen by management, we can observe the amount of R&D expenditure and the firm-specific return volatility (Cao et al., 2008; Pastor and Veronesi, 2009). We attempt to simplify the empirical design following the spirit of (Francis and Martin, 2010). Specifically, we examine whether the effect of a DCV on MF bias increases in R&D or in firm-specific return volatility in the period just before a DCV.

[16] Throughout our analyses in the paper, we compare coefficients across the high and low partitions using Fisher's Permutation test with bootstrapping (Tibshirani and Efron, 1993).

Columns (1) and (2) of Table 4 present the R&D expenditures (*R&D*) and firm specific return volatility (*FS RetVolt*) results, with Panel A for *Optim* and Panel B for *MFE* as the dependant variable, respectively.[17] The upper section of each panel reports the results of the highest quintile, and the lower section of each panel presents the results for the lowest quintile. Both of the *Optim* and *MFE* effects that we observe in the full sample are still present in both the low and high *R&D* partitions, with both specifications yielding statistically significant results. As predicted, however, the coefficient on *Viol* is significantly larger in the sample of firms with high *R&D*, than in the sample of those with low *R&D*. The *FS RetVolt* results in Columns (2) follow the similar pattern. Taking on more risky investments is more difficult to justify to lenders if debtholders believe a debt covenant will soon be violated. We interpret these results as suggesting that managers with higher R&D and firm-specific return volatility before a DCV are more likely to bias their MFs in order to conceal upcoming DCVs and delay lenders' actions related to DCVs. Alternatively, managers that increase R&D or risky investments before a DCV, acting in the interest of shareholders, may prefer to issue optimistic MFs in order to appear consistent with their observable actions in order to reduce reputation costs with lenders. In this argument, lenders may look more favorably on managers that are optimistic in both their risky investments and forecast issuance than on managers who increase risky investments but issue accurate (and low) forecasts.

Managerial Actions: Benefits to Shareholders

Managers who are strategically modifying their forecasts in order to lower the likelihood of an upcoming DCV perceived by debtholders may have incentives to justify taking real actions that benefit shareholders directly – actions that lenders would be likely to prohibit once they gain control rights following a DCV. Nini et al. (2012) show that covenant violations are followed immediately by a reduction in dividend payouts. If managers are attempting to benefit shareholders at the expense of debtholders, then evidence that managers are paying

[17] In a robustness test (untabulated), we scale R&D by capital expenditures instead of total assets with no change to our inferences.

out a firm's cash holdings to shareholders is convincing evidence that this is taking place. DCVs are not exogenous events, and managers may very well be taking many actions in their efforts to improve the financial prospects of the firm in ways that benefit both debt and equity holders. It would be difficult for managers to argue, however, that increased dividend payments to shareholders help the firm in general, and debtholders in particular, to survive the economic conditions that led to a DCV. We predict that the same managers who increase dividend payments are also more likely to display larger bias and be more optimistic in their management forecasts before a DCV in order to justify increasing dividends.

Columns (3) of Table 4 presents the dividend payout results. We posit that the managers who increase dividends by a significant amount are more likely to bias forecasts. We define significant increases in dividend payout (*SigDiv*) to be equal to one if a firm increases more than 50% of dividend from the same quarter of last year to the current quarter. The upper section of each panel presents the results for firms with a significant increase in dividend payout (*SigDiv*=1), while the lower section of each panel presents the results for other firms (*SigDiv*=0). Again, the *Optim* and *MFE* effects that we observe in the full sample are still present in both the partitions, with the coefficient on *Viol* remaining statistically significant in all specifications. However, the coefficient on *Viol* is significantly larger in the sample of firms with high dividend payout than in the sample of other firms, consistent with our predictions. Together, these results are consistent with managers being more likely to optimistically bias their forecasts when they have an incentive to justify paying higher dividends.

One concern may be whether the actions that benefit shareholders could be implemented within a quarter. We acknowledge that we are not able to observe the exact timeline, but it is possible that the actions we document have been approved by the board before the current quarter (e.g., at the beginning of a year), thus further board approval is not required. Furthermore, it is likely that boards approve capital expenditures but leave the timing to the CEO. Together, we argue that the CEO is the driving force behind both

the management forecasts and capital expenditures. Importantly, debtholders can stop the pre-approved actions if a DCV or near DCV is exposed as previously discussed.[18]

Risk of Control Rights Shifting Towards Lenders

Covenant violations are associated with a shift of firm control to lenders (e.g., Roberts and Sufi, 2009b); however, we expect that a CEO's risk of losing control rights is related to creditors' relative control of a firm with potential DCVs. First, financial distress likely foreshadows the replacement of managers because creditors' power is limited to controlling debtors when they fail to pay as promised or violate a covenant (Baird and Rasmussen, 2006). Second, the scale of private lending to the borrowing firm increases the power to replace a CEO because it increases the relative power of creditors on the board (Ivashina et al., 2016). In addition, if outstanding private debt is relatively low, managers can refinance these loans more easily and avoid possible adverse consequences. Therefore, we believe that covenant violations should be examined along with both the firm's performance and the level of its private loans outstanding. A CEO's risk of losing control rights is positively related to the level of a firm's financial distress and the proportion of private loans outstanding, and these factors affect managers' incentives to optimistically bias earnings forecasts to lower the perceived likelihood of a DCV.

Table 5 presents these results. Empirically, we first partition our sample firms into the High (Low) *Zscore* sub-samples if they have the highest (lowest) quintile of Z-score (*Zscore*). As predicted, Columns (1) of Panel A for *Optim* and Panel B for *MFE* as the dependant variable show that the coefficient on *Viol* is larger in the sample of firms with high distress risk (i.e., "Low *Zscore*" sub-sample) than in the sample of firms with low distress risk (i.e., "High *Zscore*" sub-sample). We also find similar but slightly weaker results if we use the

[18]We also examine whether the results in Table 4 vary with the time horizon of quarterly MFs. Given that it takes time to implement major investment and payout decisions, it may be that our results are driven by the forecasts with a longer window before a DCV is announced. We partition our sample into the largest and smallest 20% of forecast horizon, and we find that our results hold in both subsamples (untabulated). Importantly, however, the effect is stronger for the forecasts with longer horizon, consistent with these managers having more time to take the actions for shareholders that we test in Table 4. We thank a helpful reviewer for raising this concern and suggesting this test.

proportion of private debt to total debt as a proxy for the risk of losing firm control (Columns (2) of Panels A and B of Table 5).

