Strategic Disclosure and Debt Covenant Violation*

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Thursday 26th September, 2019

Abstract

This study examines how managers change their forecasting behavior as a debt covenant violation approaches. Using a sample of firms that disclose a debt covenant violation (DCV) in their financial statements, we find that management forecasts are more optimistic in the period leading up to a DCV, and this result is not driven by managers' unintentional forecast bias. Additionally, we find that managers who are more optimistic in their forecasts also take on more risk and increase dividend payouts before violations, consistent with managers strategically using earnings forecasts to justify their activities favorable to shareholders but likely to be curtailed by lenders in the event of a DCV. In addition, we find that managers are more likely to optimistically bias their earnings forecasts when they have a higher risk of losing control rights in the event of 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 DCV. Overall, our results are consistent with managers changing their disclosure behavior in an attempt to justify actions that are favorable to equity investors but would likely be opposed by debtholders, which in turn improves their job security.

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

*We thank Qiang Cheng, Hans Christensen, Richard Hawkins, Rachel Hayes, Gilles Hilary, Charles Hsu, and Matt Smith for helpful comments and suggestions. We appreciate comments and suggestions from participants at the Japanese Accounting Review Conference in Kobe, Japan and the Hong Kong Junior Faculty Accounting Conference at HKUST as well as from workshop participants at Australian National University and Fudan University. We thank Amir Sufi for sharing data on debt covenant violation on his website.

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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 doing 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 intentionally bias the information disclosed prior to a DCV in order to justify taking actions favorable to equity investors that would be curtailed by debtholders after a violation.

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 to lenders (see e.g., Roberts and Sufi, 2009b, for a survey of this literature). The shift of control rights is significant, resulting in changes to 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 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,

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

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 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 gain the same control rights that they would in the event of a payment default. For example, prior studies find that lenders decrease dividend payments and capital expenditures after a DCV – actions that benefit debtholders 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 once control rights shift to lenders after a DCV. We expect that managers will take actions in advance that place shareholders' interests ahead of debtholders' because it is the shareholders who have bargaining power in selecting and retaining managers (Hall and Liebman, 1998). However, overly shareholder-friendly actions that are in opposition to debtholder interests are likely to result in a negative backlash when debtholders gain control rights following a DCV, both to shareholders and managers themselves (Jensen and Meckling, 1976; Becker and Stromberg, 2012). In a repeated game with debtholders, therefore, we expect that managers are likely to use optimistic forecasts prior to a DCV to justify the actions favorable to shareholders and to frame those actions as an unintentional bias rather than an opportunistic decision. In return, managers have a greater likelihood of retaining their jobs due to their actions favoring shareholders. In addition, debtholders granted control rights after a DCV may be less likely to replace a CEO if debtholders believe she merely made some unintentional bad decisions before a DCV rather than opportunistic ones.

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 in reality firms may violate both financial and non-financial (general) covenants, and not all financial covenants are directly related to earnings (ex., leverage ratio covenants), our implicit assumption is that management earnings forecasts do not necessarily need to directly inform debtholders about the likelihood of an upcoming DCV as long as the forecasts help managers justify favorable actions to shareholders resulting from an unintentional (optimistic) bias rather than an opportunistic decision. 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), and managers have been shown to have an unintentional information processing bias in producing earnings forecasts (e.g., Gong et al., 2011). 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; Kross et al., 2011; Hilary et al., 2014).

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 and are consistent with managers attempting to decrease the perceived likelihood of an upcoming covenant violation. 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 capital expenditures, take on more risky projects, or authorize large increases ($> 50\%$) in dividend payouts in the quarter before a DCV is announced, relative to the same quarter in the preceding year, are more likely to optimistically bias their forecasts. Taken together, these findings provide evidence that managers attempt to justify taking actions that benefit equity holders at the expense of debtholders.

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 control rights, 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 the market has a greater ability to detect a bias (Rogers and Stocken, 2005) or when managers have greater reputation concerns related to issuing biased forecasts (e.g., Kreps et al., 1982; Gao et al., 2014). We interpret these results as evidence that debtholders are more likely to see through such strategic behavior and, hence, the net benefits of issuing biased forecasts before a DCV are not high enough.

In addition, we also investigate whether the decision to issue optimistic forecasts before a DCV provides personal benefits to managers. We show that issuing optimistic 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 aligning their earnings forecasts with the actions they take to favor shareholders leading up to a DCV. It is also consistent with the conjecture that debtholders who have control rights after a DCV

are less likely to replace a CEO if they believe she merely made some unintentional bad decisions rather than took opportunistic actions.

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 optimistic managers instead of rational managers deliberately modifying their forecasts before a DCV. Additionally, if overconfident managers tend to overestimate their ability and judgment when managing firms (e.g., Ben-David et al., 2013), they may also be more likely to violate covenants. The positive correlation between covenant violations and managerial optimism arising from this omitted variable could potentially bias our estimated effect upwards. Thus, our results may be driven by overconfident 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 first rule out this concern, we investigate and 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) . More importantly, 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). Next, we test for and fail to find a difference in forecast bias prior to a DCV between firms with prior good versus bad performance. This again 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). Last, 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 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.

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 reduce the costs associated with the DCV ex post, at least with respect to managers' career outcomes. Our findings partially 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 works 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.

Lastly, we offer interesting insights into the agency considerations that exist as managers choose actions before a DCV that affect debt and equity holders differently. We provide evidence that managers use their voluntary earnings forecasts to justify taking 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 transfer of control rights to creditors after a DCV (Roberts and Sufi, 2009a; Nini et al., 2012), we find that managers *prepare* for a loss of control rights and take actions to benefit shareholders and managers themselves to the detriment of creditors in advance.

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, 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 turn control of the firm over to creditors

during bad economic states of the firm (Jensen and Meckling, 1976).[2] Debt covenants are financial tripwires that shift control rights to 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). 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 to 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 (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 corporate restructuring, slowdowns in mergers and acquisitions, reductions in dividend payouts, and CEO turnover. These studies provide evidence that firms that violate debt covenants incur costs related to the transfer of

[2] 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.

control to lenders *even before* formal payment default.

Note that it is also possible for lenders to step in and exert 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.

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 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 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), 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.[3]

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 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).

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 the disclosure of a DCV in order to reduce the costs of a violation. We argue that issuing optimistic

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

earnings forecasts serves this purpose. Facing a potential shift of control rights after a DCV, managers have greater concerns related to their job security (Nini et al., 2012). On the one hand, the increase in career concerns encourages managers to take actions that are favorable to shareholders but will likely be opposed by lenders after a DCV, because it is the shareholders who have the greatest bargaining power in selecting and retaining managers (Hall and Liebman, 1998). On the other hand, taking actions that are favorable to shareholders (but potentially costly to debtholders) without any justification may increase managers' reputation costs and the likelihood of being replaced if debtholders view managers as intentionally hurting the interests of debtholders through their opportunistic actions after debtholders obtain control rights of the firm. Taken together, 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. These optimistic forecasts will help to support the market expectation that managers indeed believe that firms should take on more risk or distribute wealth to shareholders because such forecasts could help make outsiders, debtholders, *ex post* believe that managers merely made some unintentional bad decisions before a DCV rather than opportunistic ones. Formally,

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 make capital expenditures, 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 the 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). This dataset covers DCVs in the universe of Compustat non-financial US firms from 1996 to 2009.[4] We merge this dataset with management forecast data obtained from First Call.[5] We use managerial quarterly earnings per share (EPS) estimates reported in the First Call database starting after Reg FD. This sample period allows us to identify management forecasts directly and to mitigate the potential private communications and missing data issues prior to Reg FD (Chuk et al., 2013). 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 quarterly forecasts to strategically manage market expectations (Fuller and Jensen, 2002; Hirst et al., 2008). Using quarterly earnings forecasts for each fiscal quarter, we keep all forecasts that are issued before the actual earnings release to calculate the propensity to issue forecasts and forecast frequency. However, 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 guidance (such as open-ended and qualitative guidance).[6] Last, we retrieve accounting information from

[4]This sample of DCVs is comprised of both earnings-based and non-earnings based (ex., leverage) covenant violations because firms are not required to disclose the exact covenant that was violated. Even if we cannot tell whether a certain DCV is related to an earnings or a non-earnings based covenant, it does not invalidate our empirical design because management earnings forecasts do not necessarily need to directly inform debtholders about the likelihood of an upcoming DCV (ex., leverage) in our setting. Our predictions related to strategic disclosure before a DCV hold as long as the forecasts help managers justify favorable actions to shareholders in order that such actions could be attributed to an unintentional bias rather than an opportunistic decision.

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

[6]Furthermore, in calculating forecast bias and width, we 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; Rogers and Van Buskirk, 2013).

Compustat's quarterly data files, and we obtain stock price and returns data from the daily CRSP files. This procedure provides a sample of 15,698 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 a series of management-forecast-related variables: *MFE*, and *Optim*. *MFE* is the magnitude of forecast optimism, measured as the difference between management forecast and realized earnings, scaled by price. *Optim* is forecast optimism, measured as an indicator variable equal to one if the management forecast 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. Related to our first question, we do not have clear predictions about changes in forecasting frequency (*FreqMF*) or in the likelihood of issuing a forecast (*Issue*). 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.[7] 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) (*Z-Score*), 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

[7] We also address this issue by following the approach of Nini et al. (2012), reported in the section "Correlated Omitted Variables".

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*), analyst coverage (*Coverage*), and growth opportunity (*Btm*) (e.g., McNichols, 1989; Rogers and Stocken, 2005; Gong et al., 2009).[8] We provide variable definitions in the Appendix A. Lastly, we augment our empirical model with industry and year fixed effects. Year fixed effects account for intertemporal changes in management forecast characteristics, and industry fixed effects account for cross-industry differences (Gong et al., 2011).

We winsorize the top and bottom one percentiles of continuous variables to mitigate the influence of potential outliers. We employ OLS estimation for models with a continuous dependent variable, while we use probit estimation for models with a binary dependent variable. The standard errors are calculated according to the procedure outlined in Cameron et al. (2011) and are group-wise heteroskedasticity-consistent (i.e., adjusted simultaneously for heteroskedasticity and the clustering of observations by firm and quarter). Our inferences are not affected by instead calculating the standard errors using one-way clustering (by firm) or two-way clustering (by firm and year).

3.3 Descriptive Statistics

Table 1 reports the descriptive statistics for the sample of 15,698 firm-quarter observations with management forecast data. *Viol* has a mean of 0.031 which indicates that approximately 3% of firm quarters in our sample contain a DCV, compared to the 7% violation rate reported

[8]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), fourth-quarter effects, 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). For the sake of brevity, we do not include these additional or alternative controls in our baseline models.

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 management forecasts are less likely to violate a covenant than the average firm 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 -0.0004, 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 0.372 which indicates that roughly 37% of forecasts are higher than the actual earnings reported.

Switching to our control variables, we see that the means of *Z-Score*, *HHI*, *ExtFin*, and *Litig* are 1.741, 0.234, -0.003, and 0.432, respectively. The mean of earnings volatility (*Earn-Volt*) is 0.020, and the mean institutional ownership (*Insto*) is approximately 69%. The average ROA and Return over the last quarter are 0.011 and -0.001, respectively. Nini et al. (2012) also document a negative stock return in the quarter before a DCV is disclosed. The average firm size (*Size*) and book-to-market (*Btm*) of observations in our sample are 6.982 (natural log of firm assets) and 0.479, respectively. On average, the firms in our sample are covered by 5.67 analysts (*Coverage*) and have an average net asset bloat (*Bloated*) of 2.626.

Table 2 reports the Pearson correlation matrix of the variables in our sample presented in Table 1. *Viol* is positively correlated with management forecast biases and forecast 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 over the previous quarter, firm size, and analyst coverage.

4 Empirical Results

4.1 Main Results

Before turning to our multivariate analyses, we present some graphical evidence. One 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 presents the average forecast bias around the DCV. The forecast bias clearly peaks around the DCV itself, indicating that managers significantly alter their disclosure right before the DCV. In the second part of Figure 1, we plot the likelihood of issuing an optimistic forecast around the DCV. Again, we observe a clear increase as compared to the previous periods and a drop after the DCV. Indeed, the likelihood of issuing an optimistic forecast increases significantly from 50% two years before the DCV to 60% in the violation quarter. Table 3 reports results from estimating equation (1) with *MFE* and *Optim* 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 0.006 and 0.400 for *MFE* and *Optim*, 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 (1) is approximately 160% of the magnitude of the effect of *Btm*.[9] The marginal effect of *Viol* in Column (2) is 14.35%, which is larger than the effect of *Btm* (untabulated 5.88%).

Many of the included control variables are statistically significant as well. Management forecast biases are positively associated with industry concentration (*HHI*), whether or not a firm is located in a high-litigation industry (*Litig*), recent losses (*Loss*), profitability (*ROA*),

[9]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 Panel B of 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 other OLS estimations.

net asset bloat (*Bloated*), and book-to-market (*Btm*). Forecast biases are negatively associated with earnings volatility (*EarnVolt*) and stock returns over the previous quarter (*Return*). Forecast optimism is increasing in recent net external financing (*ExtFin*), losses (*Loss*), and book-to-market (*Btm*) and decreasing in earnings volatility (*EarnVolt*), recent stock returns (*Return*), and firm size (*Size*). Taken together, the results presented in Table 4 support H1.

4.2 Cross-Sectional Variation of Main Results

To reinforce our finding that managers 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 (capital expenditure and return volatility), benefits to shareholders (dividend payout), risk of losing control rights (financial distress and proportion of private debts), opportunities to bias forecasts (analyst forecast dispersion), and reputation concerns (media coverage). Next, we re-estimate equation (1) with *MFE* and *Optim* as the dependent variables and compare the effect of a DCV on *Viol* in the low group to the one in the high group. We discuss each of these tests in the following sections.

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 financially deteriorating even more. 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 capital expenditure and the volatility of a firm's stock. If managers use optimistic forecasts to help justify making investments or taking on riskier projects, we will observe that the effect of DCV on forecast bias increases in capital expenditure or in firms' return volatility in the periods just before a DCV.

Table 4 presents the capital expenditure (CAPEX) results. Columns (1) and (3) present the *MFE* and *Optim* results for the the lowest quintile, and Columns (2) and (4) present the results for the highest quintile. The *MFE* effect that we observe in the full sample is still present in both the low and high CAPEX partitions, with both specifications yielding statistically significant results. The coefficients on *Viol* are 0.004 and 0.010 for low and high CAPEX, respectively. As predicted, however, the coefficient on *Viol* is larger in the sample of firms with high CAPEX, than in the sample of those with low CAPEX ($\chi^2 = 8.00$). The *Optim* effect follows the same pattern for firms with low and high CAPEX. The coefficient on *Viol* is 0.200 and 0.936 for firms with low and high CAPEX, respectively, and the coefficient is statistically larger in the low leverage partition ($\chi^2 = 13.03$). Firms with higher CAPEX are taking on more risk through their increased investments, a choice that 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 CAPEX before a DCV are more likely manipulate their voluntary forecasts in order to conceal upcoming DCVs and delay lenders' ability to gain control rights. Alternatively, managers that increase CAPEX before a DCV, acting in the interest of shareholders, may prefer to issue optimistic forecasts 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 CAPEX and forecast issuance than on managers who increase CAPEX but issue accurate (and low) forecasts. Table 5 presents similar results when we use an alternative measure of risk taking, stock return volatility (*RetVolt*).