Opportunities to Bias Forecasts and Reputation Concerns

We do not argue that managers can issue optimistic forecasts with no cost (e.g., missing market expectations). Rogers and Stocken (2005) show that managers' incentive to bias earnings forecasts decreases with the market's ability to detect their misrepresentation. Consequently, we expect that managers will be more likely to misrepresent their information in order to lower the likelihood of an upcoming DCV perceived by debtholders when it is more difficult for the market to detect the bias. Columns (1) of Table 6 Panels A and B present the results of using analyst dispersion as a proxy for forecast difficulty. Overall, these results indicate that forecast difficulty increases the effect of DCV on optimistic MF bias, consistent with our prediction. Specifically, as predicted, although the coefficient on *Viol* is significantly positive in both sub-samples with higher and lower analyst dispersion, the differences between the estimates across the high and low forecast difficulty sub-samples is significant for the *Optim* specifications at 10% in a one-tailed test and for the *MFE* specifications at 1% in a two-tailed test.

Another potential negative consequence of optimistically biasing forecasts before a DCV is the damage to a manager's reputation and personal image. Economic theory proposes that reputation often serves as an informal enforcement mechanism against opportunistic behavior (e.g., Kreps et al., 1982; Gao et al., 2014). Specifically, managers with significant reputations at stake are less likely to indulge in opportunistic behavior that may negatively affect their future career path (e.g., Fama, 1980; Kreps et al., 1982). Consistent with theory, empirical evidence shows that opportunistic behavior leads to losses ex post, and the losses increase in personal reputation capital, which suggests that the cost of improper behavior exposed to the public is higher for managers with high reputation capital (e.g., Atanasov et al., 2012). Moreover, investors infer managerial ability from their earnings forecasts (e.g., Trueman, 1986; Baik et al., 2011), so missing earnings targets may be interpreted as a sign of

lower managerial ability, which in turn reduces job security. Therefore, reputation concerns increase the cost of optimistically biasing forecasts in order to delay lenders' actions in relation to the upcoming DCV and missing the earnings target. Empirically, we follow Dai et al. (2015) and measure reputation concerns using the media coverage of a firm. Columns (2) of Table 6 Panels A and B present the results. Again, as predicted, the coefficient on *Viol* is significantly larger in the sample of firms with low media coverage than in the sample of those with high media coverage. It holds for both of the *Optim* and *MFE* effects.

Overall, we interpret these seven cross-sectional tests as providing evidence that managers are more likely to strategically alter their earnings forecasts in order to lower the perceived likelihood by lenders of an upcoming covenant violation and to delay their actions in relation to the covenant violation when the cost of doing so is lower. Importantly, these results increase the plausibility of our interpretation of our main findings.

4.3 CEO Turnovers

Throughout the paper we argue that managers change their voluntary disclosure choices before a DCV in order to buy the time to take actions (increase R&D expenditures, take on riskier projects, and increase dividends) that would benefit shareholders but would likely be opposed by lenders after a DCV. Our cross-sectional tests provide consistent evidence that managers are more likely to pursue this strategy when the MF bias can facilitate those actions. We further investigate the career consequences to CEOs who issue optimistic MFs before a DCV by investigating one important career outcome for managers taking these actions, CEO turnover. While control rights *shift* towards lenders after a DCV, it is still a firm's equity holders who have relatively greater power to hire and retain top managers. Furthermore, equity holders are likely to retain relatively more bargaining power and influence after a DCV if the probability of bankruptcy is low, as in our sample.[19] If managers are taking actions before a DCV that benefit shareholders, then shareholders will be more

[19]Only 0.6% of the firms in our sample go bankrupt in the year after a DCV, and this number only increases to 1.9% over the three years after a DCV.

likely to exert their influence after a DCV to retain them. Specifically, we examine whether CEO turnovers over the year after a DCV are lower for firms that violate a debt covenant interacted with MF optimism and bias before the DCV. Evidence of the above would be consistent with shareholders believing that managers took actions before a DCV that were in their interest and not detrimental to the long-term prospects of the firm, and, therefore, they are less likely to facilitate their firing after a DCV.

Table 7 reports the results. Panel A shows that the coefficient on *Optim* and *MFE* is unsurprisingly positive and significant, indicating that CEOs are more likely to be fired after issuing optimistic forecasts because it reduces the likelihood of achieving earnings targets. In the *MFE* specifications, we also find some evidence that the coefficient on *Viol* is positively significant, consistent with the findings in Nini et al. (2012) that CEOs are more likely to be fired after a DCV. Interestingly, the coefficients on the interaction between *MFE* and *Viol* are significantly negative, indicating that CEOs that issued forecasts with greater optimistic bias before the covenant violation were less likely to be fired in the period after violation. This effect is weaker if we focus on the *Optim* effect, suggesting that the magnitude of optimistic forecast bias matters more than simply issuing optimistic forecasts in this setting.

To further explore this conjecture, we partition our sample based on whether management forecasts are optimistic (*Optim* = 1 or 0), and we re-estimate our regression model. Panel B shows that our results are driven by the optimistic forecasts. Specifically, when *Optim* equals 1, we find a significant interaction effect, and we find no significance on the interaction effect when *Optim* equals 0. Therefore, consistent with our conjecture, the effect on CEO turnovers is driven by more optimistic rather than less pessimistic forecasts.

We have argued that managers issue optimistic forecasts in order to "buy themselves" time, delaying debtholders' actions and possibly reducing costs of a DCV, and that this additional time may be valuable for managers and for the firm. For example, managers may be able to use this additional time without the lender scrutiny that comes following a DCV to take actions that are favorable to shareholders but also to take actions to improve

the fundamental prospects of the company going forward (e.g., more investment in risky projects and R&D). Those actions already taken by managers before a DCV is revealed may also end up benefiting debtholders if the risky investments pay off, even if debtholders would have opposed the actions ex ante. Thus, one explanation for our CEO turnover results is that managers were able to "buy time" in which to improve firm prospects or to formulate a convincing post-violation strategy that they could present to lenders during the loan contract renegotiation. Another potential interpretation is that, on average, the increase in investment and increase in risky project selection associated with the optimistic forecasts lead to positive firm outcomes that make shareholders and creditors more likely to keep CEOs in place after a DCV. Importantly, the strategy to use voluntary disclosure to decrease the likelihood of an upcoming DCV being perceived by lenders and delay lenders' actions in relation to the DCV does not seem personally costly to CEOs in terms of job security. In fact, we provide evidence that, on average, this strategy benefits CEOs.[20]