Benefits to Shareholders

Managers who are strategically modifying their earnings forecasts in order to lower the perceived likelihood of an upcoming DCV 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 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 forecast bias and be more optimistic in their management forecasts before a DCV in order to justify increasing dividends.

Table 6 presents the dividend payout results. 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.[10] Columns (1) and (3) present the *MFE* and *Optim* results for the firms with a significant increase in dividend payout (*SigDiv*=1), while Columns (2) and (4) present the results for other firms (*SigDiv*=0). The *MFE* and *Optim* 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. The coefficient on *Viol* in the forecast bias (*MFE*) specifications is larger in the sample of firms with high dividend payout than in the sample of other firms, consistent with our predictions (χ^2 = 2.70).We find similar results for forecast optimism (*Optim*). Together, these results are

[10]We posit that the managers who increase dividends by a significant amount are more likely to bias forecasts. As a robustness check, we find that our results (untabulated) are not affected if we use 40%, 60%, or 100% as the threshold to define significant increases in dividend payout.

consistent with managers being more willing to manipulate their forecasts when they have an incentive to justify paying higher dividends.

Risk of Losing Control Rights

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 the effectiveness of creditors' 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 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 7 presents these results. Empirically, we partition our sample firms into the High (Low) Distress sub-samples if they have the lowest (highest) quintile of Z Score (*Z-Score*). Columns (1) and (3) present the *MFE* and *Optim* results for the the High Distress sub-samples, and Columns (2) and (4) present the results for the Low Distress sub-samples. As predicted, the coefficient on *Viol* is larger in the sample of firms with high distress risk than in the sample of firms with low distress risk (χ^2 = 33.34 and 4.22, respectively). We also find similar results if we use the proportion of private debt to total debt as a proxy for the risk of losing firm control (from Columns (5) to (8)).

Opportunities to Bias Forecasts

Rogers and Stocken (2005) show that managers' incentive to bias earnings forecasts de-

creases 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 perceived likelihood of an upcoming DCV when it is more difficult for the market to detect the bias. Table 8 presents 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 forecast bias, consistent with our prediction. Specifically, the coefficient on *Viol* is significantly positive in the sub-samples with higher analyst dispersion (Columns (1) and (3)), but it is insignificant in the sub-samples with lower analyst dispersion (Columns (2) and (4)). The differences between the estimates across the high and low forecast difficulty sub-samples are all significant, as predicted (χ^2 = 6.13 or 4.03, respectively). Our results hold if we use alternative proxies of forecast difficulty, specifically: earnings volatility, number of segments, or analyst following (Rogers and Stocken, 2005; Yeung, 2009). For brevity, we do not tabulate these additional results.

Reputation Concerns

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). Therefore, reputation concerns increase the cost of optimistically biasing forecasts in order to delay an upcoming DCV.

Empirically, we follow Dai et al. (2015) and measure reputation concerns using the media coverage of a firm. Table 9 presents the results. Columns (1) and (3) present the *MFE* and

Optim results for the the highest quintile, and Columns (2) and (4) present the results for the lowest quintile. The coefficients on *Viol* are 0.00752 and 0.75179 for low media coverage for the *MFE* and *Optim* specifications, respectively. As predicted, the coefficient on *Viol* is larger in the sample of firms with low media coverage than in the sample of those with high media coverage ($\chi^2 = 3.02$ and 4.80, respectively). We find qualitatively similar results (untabulated) using corporate social responsibility performance as the proxy for reputation concern (Gao et al., 2014; Dai et al., 2015).

Overall, we interpret these six cross-sectional tests as providing evidence that managers are more willing to strategically alter their earnings forecasts in order to lower the perceived likelihood of an upcoming 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 take actions (increase investment, 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 it is less likely for the voluntary disclosure bias to be detected as intentional. We further investigate the career consequences to CEOs who issue optimistic forecasts before a DCV by investigating one important career outcome for managers taking these actions, CEO turnover. Specifically, we examine CEO turnover for firms that violate a debt covenant interacted with forecast error and forecast optimism of earnings guidance before the DCV and report the results in Table 10.

The coefficient on the main effect *Viol* is unsurprisingly positive and significant, indicating that CEOs are more likely to be fired after a DCV, consistent with prior work (see e.g., (Nini et al., 2012)). Interestingly, the coefficients on the interaction between *Optim* and *MFE* and *Viol* are significantly negative, indicating that CEOs that issued inaccurate and

optimistic forecasts before the covenant violation were less likely to be fired in the period after violation. These results provide evidence that managers' delaying the perceived likelihood of a DCV through their voluntary disclosure choices leads to personal benefits in addition to the benefits they were able to generate for shareholders. One explanation is that they were able to "buy time" in which to formulate a convincing post-violation strategy that they could present to lenders during the loan contract renegotiation. Another potential explanation is that, on average, the increases in investment and increases 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. Importantly, the strategy to use voluntary disclosure to decrease the perceived likelihood of an upcoming DCV does not seem personally costly to CEOs in terms of job security, in fact, we provide evidence that this strategy benefits CEOs.

5 Robustness Tests

Alternative Explanations

The results from the previous section demonstrate that, on average, managers issue earnings guidance that exhibits larger forecast bias and is more likely to be optimistic 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 to deliberately favor equity holders at the expense of creditors. Indeed, a recent stream of research has highlighted the role of managers' behavioral traits, such as overconfidence, in explaining corporate choices (e.g., Ben-David et al., 2013), which could potentially lead to both optimistic forecasts and covenant violation. In this section, we perform two 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.

The first concern is the possibility that firms that violate covenants are run by managers who are different from (i.e., more overconfident) than managers of firms that do not violate covenants during our sample period. If this is true and managerial overconfidence can explain the positive relation between DCVs and forecast optimism, we would expect a negative association between covenant violations and forecast width. Indeed, greater forecast precision has been identified as one of the necessary conditions of managerial overconfidence (Hilary and Hsu, 2011). We directly test this alternative explanation and report our results in Column (1) of Table 11. Specifically, we find a positive and statistically significant coefficient on our *Viol* variable. We measure *Width* as the difference between the upper- and lower-end estimates, scaled by price (point estimates then have a range of zero). This indicates that forecast width is larger for guidance issued by managers in firms that are about to experience a DCV. This finding is not consistent with managerial overconfidence. It is, however, consistent with managers providing vague forecasts in order to reduce the perceived likelihood of an upcoming DCV. In addition, we follow Hilary and Hsu (2011) and construct a partition variable, *Streak*, the number of consecutive accurate earnings forecasts for a given firm in the last four quarters before the current forecast is made. If our results are driven by managerial overconfidence, we would 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., $Streak > 0$). The results in Columns (2)-(5), however, do not support this conjecture. Last, including firm or manager fixed effects in our model does not affect our inferences (untabulated). These results further 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, a recent study by Hilary et al. (2016) finds that success in the recent past leads to more optimistic forecasts in the future. These recent findings suggest that if our results

are driven by dynamic managerial optimism, we should 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 Table 11. Specifically, we re-estimate Equation (1) partitioning our sample using firms' past performance. We define a firm as having had relatively bad performance if its average return on assets over the last four quarters is lower than that of the industry median. Columns (6)-(9) provide evidence that past performance does not affect the association between covenant violation and forecast optimism that we document in Table 4. That is, both firms with good past operating performance and those with bad past operating performance display, on average, an increase in forecast bias and optimism before the occurrence of a covenant violation. In untabulated analyses, these robustness tests are not affected if we use consistency or frequency of meeting or beating earnings benchmarks to categorize past performance, in line with the design in Hilary et al. (2016), although the reduced sample size does weaken our testing power.

Correlated Omitted Variables

Next, to mitigate the effect arising from other omitted variables (e.g., deteriorated actual firm performance, confounding effects from other firm characteristics), 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. Appendix B reports the estimation results and shows that our inferences do not change. [11]

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 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 4.[12] The results presented in Appendix C show that the coefficient on *Viol* is still positive and significant in both *MFE* and *Optim* specifications, although again the

[11] 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.

[12] Untabulated results indicate that the differences in mean values of the variables used for the matching procedure are statistically significant prior to the PSM procedure (12 out of 13 cases), but all of them become insignificant after the matching, which indicates that the matches are effective in narrowing the differences between the firm characteristics of DCV firms and those of non-DCV firms.

reduced sample size weakens our testing power (num. of obs.= 479 firm-quarter pairs).[13] [14]

6 Conclusion

This paper studies the relation between strategic voluntary disclosure and debt covenant violation. Specifically, we find robust evidence that managers issue more optimistic earnings guidance prior to a covenant violation. We interpret our findings as evidence suggesting that managers attempt to justify taking actions that favor shareholders but which debtholders are likely to stop in the event of a covenant violation. Consistent with this, we document that the managers who take actions that favor shareholders at the expense of debtholders are those most likely to increase the optimistic bias in their forecasts. Specifically, our results are stronger when firms invest in more capital expenditure, take on riskier projects, or significantly increase dividend payouts. Consistent with the intuition that managers are more likely to act in favor of equity holders when they have 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.

[13] To examine the relevance of upcoming DCVs on current management disclosure choices, we employ the full sample of firms that provide management earnings forecasts over our sample period. In order to isolate the effects attributable to DCVs for covenant violators, we restrict our sample to firms with at least one DCV over our sample period as a robustness check. Untabulated findings reveal inferences identical to those revealed by Table 3.

[14] We also acknowledge that managers may have discretion over the forecast issuance decision. Hence, the observed association between DCV and forecast bias may not represent the true relationship in a complete series of management forecasts (including both issued and unissued management forecasts) due to the non-random sample selection. Our main results of forecast bias, however, are less likely to be driven by such selection issues for two reasons. First, we do not find a significant change in forecast issuance as a DCV approaches (untabulated), which mitigates the concern that the observed change in forecast bias is potentially related to changes in forecast issuance. Second, we follow Lennox and Park (2006) and Gong et al. (2011) to implement a Heckman two-stage procedure. Following these two studies, we use two instruments, the earnings response coefficient (ERC) and the quarterly industry-median values of ERC. Both variables plausibly explain the management forecast issuance decision (first stage) but have no obvious direct effect on forecast bias (second stage). Consistent with this view, the correlation between the instruments and an indicator variable for the forecast issuance is positive and significant (p-values$<$0.01). In contrast, the correlation between the instruments and the error terms of the second stage are low (the p-values range from 0.35 to 0.91). More importantly, the untabulated second-stage regressions continue to demonstrate a positive and significant relation between forecast bias and covenant violation.

Our results are consistent with the notion that the choice to bias forecasts is constrained by how effectively managers could frame theirs actions as unintentional bad decisions rather than opportunistic ones. In other words, the effectiveness of using forecasts to frame their actions is perceived to be higher for firms that face more information asymmetry and for managers that have lower reputation concerns. Lastly, we find that managers who are more optimistic in their forecasts are less likely to be replaced after a DCV. Overall, our findings suggest that it is less costly for managers to take shareholder-friendly actions before a DCV if their forecasts also signal optimism about a firm's prospects, rather than conveying that managers took opportunistic actions to benefit shareholders before the shifting of control rights to lenders following a covenant violation.

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 at the 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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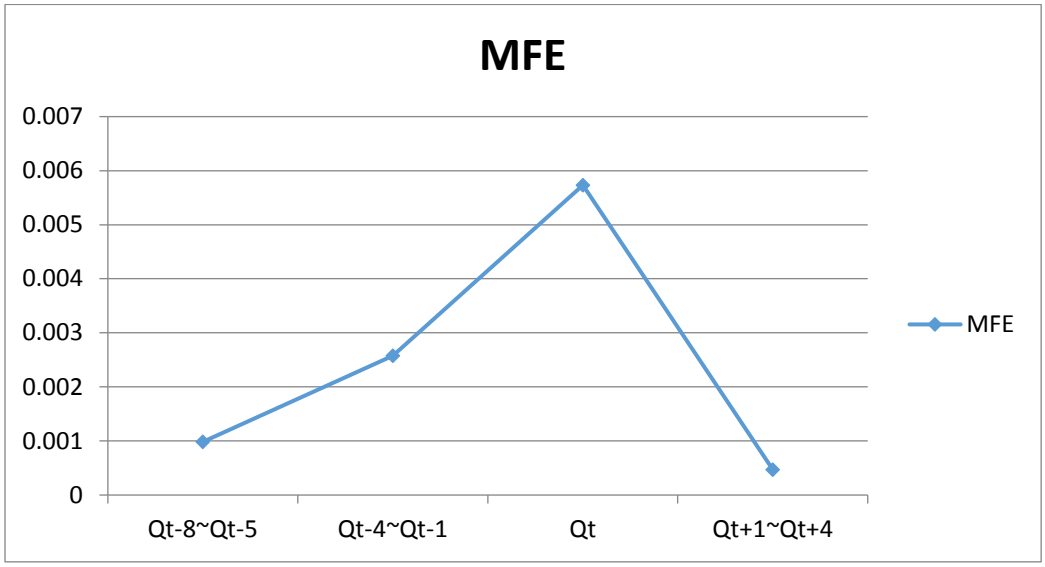
Figure 1: Management Forecast Characteristics around Debt Covenant Violation



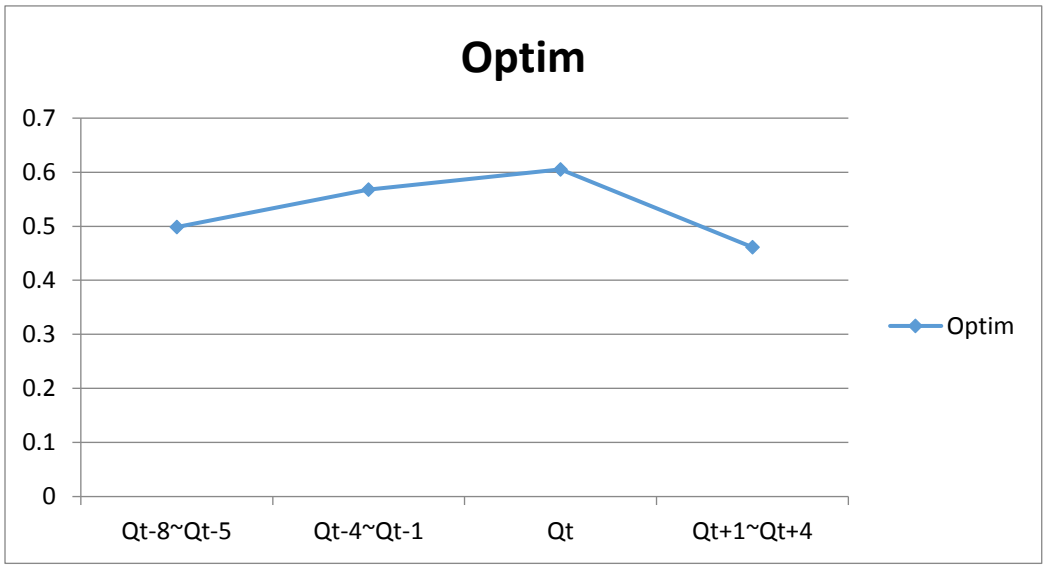


Table 1: Descriptive Statistics

This table reports summary statistics. All variables are defined in Appendix A.