5 Robustness Tests

Alternative Explanations

The results from the previous section demonstrate that, on average, managers issue earnings forecasts that exhibit larger optimistic bias in the quarter before a covenant violation. Throughout the paper, we argue that managers privately anticipate the DCV and avoid signaling this violation earlier by issuing more optimistic forecasts. One potential alternative explanation of our findings is that our results are driven by managers' behavioral characteristics rather than by the actions of rational managers who strategically modify firms' voluntary disclosure. For example, a manager could be genuinely overoptimistic, leading to the actions we observe. In addition, a recent stream of research has highlighted the role

[20]We also find preliminary evidence consistent with future firm benefits. Specifically, we find (untabulated) that firms issuing optimistically biased forecasts have greater earnings growth and operating cash flow growth in the year following the quarter of a DCV. Moreover, these firms also have a higher Tobin's Q starting from 6 quarters after the DCV quarter.

of managers' behavioral traits in explaining corporate choices, such as overconfidence (e.g., Ben-David et al., 2013) and managerial overoptimism (Hilary et al., 2016), which in turn could potentially lead to both optimistic forecasts and covenant violation. In this section, we perform four distinct robustness tests to plausibly rule out the possibility that our results are driven by underlying static and/or dynamic behavioral characteristics of managers at firms that eventually violate a debt covenant.

First, a recent study by Hilary et al. (2016) finds that success in the recent past leads to more optimistic MFs in the future. These recent findings suggest that if our results are driven by dynamic managerial optimism, then we would expect them to be concentrated in firms that have experienced good performance in the recent past. We re-run our tests exploring these alternative explanations and provide the results in Panel A of Table 8. Specifically, we re-estimate equation (1) partitioning our sample using firms' past performance, considering whether its average return on assets over the last four quarters is higher or lower than that of the industry median. Panel A of Table 8 provides evidence that the association between covenant violation and forecast optimism that we document in Table 3 is not driven by the firms with high past performance.

Second, it is possible that firms that violate covenants are run by managers who are more overconfident than managers of firms that do not violate covenants during our sample period. To address this issue, we follow prior studies (Hilary and Hsu, 2011; Hilary et al., 2016) and examine two settings in which managers are more likely to be overconfident. Specifically, the first setting predicts a negative association between covenant violations and forecast width if managerial overconfidence can explain our results. Prior research shows that greater forecast precision has been identified as one of the important indicators of managerial overconfidence, which represents a part of the underlying mechanism for overoptimism. In another setting we investigate whether the positive association between DCVs and forecast optimism is more pronounced for managers that have previously issued more accurate forecasts, another possibility if managerial overconfidence explains our results. We report these results in Panels

B and C of Table 8. Specifically, we construct a variable, *Width*, as the difference between the upper- and lower-end estimates, scaled by price (point estimates then have a range of zero). We fail to find a negative and statistically significant association between *Viol* and *Width* in Panel B. This finding is not consistent with managerial overconfidence reducing forecast width before a DCV. In addition, we construct a partition variable, *AccuStreak*, the number of consecutive accurate MFs for a given firm in the last four quarters before the current forecast is made. If our results are driven by managerial overconfidence, we expect managers to be more likely to issue optimistically biased forecasts before a DCV if they have issued accurate forecasts in the past (e.g., $AccuStreak > 0$). The results in Panel C, however, do not support this conjecture.

Last, the above robustness checks suggest that our results are not purely driven by *dynamic* managerial overconfidence, the most severe alternative explanation in our setting. We also note that there is a another reasonable alternative explanation for our findings: *genuinely* or consistently optimistic managers are optimistic about future prospects when they issued optimistic MFs and took actions. However, it is unlikely that this explanation drives our results for several reasons. First, while we agree that managers are likely to be genuinely optimistic, it is less clear why they would be extra optimistic right before a DCV. Second, we follow the previous studies and believe the results based on quarterly MFs (in contrast to long-term or annual MFs) are less likely to be explained by (genuine) managerial overconfidence or overoptimism (e.g., Hirst et al., 2008; Hribar and Yang, 2016). For example, Hribar and Yang (2016) posit that "the effect of overconfidence to have a limited effect in the context of quarterly forecasting, where managers are likely to receive more frequent and timely feedback." Third, we examine and find that our inferences are not affected if we control for CEO fixed effects or CEO-firm pair fixed effects, although our sample size is reduced by approximately 40% when our tests rely on Execucomp data. Panel D of Table 8 includes firm, CEO, and firm-CEO pair fixed effects in our model, with no change to our inferences.

Correlated Omitted Variables

Next, we also note that the effect arising from other omitted variables (e.g., deteriorated actual firm performance, confounding effects from other firm characteristics) could potentially affect our findings. However, we do not believe this concern drives our results for the following reasons.

First, our results in Panel D of Table 8 mitigate the concern that time-invariant managerial style, especially the personal attributes of managers, could explain our findings (e.g., Bamber et al., 2010). Second, we follow Nini et al. (2012) and mimic a "quasi-discontinuity" approach. Our identification strategy is based on comparing firms just above and just below the contract covenant thresholds. The primary benefit of using this specification is that we are able to identify separately the effect of violations from expected changes in outcomes related to differences in the underlying fundamentals of violators and non-violators, controlling for a variety of covenant-related variables. The covenant-related variables we include are: the ratio of operating cash flow to lagged assets, the leverage ratio (debt-to-assets), the ratio of interest expense to lagged assets, the ratio of net worth to assets, the current ratio (current assets/current liabilities), and the market-to-book ratio. The first five of these variables capture the most common ratios included in financial covenants (Roberts and Sufi, 2009a). We also include the market-to-book ratio and tangibility because both of them are powerful predictors of many firm outcomes and inherent business models. Note that we include these variables linearly, squared, and to the third power. We include two lags of the first differences of these variables, and three- and four-quarter lags of the levels of these variables. Table 9 reports the estimation results and shows that our inferences do not change.[21]

[21] We do this to flexibly control for continuous functions of the underlying variables, on which covenants are written, and exploit the discontinuity created at the point of violation. By using a first-difference specification, we control for time-invariant, firm-level effects that may be different between violators and non-violators. By flexibly controlling for the current and lagged level of a variety of variables known to affect outcomes, we hope to control for the expected time-series path of outcomes following deterioration in firm performance. The benefit of this approach is that we identify the effect of a violation based on differences in outcomes for violators relative to differences in outcomes for non-violators with a similar pre-violation pattern in performance.

[22]

Last, we implement a propensity score matching (PSM) approach that pairs our treatment (*Viol*=1) and control (*Viol*=0) firms based on similar observable characteristics (Dehejia and Wahba, 2002). We implement this procedure by first estimating a probit regression to model the probability of having a DCV. Next, we estimate the propensity score for each non-control sample observation using the predicted probabilities from the probit model. We then match each control observation with a treatment observation using the nearest neighbor matching (caliper distance of 0.01, without replacement). The PSM model includes all control variables in Table 3. The results presented in Table 10 show that the coefficient on *Viol* is still positive and significant in both *Optim* and *MFE* specifications, although again the reduced sample size weakens our testing power.

6 Conclusion

This study examines how managers change their forecasting behavior as a debt covenant violation approaches. We argue that managers strategically use earnings forecasts in order to delay the costs associated with DCVs. Consistent with this, we find that management forecasts are more optimistic in the quarter before a DCV, and this result is stronger when firms have a higher risk of ceding control rights to lenders in the event of a DCV. Furthermore, we find that managers combine their forecast optimism with actions that are favorable to shareholders but would likely be discouraged, or even prevented, by lenders after the DCV. Specifically, we find that managers who are more optimistic in their forecasts also increase R&D, take on more risky projects (measured as firm-specific return volatility), and increase dividend payouts before violations, actions which would be opposed by lenders if control rights shift towards debtholders after a DCV. Lastly, we find managers who are more optimistic in their forecasts are less likely to be replaced (i.e., lower CEO turnover) after a

[22] In addition, we also follow (Larcker and Rusticus, 2010) and conduct a ITCV analysis. Untabulated results suggest that it is unlikely that our results are driven by a significant omitted variable.

DCV.

Consistent with the intuition that managers are more likely to act in favor of equity holders if they face a higher likelihood of losing control rights to lenders, our results are concentrated in the firms that are financially constrained or for which private debt is the major source of financing. Moreover, our results become weaker with the market's ability to detect bias in forecasts and for firms with higher media coverage. Given the costs to managers of issuing optimistic forecasts, and missing market expectations, our results are consistent with the notion that the choice to bias forecasts varies with the accompanying benefit. In other words, managers are constrained by how effectively they are able to use optimistic forecasts in order to buy themselves time before control rights shift towards lenders following the knowledge of a DCV.

Overall, our results are consistent with managers changing their disclosure behavior in an attempt reduce lenders' awareness of an impending DCV, and thus, buy themselves time to take actions favorable to equity investors. These actions, though likely opposed by debtholders ex ante, improve, on average, firms' prospects, which in turn improve managers' job security following a DCV. Our study contributes to the accounting literature investigating managers' behavior leading up to a covenant violation. We also add to the vast literature on the strategic disclosure of managers by documenting that future covenant violations create incentives for managers to alter their provision of voluntary disclosure. Finally, our results highlight how managers use disclosure as a tool to act in favor of equity holders, even at the possible expense of creditors. Thus our findings contribute to the rich literature in finance examining risk-shifting behavior and shareholder-creditor conflicts.

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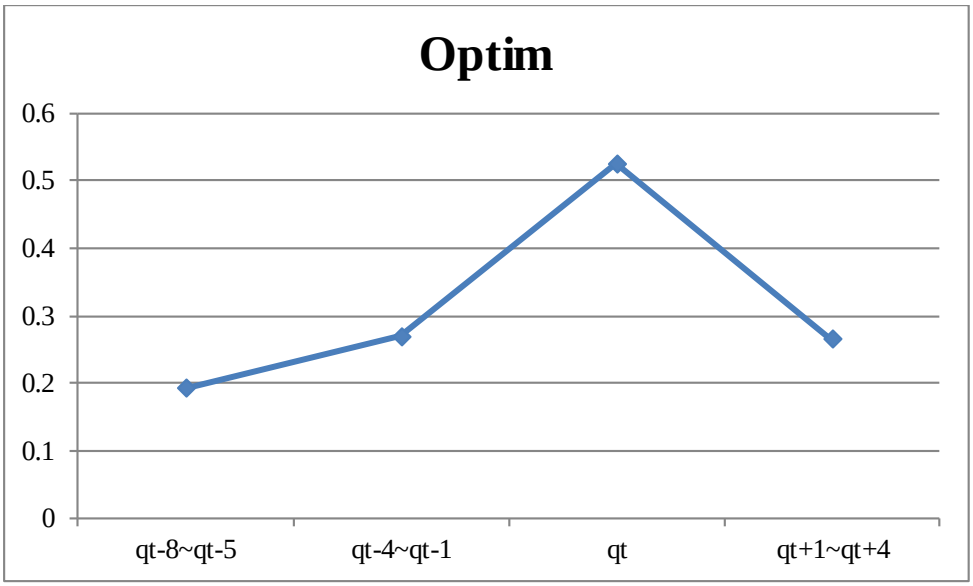
Figure 1: This figure plots the level of *Optim* and *MFE* around the quarter t with a debt covenant violation (DCV). We multiple the results of *MFE* by 100 for readability. Appendix A defines the variables.



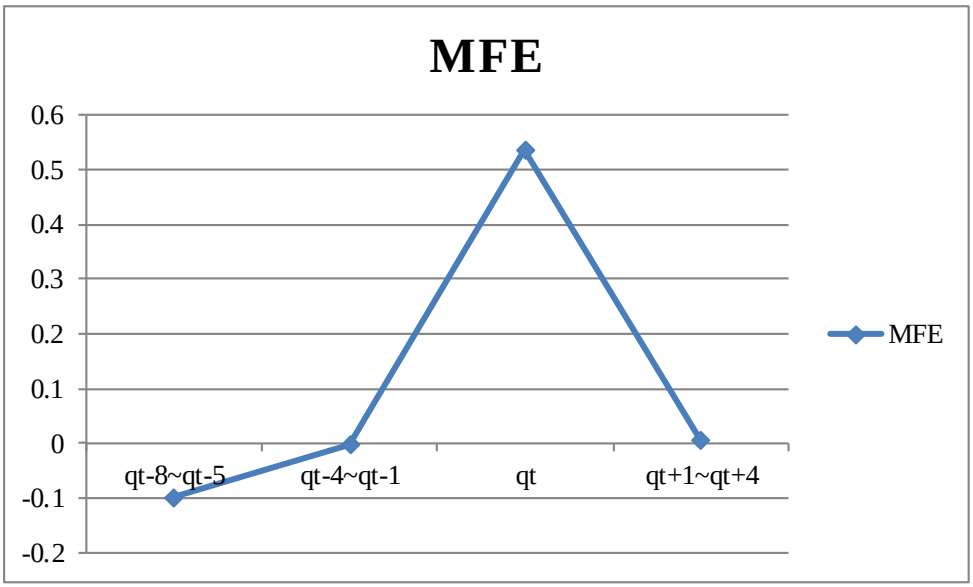


Table 1. Descriptive Statistics

This table reports summary statistics. We multiple the results of *MFE* by 100 for readability. Variables are defined in Appendix A.