Variable	N	Mean	Std. Dev.	25th Perc.	Median	75th Perc.
MFE	15,698	-0.0004	0.0078	-0.0020	-0.0006	0.0000
Optim	15,698	0.3722	0.4834	0.0000	0.0000	1.0000
Viol	15,698	0.0305	0.1720	0.0000	0.0000	0.0000
Z-Score	15,698	1.7405	1.5994	1.1027	1.7377	2.4955
HHI	15,698	0.2342	0.1628	0.1113	0.1947	0.3042
ExtFin	15,698	-0.0029	0.0433	-0.0166	-0.0014	0.0052
Litig	15,698	0.4320	0.4954	0.0000	0.0000	1.0000
EarnVolt	15,698	0.0200	0.0283	0.0054	0.0101	0.0215
Insto	15,698	0.6892	0.2252	0.5536	0.7318	0.8602
Loss	15,698	0.1757	0.3806	0.0000	0.0000	0.0000
ROA	15,698	0.0114	0.0303	0.0041	0.0140	0.0248
Return	15,698	-0.0007	0.2171	-0.1232	-0.0088	0.1083
Bloated	15,698	2.6259	2.4029	1.1676	2.0317	3.2318
Size	15,698	6.9819	1.6192	5.8796	6.8758	7.9843
Btm	15,698	0.4788	0.3389	0.2541	0.3962	0.6070
Coverage	15,698	1.8981	0.7534	1.3863	1.9459	2.3979

Table 2: Correlation Matrix

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

Variable (N= 15,698)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) MFE																
(2) Optim	0.504***	1														
(3) Viol	0.173***	0.118***	1													
(4) Zscore	-0.012	-0.050***	-0.083***	1												
(5) HHI	-0.007	0.005	0.002	0.019	1											
(6) ExtFin	0.014	0.025*	0.009	-0.035**	-0.024*	1										
(7) Litig	-0.025*	-0.006	-0.019	0.032**	-0.183***	0.042***	1									
(8) EarnVolt	-0.003	-0.003	0.063***	-0.306***	-0.096***	0.066***	0.149***	1								
(9) Insto	-0.033**	-0.051***	-0.095***	0.229***	0.034**	-0.037**	-0.016	-0.203***	1							
(10) Loss	0.067***	0.075***	0.161***	-0.355***	-0.062***	0.048***	0.095***	0.329***	-0.189***	1						
(11) ROA	-0.054***	-0.073***	-0.165***	0.487***	0.027*	-0.068***	-0.034**	-0.321***	0.212***	-0.683***	1					
(12) Return	-0.176***	-0.197***	-0.099***	-0.02	-0.009	0.021	-0.017	-0.035**	-0.036**	-0.078***	0.081***	1				
(13) Bloated	0.048***	0.034**	0.056***	-0.194***	-0.091***	0.019	-0.109***	0.014	-0.049***	0.147***	-0.202***	-0.047***	1			
(14) Size	-0.072***	-0.100***	-0.130***	0.318***	-0.026*	-0.072***	0.021	-0.188***	0.514***	-0.224***	0.230***	-0.051***	0.110***	1		
(15) Btm	0.140***	0.126***	0.127***	-0.230***	0.057***	-0.046***	-0.151***	-0.067***	-0.212***	0.196***	-0.255***	0.108***	0.196***	-0.443***	1	
(16) Coverage	-0.034**	-0.044***	-0.067***	0.188***	-0.136***	-0.014	0.168***	-0.035**	0.476***	-0.067***	0.086***	-0.055***	0.100***	0.662***	-0.288***	1

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. Column (1) reports the estimation results of the OLS regression, and column (2) reports the results of the probit regression. All dependent and independent variables are defined in Appendix A. p-values are reported in parentheses, and standard errors are corrected for heteroskedasticity and clustered by firm and quarter. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1) MFE	(2) Optim
Viol	0.00563***	0.40047***
	(0.000)	(0.000)
Z-Score	0.00012	-0.01120
	(0.184)	(0.333)
HHI	0.00107*	0.13258
	(0.079)	(0.201)
ExtFin	0.00172	0.55414**
	(0.362)	(0.027)
Litig	0.00062**	0.09266*
	(0.018)	(0.063)
EarnVolt	-0.01273***	-2.64205***
	(0.001)	(0.000)
Insto	0.00098**	-0.03404
	(0.037)	(0.634)
Loss	0.00072**	0.07827*
	(0.025)	(0.065)
ROA	0.01507***	0.91051
	(0.001)	(0.120)
Return	-0.00495***	-1.02189***
	(0.000)	(0.000)
Bloated	0.00006*	-0.00019
	(0.095)	(0.973)
Size	-0.00001	-0.05235***
	(0.945)	(0.002)
Btm	0.00176***	0.16421***
	(0.005)	(0.003)
Coverage	-0.00005	0.02443
	(0.698)	(0.347)
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Observations	15,698	15,698
R^2	0.058	0.049

Table 4: Cross-Sectional Variation in Capital Expenditure

This table presents the results from regressions relating management forecast optimism to the violation of debt covenants. Column (1) reports the estimation results of the OLS regression, and column (2) reports the results of the probit regression. All dependent and independent variables are defined in Appendix A. p-values are reported in parentheses, and standard errors are corrected for heteroskedasticity and clustered by firm and quarter. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1) Low MFE	(2) High MFE	(3) Low Optim	(4) High Optim
Viol	0.00390***	0.01046***	0.20030**	0.93562***
	(0.000)	(0.000)	(0.027)	(0.000)
Z-Score	0.00015	0.00013	-0.03405	0.01923
	(0.448)	(0.191)	(0.162)	(0.287)
HHI	0.00185	0.00020	0.14218	-0.19144
	(0.154)	(0.896)	(0.416)	(0.406)
ExtFin	-0.00122	0.00383	0.18746	1.04639*
	(0.759)	(0.247)	(0.718)	(0.056)
Litig	0.00180***	-0.00039	0.17950**	-0.02122
	(0.005)	(0.437)	(0.037)	(0.830)
EarnVolt	-0.02398*	-0.01236*	-1.85068	-2.12763***
	(0.064)	(0.070)	(0.163)	(0.004)
Insto	0.00075	0.00109	-0.18427	0.08935
	(0.363)	(0.281)	(0.116)	(0.614)
Loss	0.00107*	0.00098	0.12943**	0.25515**
	(0.066)	(0.134)	(0.043)	(0.011)
ROA	0.01088	0.01737***	2.95691***	0.33633
	(0.292)	(0.007)	(0.010)	(0.805)
Return	-0.00591***	-0.00512***	-0.81063***	-1.02782***
	(0.000)	(0.000)	(0.000)	(0.000)
Bloated	0.00011	0.00018	0.00940	-0.00606
	(0.289)	(0.114)	(0.344)	(0.647)
Size	-0.00032*	0.00006	-0.07787***	-0.04506
	(0.065)	(0.790)	(0.008)	(0.177)
Btm	-0.00013	0.00257**	0.07027	0.24833**
	(0.880)	(0.048)	(0.371)	(0.015)
Coverage	-0.00006	-0.00007	0.04667	0.01669
	(0.823)	(0.812)	(0.278)	(0.761)
χ^2-test for difference	8.00		13.03	
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Observations	3,471	2,850	3,471	2,850
R^2	0.053	0.095	0.068	0.043

Table 5: Cross-Sectional Variation in Return Volatility

This table presents the results from regressions relating management forecast optimism to the violation of debt covenants. Column (1) reports the estimation results of the OLS regression, and column (2) reports the results of the probit regression. All dependent and independent variables are defined in Appendix A. p-values are reported in parentheses, and standard errors are corrected for heteroskedasticity and clustered by firm and quarter. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1) Low MFE	(2) High MFE	(3) Low Optim	(4) High Optim
Viol	0.00218***	0.00830***	0.15952	0.56084***
	(0.004)	(0.000)	(0.281)	(0.000)
Z-Score	0.00031*	0.00001	0.02735	0.01025
	(0.055)	(0.937)	(0.500)	(0.562)
HHI	0.00031	0.00126	-0.00075	0.12307
	(0.686)	(0.465)	(0.997)	(0.471)
ExtFin	0.00181	0.00724*	0.94491*	1.34818***
	(0.559)	(0.077)	(0.083)	(0.004)
Litig	0.00068	0.00069	0.09189	0.10878
	(0.160)	(0.415)	(0.312)	(0.250)
EarnVolt	0.01221	-0.02076***	-2.63369	-1.83999**
	(0.290)	(0.005)	(0.301)	(0.024)
Insto	-0.00007	0.00165	-0.36934**	0.07656
	(0.915)	(0.139)	(0.015)	(0.548)
Loss	-0.00025	0.00156**	-0.09528	0.16066*
	(0.725)	(0.029)	(0.436)	(0.063)
ROA	-0.00791	0.02825***	-1.16463	0.60375
	(0.373)	(0.005)	(0.528)	(0.604)
Return	-0.00193*	-0.00599***	-1.18106***	-0.94674***
	(0.050)	(0.000)	(0.000)	(0.000)
Bloated	0.00001	0.00002	0.01989	-0.01349
	(0.904)	(0.784)	(0.241)	(0.126)
Size	-0.00000	0.00001	-0.02009	-0.10515**
	(0.985)	(0.965)	(0.474)	(0.014)
Btm	0.00137	0.00240**	-0.13431	0.13736*
	(0.377)	(0.023)	(0.412)	(0.076)
Coverage	-0.00038	-0.00025	-0.05636	-0.00257
	(0.105)	(0.514)	(0.297)	(0.957)
χ^2-test for difference	8.49		3.14	
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Observations	3,458	2,850	3,458	2,850
R^2	0.031	0.089	0.061	0.066

Table 6: Cross-Sectional Variation in Dividend Payouts

This table presents the results from regressions relating various management forecast optimism to the violation of debt covenants. Column (1) reports the estimation results of the OLS regression, and column (2) reports the results of the probit regression. All dependent and independent variables are defined in Appendix A. p-values are reported in parentheses, and standard errors are corrected for heteroskedasticity and clustered by firm and quarter. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1) $SigDiv = 1$ MFE	(2) $SigDiv = 0$ MFE	(3) $SigDiv = 1$ Optim	(4) $SigDiv = 0$ Optim
Viol	0.01222**	0.00541***	1.19266**	0.38191***
	(0.023)	(0.000)	(0.017)	(0.000)
Z-Score	0.00002	0.00012	-0.02412	-0.01101
	(0.952)	(0.187)	(0.710)	(0.342)
HHI	-0.00053	0.00106*	-0.07903	0.13707
	(0.669)	(0.094)	(0.843)	(0.189)
ExtFin	0.00030	0.00192	0.51508	0.57805**
	(0.952)	(0.292)	(0.694)	(0.019)
Litig	-0.00041	0.00066**	0.39370**	0.08072
	(0.647)	(0.010)	(0.019)	(0.109)
EarnVolt	0.04427	-0.01336***	-2.04797	-2.63378***
	(0.231)	(0.000)	(0.559)	(0.000)
Insto	-0.00050	0.00113**	-0.11250	-0.02221
	(0.764)	(0.021)	(0.663)	(0.758)
Loss	0.00067	0.00078**	0.08646	0.08425*
	(0.657)	(0.015)	(0.715)	(0.054)
ROA	-0.03744	0.01758***	-3.91524	1.11449*
	(0.207)	(0.000)	(0.279)	(0.065)
Return	-0.00341*	-0.00505***	-0.80966**	-1.03177***
	(0.077)	(0.000)	(0.048)	(0.000)
Bloated	-0.00012	0.00007*	-0.00330	0.00028
	(0.536)	(0.068)	(0.851)	(0.961)
Size	-0.00011	-0.00001	-0.07791	-0.05238***
	(0.697)	(0.910)	(0.167)	(0.002)
Btm	-0.00272	0.00186***	-0.08106	0.16551***
	(0.221)	(0.003)	(0.776)	(0.002)
Coverage	-0.00027	-0.00005	0.07714	0.02188
	(0.592)	(0.724)	(0.536)	(0.408)
χ^2-test for difference	2.70		2.74	
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Observations	782	14,916	782	14,916
R^2	0.141	0.059	0.061	0.050

Table 7: Cross-Sectional Variation in Risk of Losing Control Rights

This table presents the results from regressions relating management forecast optimism to the violation of debt covenants. Column (1) reports the estimation results of the OLS regression, and column (2) reports the results of the probit regression. All dependent and independent variables are defined in Appendix A. p-values are reported in parentheses, and standard errors are corrected for heteroskedasticity and clustered by firm and quarter. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1) High Distress MFE	(2) Low Distress MFE	(3) High Distress Optim	(4) Low Distress Optim	(5) High Private MFE	(6) Low Private MFE	(7) High Private Optim	(8) Low Private Optim
Viol	0.00866***	0.00025	0.50055***	0.08420	0.00690***	0.00121	0.46358***	0.11747
	(0.000)	(0.633)	(0.000)	(0.747)	(0.000)	(0.183)	(0.000)	(0.307)
Z-Score	0.00014	0.00021	0.01175	0.00576	0.00042	0.00021	0.01396	0.02842
	(0.505)	(0.132)	(0.543)	(0.898)	(0.181)	(0.237)	(0.648)	(0.454)
HHI	0.00348**	-0.00081	0.13974	0.03104	0.00027	-0.00165*	0.08748	-0.34463
	(0.043)	(0.391)	(0.479)	(0.907)	(0.863)	(0.073)	(0.648)	(0.111)
ExtFin	0.00113	0.00414*	0.64873	1.53901***	0.00570**	0.00083	0.47649	0.60042
	(0.839)	(0.055)	(0.217)	(0.003)	(0.025)	(0.830)	(0.349)	(0.461)
Litig	0.00130	-0.00000	0.01593	0.11454	0.00033	-0.00016	-0.04139	-0.01045
	(0.165)	(0.992)	(0.869)	(0.392)	(0.675)	(0.776)	(0.717)	(0.931)
EarnVolt	-0.01800***	-0.00670	-1.15757*	-4.37289***	-0.01070	-0.01331	-0.92036	-5.16491***
	(0.009)	(0.369)	(0.070)	(0.003)	(0.474)	(0.394)	(0.596)	(0.010)
Insto	0.00323**	0.00123	0.18987	-0.20055	-0.00003	-0.00100	0.06747	-0.31780*
	(0.029)	(0.157)	(0.121)	(0.283)	(0.980)	(0.428)	(0.706)	(0.054)
Loss	0.00211***	-0.00154**	0.20057***	-0.16609	0.00156	0.00002	0.04982	0.12066
	(0.001)	(0.020)	(0.003)	(0.272)	(0.106)	(0.981)	(0.646)	(0.270)
ROA	0.03137***	-0.00499	2.22556***	-1.19258	0.02303*	0.00017	1.58539	1.34338
	(0.001)	(0.267)	(0.006)	(0.489)	(0.082)	(0.992)	(0.325)	(0.590)
Return	-0.00743***	-0.00122**	-0.88442***	-0.91158***	-0.00584***	-0.00591***	-1.09058***	-1.29567***
	(0.000)	(0.023)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bloated	0.00001	0.00006	-0.00660	0.00900	0.00000	-0.00006	0.01946	-0.04167**
	(0.900)	(0.462)	(0.429)	(0.784)	(0.973)	(0.528)	(0.234)	(0.025)
Size	-0.00059**	0.00025*	-0.11585***	-0.00890	0.00015	0.00017	-0.16059***	-0.03115
	(0.034)	(0.097)	(0.003)	(0.801)	(0.622)	(0.311)	(0.002)	(0.376)
Btm	0.00123	0.00055	0.06683	0.26865	0.00390***	0.00161	0.13185	0.30261***
	(0.292)	(0.797)	(0.404)	(0.345)	(0.006)	(0.112)	(0.311)	(0.007)
Coverage	0.00024	0.00001	0.04823	0.09616	-0.00011	-0.00035	0.02537	-0.02476
	(0.599)	(0.953)	(0.331)	(0.146)	(0.764)	(0.205)	(0.711)	(0.669)
χ^2-test for difference	33.34		4.22		6.08		3.97	
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,249	2,987	3,249	2,987	2,308	2,306	2,308	2,306
R^2	0.095	0.048	0.056	0.055	0.103	0.031	0.056	0.050