Variable	N	Mean	Std. Dev.	25th Perc.	Median	75th Perc.
Optim	15,677	0.225	0.417	0.000	0.000	0.000
MFE	15,677	-0.041	0.777	-0.202	-0.063	0.0000
Viol	15,677	0.031	0.172	0.000	0.000	0.000
Zscore	15,677	1.741	1.599	1.103	1.738	2.496
HHI	15,677	0.234	0.163	0.111	0.195	0.304
ExtFin	15,677	-0.003	0.043	-0.017	-0.001	0.005
Leverage	15,677	0.180	0.174	0.005	0.153	0.298
Litig	15,677	0.161	0.136	0.034	0.128	0.283
EarnVolt	15,677	0.020	0.028	0.005	0.010	0.021
Insto	15,677	0.689	0.225	0.554	0.732	0.860
Loss	15,677	0.175	0.380	0.000	0.000	0.000
ROA	15,677	0.011	0.030	0.004	0.014	0.025
Return	15,677	0.013	0.224	-0.114	-0.002	0.119
Bloated	15,677	2.625	2.398	1.169	2.032	3.232
Size	15,677	6.983	1.619	5.881	6.877	7.985
Btm	15,677	0.478	0.338	0.254	0.396	0.607
Coverage	15,677	1.899	0.753	1.386	1.946	2.398

Table 2. Correlation Matrix

This table reports Pearson correlations. Variables are defined in the Appendix A. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Variable (N= 15,677)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) *Optim*																
(2) *MFE*	0.523***															
(3) *Viol*	0.121***	0.138***														
(4) *Zscore*	-0.038***	0.035***	-0.073***													
(5) *HHI*	0.005	0.016**	0.008	0.007												
(6) *ExtFin*	0.024***	-0.003	0.018**	-0.089***	-0.011											
(7) *Leverage*	0.022***	0.028***	0.042***	-0.241***	0.092***	-0.028***										
(8) *Litig*	-0.015*	-0.002	-0.003	0.008	-0.058***	0.012	0.018**									
(9) *EarnVolt*	0.008	-0.047***	0.058***	-0.318***	-0.086***	0.088***	-0.157***	-0.025***								
(10) *Insto*	-0.039***	0.006	-0.083***	0.250***	-0.008	-0.049***	0.019**	0.025***	-0.255***							
(11) *Loss*	0.070***	0.015*	0.124***	-0.383***	-0.063***	0.063***	-0.042***	-0.017**	0.376***	-0.234***						
(12) *ROA*	-0.063***	0.01	-0.118***	0.560***	0.028***	-0.097***	-0.050***	0.042***	-0.376***	0.262***	-0.687***					
(13) *Return*	-0.074***	-0.054***	-0.056***	0.087***	0.007	0.059***	0.025***	0.057***	-0.027***	-0.023***	-0.096***	0.119***				
(14) *Bloated*	0.005	0.032***	0.022***	-0.207***	-0.047***	0.028***	0.280***	-0.009	0.051***	-0.034***	0.143***	-0.223***	-0.062***			
(15) *Size*	-0.115***	-0.015*	-0.131***	0.335***	0.058***	-0.113***	0.107***	0.150***	-0.219***	0.334***	-0.262***	0.283***	0.062***	0.094***		
(16) *Btm*	0.112***	0.069***	0.116***	-0.328***	0.022***	0	0.069***	0.019**	0.021***	-0.202***	0.244***	-0.326***	-0.213***	0.197***	-0.464***	
(17) *Coverage*	-0.049***	-0.020**	-0.084***	0.219***	-0.092***	-0.044***	-0.019**	0.176***	-0.052***	0.368***	-0.105***	0.142***	-0.051***	0.087***	0.651***	-0.324***

Table 3. Debt Covenant Violation and Management Forecast Optimism

This table presents the results from regressions relating management forecast optimism to the violation of debt covenants. Variables are defined in Appendix A. t-statistics are reported in parentheses, and standard errors are corrected for heteroskedasticity and clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)
	Optim	*Optim*	*MFE*	*MFE*
Viol	0.280***	0.233***	0.006***	0.006***
	(11.422)	(9.626)	(8.413)	(8.452)
Zscore		0.007**		0.000**
		(2.149)		(2.512)
HHI		0.033		0.001
		(1.113)		(1.317)
ExtFin		0.175**		0.001
		(2.290)		(0.863)
Leverage		0.061**		0.000
		(2.152)		(0.319)
Litig		-0.025		-0.000
		(-0.862)		(-0.288)
EarnVolt		-0.352**		-0.011**
		(-2.270)		(-2.371)
Insto		0.012		0.001**
		(0.535)		(2.017)
Loss		0.037***		0.001**
		(2.705)		(2.437)
ROA		0.003		0.010**
		(0.017)		(2.007)
Return		-0.092***		-0.001***
		(-5.629)		(-3.616)
Bloated		-0.002		0.000**
		(-1.039)		(2.128)
Size		-0.032***		-0.000
		(-7.879)		(-0.111)
Btm		0.054***		0.001**
		(3.247)		(1.973)
Coverage		0.029***		-0.000
		(3.832)		(-0.435)
Industry Fixed Effects	Yes	Yes	Yes	Yes
Year Quarter Fixed Effects	Yes	Yes	Yes	Yes
Observations	15,677	15,677	15,677	15,677
R^2	0.029	0.046	0.031	0.041

Table 4. Managerial Actions: Cross-Sectional Variation in R&D Expenditures, Firm-Specific Return Volatility and Dividend Payouts

This table presents the results from regressions relating management forecast optimism to the violation of debt covenants conditional on R&D expenditures (*R&D*), firm-specific return volatility (*FS RetVolt*), and dividend payouts (*SigDiv*). Panel A (B) reports the results of *Optim* (*MFE*) specification. Variables are defined in Appendix A. *t*-statistics are reported in parentheses, and standard errors are corrected for heteroskedasticity and clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Panel A: *Optim*

	(1) High *R&D*	(2) High *FS RetVolt*	(3) *SigDiv*=1
Viol	0.352***	0.241***	0.395***
	(5.978)	(6.169)	(2.994)
Observations	2,176	2,849	781
R^2	0.051	0.057	0.056
	Low *R&D*	Low *FS RetVolt*	*SigDiv*=0
Viol	0.235***	0.203**	0.228***
	(7.519)	(9.274)	(2.458)
Observations	9,302	3,459	14,893
R^2	0.028	0.038	0.047
Tests on diff. (*p*-values)	<0.01	0.10	<0.01
Controls	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes
Year Quarter Fixed Effects	Yes	Yes	Yes

Panel B: *MFE*

	(1) High *R&D*	(2) High *FS RetVolt*	(3) *SigDiv*=1
Viol	0.009***	0.009***	0.012**
	(5.356)	(6.163)	(2.500)
Observations	2,176	2,849	781
R^2	0.075	0.076	0.056
	Low *R&D*	Low *FS RetVolt*	*SigDiv*=0
Viol	0.006***	0.004**	0.006***
	(6.179)	(2.100)	(8.142)
Observations	9,302	3,459	14,893
R^2	0.044	0.038	0.047
Tests on diff. (*p*-values)	<0.01	<0.01	<0.01
Controls	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes
Year Quarter Fixed Effects	Yes	Yes	Yes

Table 5. Risk of Losing Control Rights: Cross-Sectional Variation in Z-score and the Level of Private Debt

This table presents the results from regressions relating management forecast optimism to the violation of debt covenants conditional on Z-score (*Zscore*) and the level of private debt (*Private Debt*). Panel A (B) reports the results of *Optim* (*MFE*) specification. Variables are defined in Appendix A. *t*-statistics are reported in parentheses, and standard errors are corrected for heteroskedasticity and clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Panel A: *Optim*

	(1)	(2)
	High *Zscore*	High *Private Debt*
Viol	0.082	0.303***
	(1.085)	(6.643)
Observations	3,131	2,255
R^2	0.046	0.057
	Low *Zscore*	Low *Private Debt*
Viol	0.216***	0.281***
	(5.352)	(4.861)
Observations	3140	4217
R^2	0.053	0.037
Tests on diff. (p-values)	<0.01	0.20
Controls	Yes	Yes
Industry Fixed Effects	Yes	Yes
Year Quarter Fixed Effects	Yes	Yes

Panel B: *MFE*

	(1)	(2)
	High *Zscore*	High *Private Debt*
Viol	0.001	0.008***
	(0.374)	(5.362)
Observations	3,131	2,255
R-sq	0.039	0.073
	Low *Zscore*	Low *Private Debt*
Viol	0.007***	0.004***
	(5.238)	(2.934)
Observations	3,140	4,217
R^2	0.057	0.039
Tests on diff. (p-values)	<0.01	<0.01
Controls	Yes	Yes
Industry Fixed Effects	Yes	Yes
Year Quarter Fixed Effects	Yes	Yes

Table 6. Opportunities to Bias Forecasts and Reputation Concerns: Cross-Sectional Variation in Analyst Forecast Dispersion and Media Coverage

This table presents the results from regressions relating management forecast optimism to the violation of debt covenants conditional on analyst forecast dispersion (*StdAF*) and media coverage (*MedCov*). Panel A (B) reports the results of *Optim* (*MFE*) specification. Variables are defined in Appendix A. *t*-statistics are reported in parentheses, and standard errors are corrected for heteroskedasticity and clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Panel A: *Optim*

	(1)	(2)
	High *StdAF*	High *MedCov*
Viol	0.242***	0.371***
	(3.835)	(3.284)
Observations	2,130	1,686
R^2	0.051	0.046
	Low *StdAF*	Low *MedCov*
Viol	0.205***	0.284***
	(3.297)	(3.695)
Observations	2,876	2,019
R^2	0.034	0.060
Tests on diff. (*p*-values)	0.16	0.08
Controls	Yes	Yes
Industry Fixed Effects	Yes	Yes
Year Quarter Fixed Effects	Yes	Yes

Panel B: *MFE*

	(1)	(2)
	High *StdAF*	High *MedCov*
Viol	0.007***	0.008**
	(3.649)	(2.133)
Observations	2,130	1,686
R^2	0.055	0.056
	Low *StdAF*	Low *MedCov*
Viol	0.003***	0.006**
	(2.647)	(2.035)
Observations	2,876	2,019
R^2	0.036	0.071
Tests on diff. (*p*-values)	<0.01	0.08
Controls	Yes	Yes
Industry Fixed Effects	Yes	Yes
Year Quarter Fixed Effects	Yes	Yes

Table 7. CEO Turnovers

This table presents the results from regressions of CEO turnovers. Columns (1) and (2) report the estimation results of *Optim*, and columns (3) and (4) report the results of the *MFE*. Variables are defined in Appendix A. t-statistics are reported in parentheses, and standard errors are corrected for heteroskedasticity and clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Panel A: Baseline Results

	(1)	(2)	(3)	(4)
	Turnover	*Turnover*	*Turnover*	*Turnover*
Viol	0.031	0.025	0.044**	0.038*
	(1.251)	(1.043)	(1.998)	(1.695)
Optim	0.019***	0.017***		
	(3.294)	(2.966)		
MFE			0.781**	0.712*
			(1.970)	(1.872)
Optim x *Viol*	0.007	0.006		
	(0.219)	(0.183)		
MFE x *Viol*			-2.175**	-2.291**
			(-2.078)	(-2.194)
Controls	No	Yes	No	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Year Quarter Fixed Effects	Yes	Yes	Yes	Yes
Observations	10,191	10,191	10,191	10,191
R^2	0.005	0.010	0.004	0.009