Table 8: Cross-Sectional Variation in Opportunities to Bias Forecasts

This table presents the results from regressions relating management forecast optimism to the violation of debt covenants. Column (1) reports the estimation results of the OLS regression, and column (2) reports the results of the probit regression. All dependent and independent variables are defined in Appendix A. p-values are reported in parentheses, and standard errors are corrected for heteroskedasticity and clustered by firm and quarter. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1) High StdAF MFE	(2) Low StdAF MFE	(3) High StdAF Optim	(4) Low StdAF Optim
Viol	0.00729***	0.00150	0.64290***	0.13985
	(0.000)	(0.285)	(0.000)	(0.436)
Z-Score	0.00012	0.00028**	-0.04455	0.01287
	(0.522)	(0.028)	(0.201)	(0.642)
HHI	0.00062	0.00155*	-0.04667	0.18097
	(0.724)	(0.096)	(0.866)	(0.264)
ExtFin	0.00671	0.00282	-0.15968	0.76678
	(0.166)	(0.386)	(0.779)	(0.213)
Litig	-0.00012	0.00088**	0.00346	0.26509**
	(0.835)	(0.025)	(0.964)	(0.018)
EarnVolt	-0.02274**	-0.00468	-2.95480***	-2.65531**
	(0.037)	(0.374)	(0.006)	(0.043)
Insto	0.00287**	0.00273***	0.31362**	-0.07391
	(0.019)	(0.000)	(0.049)	(0.643)
Loss	0.00167**	0.00054	0.06150	0.06798
	(0.031)	(0.419)	(0.530)	(0.605)
ROA	0.02189**	0.00662	0.74761	-1.08146
	(0.023)	(0.557)	(0.568)	(0.558)
Return	-0.00775***	-0.00278***	-1.36889***	-1.29638***
	(0.000)	(0.000)	(0.000)	(0.000)
Bloated	0.00008	0.00005	-0.02233*	-0.03490**
	(0.469)	(0.514)	(0.087)	(0.015)
Size	-0.00005	0.00004	-0.08189**	-0.00688
	(0.797)	(0.748)	(0.017)	(0.824)
Btm	0.00116	0.00261**	0.08899	0.33648**
	(0.196)	(0.019)	(0.338)	(0.027)
Coverage	0.00031	0.00019	0.04542	-0.02762
	(0.464)	(0.376)	(0.502)	(0.612)
χ^2-test for difference	6.13		4.03	
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Observations	2,353	2,325	2,353	2,325
R^2	0.084	0.065	0.073	0.075

Table 9: Cross-Sectional Variation in Reputation Concerns

This table presents the results from regressions relating management forecast optimism to the violation of debt covenants. Column (1) reports the estimation results of the OLS regression, and column (2) reports the results of the probit regression. All dependent and independent variables are defined in Appendix A. p-values are reported in parentheses, and standard errors are corrected for heteroskedasticity and clustered by firm and quarter. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1) High Media Coverage MFE	(2) Low Media Coverage MFE	(3) High Media Coverage Optim	(4) Low Media Coverage Optim
Viol	0.00308	0.00752***	0.17996	0.75179***
	(0.108)	(0.000)	(0.357)	(0.000)
Z-Score	-0.00006	0.00024	-0.00356	-0.03354
	(0.660)	(0.281)	(0.893)	(0.179)
HHI	0.00005	0.00079	0.20582	0.01956
	(0.964)	(0.564)	(0.382)	(0.920)
ExtFin	-0.00178	0.00682**	0.37658	1.49583**
	(0.478)	(0.012)	(0.576)	(0.043)
Litig	0.00014	0.00135***	0.18654	0.07971
	(0.727)	(0.003)	(0.129)	(0.446)
EarnVolt	0.00048	-0.01896*	-1.03772	-3.22411**
	(0.950)	(0.081)	(0.470)	(0.044)
Insto	0.00255**	0.00172**	0.12958	-0.01785
	(0.043)	(0.023)	(0.566)	(0.918)
Loss	-0.00012	0.00009	-0.07686	0.08552
	(0.862)	(0.913)	(0.485)	(0.513)
ROA	0.01262	0.00963	-0.06447	0.67643
	(0.287)	(0.342)	(0.967)	(0.659)
Return	-0.00344***	-0.00499***	-1.03934***	-1.41874***
	(0.000)	(0.000)	(0.000)	(0.000)
Bloated	-0.00001	-0.00004	0.00862	-0.02426
	(0.934)	(0.646)	(0.589)	(0.235)
Size	-0.00002	-0.00007	-0.05452	-0.09323**
	(0.912)	(0.690)	(0.139)	(0.015)
Btm	-0.00077	0.00043	0.14847	0.01827
	(0.358)	(0.717)	(0.267)	(0.876)
Coverage	0.00000	0.00016	-0.06336	0.05000
	(0.991)	(0.620)	(0.419)	(0.405)
χ^2-test for difference	3.02		4.80	
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Observations	2,248	2,172	2,248	2,172
R^2	0.084	0.065	0.073	0.075

Table 10: CEO Turnovers

This table presents the results from probit regressions of CEO turnovers. Column (1) reports the estimation results of MFE, and column (2) reports the results of the Optim. Variables are defined in Appendix A. p-values 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) Turnover	(2) Turnover
Viol	0.35450*	0.27505*
	(0.083)	(0.091)
Optim x Viol	-0.45044**	
	(0.046)	
MFE x Viol		-12.56766**
		(0.048)
Optim	0.25951***	
	(0.000)	
MFE		5.21120
		(0.167)
Zscore	-0.05391**	-0.05077*
	(0.031)	(0.059)
HHI	0.29995	0.24023
	(0.260)	(0.398)
ExtFin	-1.06365*	-0.76264
	(0.073)	(0.173)
Leverage	0.06282	0.04927
	(0.810)	(0.843)
Litig	0.11394	0.05946
	(0.328)	(0.598)
EarnVolt	-1.56771	-1.55933
	(0.237)	(0.210)
Insto	0.66610***	0.54094***
	(0.001)	(0.007)
Loss	0.05950	0.11224
	(0.533)	(0.250)
ROA	-0.55522	-0.89287
	(0.685)	(0.513)
Return	-0.63615***	-0.62405***
	(0.000)	(0.000)
Bloated	-0.00554	-0.01105
	(0.762)	(0.534)
Size	0.08878**	0.09291**
	(0.016)	(0.013)
Btm	0.40832***	0.46903***
	(0.003)	(0.000)
Coverage	0.14946**	0.17903**
	(0.036)	(0.023)
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Observations	15,467	15,467
R^2	0.069	0.065