Panel B: More Optimism or Less Pessimism

	Optim = 1		*Optim = 0*	
	(1)	(2)	(3)	(4)
	Turnover	*Turnover*	*Turnover*	*Turnover*
Viol	0.068*	0.061	0.016	0.014
	(1.695)	(1.466)	(0.489)	(0.404)
MFE	0.643	0.136	-0.465	0.084
	(1.048)	(0.200)	(-0.658)	(0.138)
Viol x MFE	-3.233**	-3.079**	-5.393	-5.079
	(-2.261)	(-2.099)	(-0.629)	(-0.591)
Controls	No	Yes	No	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Year Quarter Fixed Effects	Yes	Yes	Yes	Yes
Observations	2,154	2,154	8,037	8,037
R^2	0.005	0.010	0.004	0.009

Table 8. Alternative Explanations

This table presents the results of robustness analysis on alternative explanations. Panel A reports the cross-sectional results conditional on past performance (*Lagged ROAs*). Panel B reports the results of forecast width (*Width*). Panel C reports the cross-sectional results conditional on past forecast accuracy (*AcctStreak*). Panel D reports the results of including firm fixed effects, CEO fixed effects, or Firm x CEO fixed effects. Variables are defined in Appendix A. *t*-statistics are reported in parentheses, and standard errors are corrected for heteroskedasticity and clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Panel A: Cross-Sectional Variation in Past Performance

	(1)	(2)
	Optim	
	High *Lagged ROAs*	Low *Lagged ROAs*
Viol	0.180*	0.195***
	(1.883)	(5.523)
Observations	2,849	3,460
R^2	0.043	0.052
Tests on diff. (p-values)	0.3	
	MFE	
	High *Lagged ROAs*	Low *Lagged ROAs*
Viol	0.001	0.007***
	(0.439)	(5.802)
Observations	2,849	3,460
R^2	0.030	0.051
Tests on diff. (p-values)	<0.01	
Controls	Yes	Yes
Industry Fixed Effects	Yes	Yes
Year Quarter Fixed Effects	Yes	Yes

Panel B: Forecast Width

	(1)	(2)
	Width	*Width*
Viol	0.0017***	0.0003
	(7.654)	(1.606)
Controls	No	Yes
Industry Fixed Effects	Yes	Yes
Year Quarter Fixed Effects	Yes	Yes
Observations	15,675	15,675
R^2	0.052	0.384

Table 8: Alternative Explanations (Cont'd)

Panel C: Cross-Sectional Variation in Past Forecast Accuracy

	(1)	(2)
	Optim	
	AccuStreak>0	*AccuStreak*=0
Viol	0.272***	0.218***
	(6.384)	(7.428)
Observations	3,945	11,729
R^2	0.049	0.045
Tests on diff. (p-values)	0.32	
	MFE	
	AccuStreak>0	*AccuStreak*=0
Viol	0.006***	0.006***
	(5.331)	(6.396)
Observations	3,945	11,729
R^2	0.060	0.038
Tests on diff. (p-values)	0.26	
Controls	Yes	Yes
Industry Fixed Effects	Yes	Yes
Year Quarter Fixed Effects	Yes	Yes

Panel D: CEO and Firm Fixed Effects

	(1)	(2)
Viol	*Optim*	*MFE*
Firm Fixed Effects	0.160***	0.003***
	(5.891)	(5.678)
CEO Fixed Effects	0.164***	0.002***
	(3.820)	(2.798)
CEO and Firm Fixed Effects	0.162***	0.002***
	(4.019)	(2.964)
Controls	Yes	Yes
Year Quarter Fixed Effects	Yes	Yes

Table 9: Alternative Specification - Nini et al. (2012)

This table presents the results from regressions relating various management forecast optimism to the violation of debt covenants using the specification in Nini et al. (2012). We include the second and third power of the levels of the covenant control variables, two lags of the first differences of the covenant control variables, and three- and four-quarter lags of the levels of the covenant control variables. Other variables are defined in Appendix A. t-statistics are reported in parentheses, and standard errors are corrected for heteroskedasticity and clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1) *Optim*	(2) *MFE*
Viol	0.229***	0.005***
	(6.956)	(4.938)
Operating cash flow / average assets	-0.007	-1.018***
	(-1.214)	(-3.831)
Leverage ratio	-0.014*	-0.453
	(-1.850)	(-1.489)
Interest expense / average assets	0.142	-8.907
	(0.441)	(-0.615)
Net worth / assets	-0.005	-0.438*
	(-0.779)	(-1.890)
Current ratio	0.000	0.027
	(0.194)	(1.118)
Market-to-book ratio	-0.003***	-0.218***
	(-3.141)	(-4.737)
PPE / average assets	0.016***	1.056***
	(2.744)	(3.807)
Higher-order covenant controls	Yes	Yes
Lagged first-diff. controls	Yes	Yes
Lagged covenant controls	Yes	Yes
Industry Fixed Effects	Yes	Yes
Year Quarter Fixed Effects	Yes	Yes
Observations	6,929	6,929
R^2	0.045	0.062

Table 10: Alternative Sample - Propensity Score Matching (PSM)

This table presents the results from regressions relating various management forecast characteristics to the violation of debt covenants using a PSM sample. Variables are defined in Appendix A. t-statistics are reported in parentheses, and standard errors are corrected for heteroskedasticity and clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)
	Optim	*Optim*	*MFE*	*MFE*
Viol	0.225***	0.232***	0.006***	0.006***
	(6.761)	(6.994)	(6.532)	(6.791)
Zscore		0.013		0.000
		(1.111)		(1.196)
HHI		0.095		0.003
		(0.987)		(0.999)
ExtFin		-0.331		-0.015
		(-0.926)		(-1.352)
Leverage		-0.049		-0.004
		(-0.480)		(-1.333)
Litig		-0.091		0.001
		(-0.788)		(0.182)
EarnVolt		-0.834		-0.040**
		(-1.631)		(-2.063)
Insto		0.032		-0.002
		(0.401)		(-0.991)
Loss		0.024		0.000
		(0.569)		(0.007)
ROA		-0.294		-0.019
		(-0.538)		(-0.935)
Return		-0.133**		-0.004*
		(-2.009)		(-1.958)
Bloated		0.004		0.000
		(0.666)		(0.940)
Size		-0.024		-0.000
		(-1.369)		(-0.037)
Btm		0.033		0.002
		(0.678)		(0.999)
Coverage		-0.028		-0.001
		(-0.994)		(-1.211)
Industry Fixed Effects	Yes	Yes	Yes	Yes
Year Quarter Fixed Effects	Yes	Yes	Yes	Yes
Observations	932	932	932	932
R^2	0.075	0.087	0.066	0.084

Appendix A: Variable Definitions

In this Appendix A, we describe our empirical measures and provide their sources.

Variable	Definition	Source
Variable of Interest		
Viol	An indicator variable equal to 1 if a firm violates the debt covenant in quarter t, zero otherwise.	Amir Sufi's website
Dependent Variables		
Optim	An indicator variable equal to 1 if the difference between management forecast on quarter t's earnings and its realized earnings is greater than zero, zero otherwise.	First Call
MFE	Management forecast bias, measured as the difference between management forecast on quarter t's earnings and realized earnings, scaled by price.	First Call
Control Variables		
Zscore	Financial distress, measured by Altman's Z-score at the beginning of quarter t (Altman, 1968).	Compustat
HHI	Industry concentration, measured by the Herfindahl-Hirschman index and calculated as the sum of squares of firms' quarter t-1's market shares of sales within each 4-digit SIC industry.	Compustat
ExtFin	External financing of quarter t, measured as the sum of net equity financing and net debt financing, scaled by total assets.	Compustat
Litig	A firm's ex ante litigation risk of quarter t, the normalized fitted value of the the estimation results of model (3) in Kim and Skinner (2012).	Kim and Skinner (2012), Compustat, CRSP
EarnVolt	Earnings volatility, measured as the standard deviation of the quarterly return on assets over the last two years prior to quarter t.	Compustat
Insto	Institutional investor ownership, measured as the percentage of institutional ownership in a firm at the beginning of quarter t.	Compustat
Loss	Negative earnings, an indicator variable equal to one if income before extraordinary items of quarter t-1 is negative, and zero otherwise.	Compustat
ROA	Return on firm assets of quarter t-1, measured as income before extraordinary items divided by total assets.	Compustat
Return	Buy-and-hold size-adjusted return over quarter t-1.	CRSP
Bloated	Net asset bloat of quarter t, measured as book value of equity plus debt, minus cash, and scaled by sales.	Compustat
Size	Natural logarithm of the market value of equity at the beginning of quarter t	Compustat
Btm	Book-to-market ratio at the beginning of the quarter t, measured as the book value of equity divided by the market value of equity.	Compustat
Coverage	Analyst coverage, measured as natural logarithm of one plus the number of analysts following in quarter t.	First Call
Other Variables		
FS RetVolt	The standard deviation of the residuals of the market model using daily return data over quarter t.	CRSP
R&D	Change in R&D expenditures, measured as the difference in research and development expenses between quarter t and t-4, divided by total assets of quarter t-4.	Compustat
SigDiv	Significant increase in dividend payout, measured as an indicator variable equal to 1 if a firm increases its dividend in quarter t more than 50% compared to quarter t-4, and zero otherwise.	Compustat
Private Debt	Percentage of private debt, measured as the private debt at quarter t, divided by total debt.	DealScan
StdAF	Analyst forecast dispersion, measured as the standard deviation of individual analyst forecasts prior to management forecast	First Call
MedCov	Number of news articles related to a firm over the last four quarters.	Factiva
Turnover	CEO turnover, measured as an indicator variable equal to 1 if a firm replaces its CEO during quarter t+1 to t+4, and zero otherwise.	Peters and Wagner (2014)
Lagged ROAs	The averaged value of return on assets over the last four quarters.	Compustat
Width	Management forecast width, measured as the the difference between the upper- and lower-end estimates, scaled by price (point estimates have a range of zero).	First Call
AccuStreak	The number of consecutively accurate management forecasts over the last four quarters. An accurate forecast is the one whose management forecast has smaller error than analyst consensus forecast.	First Call

Appendix B: Management Forecast Issuance

This table presents the results of the propensity to issue a management forecast. *MF Issue* is an indicator variable equal to one if a firm issues an quarterly earnings forecast before the end of fiscal quarter end, and zero otherwise. *FreqMF* is the number of quarterly earnings forecasts issued by a firm before the end of fiscal quarte end. Other variables are defined in Appendix A. *t*-statistics are reported in parentheses, and standard errors are corrected for heteroskedasticity and clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)
	MF Issue	*MF Issue*	*MF Issue*	*FreqMF*
MF =	Quarterly MFs	Quarterly MFs and Q4 Annual MFs	Quarterly MFs and Annual MFs	
Viol	0.001	0.002	0.002	0.001
	(0.455)	(0.786)	(0.666)	(0.342)
Zscore	-0.000	-0.001	-0.000	-0.001**
	(-0.928)	(-1.216)	(-1.002)	(-2.358)
HHI	-0.012	-0.008	-0.011	0.013
	(-1.368)	(-0.846)	(-1.214)	(1.283)
ExtFin	0.004	-0.004	0.002	0.013
	(0.363)	(-0.304)	(0.149)	(1.018)
Leverage	-0.013*	-0.012*	-0.013*	0.007
	(-1.823)	(-1.720)	(-1.814)	(0.965)
Litig	-0.003	-0.005	-0.002	-0.010
	(-0.325)	(-0.552)	(-0.238)	(-1.154)
EarnVolt	-0.002	-0.004	-0.004	-0.004
	(-0.124)	(-0.231)	(-0.221)	(-0.189)
Insto	0.003	-0.001	0.001	0.002
	(0.374)	(-0.162)	(0.116)	(0.208)
Loss	-0.015***	-0.016***	-0.015***	-0.021***
	(-6.673)	(-7.050)	(-6.868)	(-9.077)
ROA	0.053***	0.046***	0.050***	0.086***
	(3.027)	(2.599)	(2.838)	(4.618)
Return	-0.006**	-0.006**	-0.006**	-0.006**
	(-2.336)	(-2.201)	(-2.233)	(-2.305)
Bloated	-0.000	-0.000*	-0.000*	-0.000***
	(-1.501)	(-1.871)	(-1.655)	(-3.678)
Size	0.001	0.003*	0.002	0.008***
	(0.639)	(1.660)	(1.081)	(4.275)
Btm	-0.006***	-0.005**	-0.006***	-0.002
	(-2.744)	(-2.384)	(-2.649)	(-1.159)
Coverage	0.042***	0.043***	0.043***	0.040***
	(18.832)	(19.060)	(18.856)	(19.224)
Industry Fixed Effects	Yes	Yes	Yes	Yes
Year Quarter Fixed Effects	Yes	Yes	Yes	Yes
Observations	87,038	87,038	87,038	87,038
R^2	0.074	0.072	0.073	0.100