Table 11: Alternative Explanations

This table presents the results of robustness analysis on alternative explanations. Column (1) reports the estimation results of the OLS regression, and column (2) reports the results of the probit regression. All dependent and independent variables are defined in Appendix A. p-values are reported in parentheses, and standard errors are corrected for heteroskedasticity and clustered by firm and quarter. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1) Width	(2) Streak> 0 MFE	(3) Streak= 0 MFE	(4) Streak> 0 Optim	(5) Streak= 0 Optim	(6) Bad MFE	(7) Others MFE	(8) Bad Optim	(9) Others Optim
Viol	0.00045**	0.00580***	0.00400*	0.36046***	0.72576***	0.38271***	0.43243***	0.00598***	0.00504***
	(0.026)	(0.000)	(0.057)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Z-Score	-0.00019***	0.00007	0.00035**	-0.01473	0.00597	-0.01851	-0.00714	0.00023	0.00011
	(0.000)	(0.361)	(0.041)	(0.222)	(0.804)	(0.425)	(0.569)	(0.295)	(0.266)
HHI	-0.00037*	0.00087	0.00180	0.04845	0.48161**	0.10369	0.12781	0.00199*	0.00048
	(0.060)	(0.131)	(0.262)	(0.647)	(0.030)	(0.538)	(0.306)	(0.086)	(0.435)
ExtFin	-0.00147***	0.00073	0.00637*	0.39634	1.41378***	0.90307	0.39046	0.00326	0.00059
	(0.006)	(0.728)	(0.068)	(0.140)	(0.006)	(0.111)	(0.164)	(0.512)	(0.748)
Litig	0.00010	0.00056**	0.00083	0.06455	0.20143*	0.09633	0.07860	0.00108**	0.00040
	(0.421)	(0.040)	(0.113)	(0.190)	(0.052)	(0.187)	(0.184)	(0.045)	(0.137)
EarnVolt	0.01039***	-0.01474***	-0.00248	-3.06952***	-0.44365	0.73044	-3.40543***	-0.01283	-0.00890**
	(0.000)	(0.000)	(0.759)	(0.000)	(0.728)	(0.481)	(0.000)	(0.283)	(0.014)
Insto	-0.00146***	0.00062	0.00323***	-0.03889	0.03435	0.19442*	-0.12855	0.00095	0.00095*
	(0.000)	(0.138)	(0.007)	(0.577)	(0.821)	(0.059)	(0.141)	(0.293)	(0.077)
Loss	0.00077***	0.00087**	-0.00038	0.08190*	0.03825	0.13634**	0.05858	0.00133**	0.00028
	(0.000)	(0.012)	(0.603)	(0.077)	(0.737)	(0.013)	(0.345)	(0.013)	(0.439)
ROA	-0.00427*	0.01647***	0.00431	0.83118	1.04498	4.38221***	-0.07360	0.02954***	0.00792*
	(0.073)	(0.000)	(0.737)	(0.215)	(0.531)	(0.000)	(0.920)	(0.003)	(0.084)
Return	0.00014	-0.00461***	-0.00633***	-0.96269***	-1.36731***	-1.02834***	-1.01665***	-0.00769***	-0.00376***
	(0.270)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bloated	-0.00018***	0.00006	0.00010	0.00163	-0.01217	-0.00383	-0.00011	0.00002	0.00009**
	(0.000)	(0.139)	(0.160)	(0.771)	(0.369)	(0.670)	(0.988)	(0.792)	(0.013)
Size	-0.00024***	-0.00005	0.00019	-0.05021***	-0.05289*	-0.10504***	-0.03513*	-0.00050***	0.00016
	(0.000)	(0.556)	(0.316)	(0.003)	(0.075)	(0.000)	(0.073)	(0.002)	(0.127)
Btm	0.00281***	0.00152**	0.00268*	0.12933**	0.38721***	0.20801**	0.23012***	0.00149	0.00192**
	(0.000)	(0.011)	(0.056)	(0.022)	(0.003)	(0.018)	(0.008)	(0.125)	(0.030)
Coverage	-0.00007	-0.00003	0.00015	0.03388	0.00299	0.05962	0.00842	0.00060*	-0.00030**
	(0.211)	(0.817)	(0.643)	(0.197)	(0.955)	(0.161)	(0.787)	(0.075)	(0.033)
χ^2-test for difference		0.14		3.14		0.43		0.15	
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15,698	12,497	3,201	12,496	3,201	4,278	11,420	4,278	11,420
R^2	0.378	0.057	0.064	0.047	0.054	0.052	0.053	0.077	0.052

Appendix A: Variable Definitions

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

Variable	Definition	Source
Variable of Interest		
Viol	Indicator variable equal to 1 if a firm violates the debt covenant in a quarter, zero otherwise	Amir Sufi's website
Dependent Variables		
FreqMF	Log of number of 1 plus management forecasts issued in a quarter	First Call
Issue	Indicator variable equal to 1 if a firm issues a forecast in a quarter, zero otherwise	First Call
AbFreqMF	Abnormal FreqMF, measured as the residual value from the estimation results of Model (1) with the dependent variable of *FreqMF* (excluding *Viol*)	First Call
Optim	Indicator variable equal to 1 if management forecast is greater than realized earnings, zero otherwise	First Call
MFE	Management forecast bias, measured as the difference between management forecast and realized earnings, scaled by price	First Call
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
Control Variables		
Z-Score	Financial distress, measured by Altman's Z-score at the beginning of current quarter Altman (1968)	Compustat
HHI	Industry concentration, measured by the Herfindahl-Hirschman index and calculated as the sum of squares of firms' last-quarter market shares of sales within each 4-digit SIC industry	Compustat
ExtFin	External financing of current quarter, measured as the sum of net equity financing and net debt financing, scaled by total assets	Compustat
Litig	Indicator variable set to one for litigious industries including Biotechnology (SIC 2833 to 2836) Computer Hardware (SIC 3570 to 3577), Electronics (SIC 3600 to 3674), Retailing (SIC 5200 to 5961), and Computer Software (SIC 7371 to 7379), and zero otherwise	Compustat
EarnVolt	Earnings volatility, measured as the standard deviation of the quarterly return on assets over the last two years	Compustat
Insto	Institutional investor ownership, measured as the percentage of institutional ownership in a firm at the beginning of current quarter	Compustat
Loss	Negative earnings, an indicator variable equal to one if income before extraordinary items of last quarter is negative, and zero otherwise	Compustat
ROA	Return on firm assets of last quarter, measured as income before extraordinary items divided by total assets	Compustat
Return	Buy-and-hold size-adjusted return over last quarter	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 current quarter	Compustat
Btm	Book-to-market ratio at the beginning of the current quarter, measured as the book value of equity divided by the market value of equity at the end of quarter t	Compustat
Coverage	Analyst coverage, measured as natural logarithm of one plus the number of analysts following in the current quarter	First Call
Other Variables		
CAPEX	Capital expenditure, measured as capital expenditure of current quarter, divided by PPE	Compustat
RetVolt	Stock return volatility, measured as the standard deviation of daily stock return in a quarter	CRSP
SigDiv	Significant increase in dividend payout, measured as an indicator variable equal to 1 if a firm increases its dividend more than 50% compared to the same quarter of last year, zero otherwise	Compustat
Private	Percentage of private debt, measured as the private debt at the beginning of the quarter, divided by total debt	DealScan
StdAF	Analyst forecast dispersion, measured as the standard deviation of individual analyst forecasts prior to management forecast	IBES
Media Coverage	Number of news articles related to a firm over the last four quarters	Factiva
Turnover	CEO turnover, an indicator variable equal to one if a CEO is replaced over quarter4 t+1 to t+4, and zero otherwise.	Execucomp

Appendix B: 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). Column (1) reports the estimation results of the OLS regression, and column (2) reports the results of the probit regression. Variables are defined in Appendix A. 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. p-values 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) MFE	(2) Optim
Viol	0.00501***	0.16751***
	(0.000)	(0.000)
Operating cash flow / average assets	-0.00420	-0.51833*
	(0.482)	(0.078)
Leverage ratio	-0.00297	0.15041
	(0.748)	(0.700)
Interest expense / average assets	-0.18386	-2.34439
	(0.602)	(0.893)
Net worth / assets	-0.00202	0.27293
	(0.827)	(0.273)
Current ratio	-0.00002	-0.03145
	(0.982)	(0.338)
Market-to-book ratio	-0.00076	-0.21290***
	(0.557)	(0.000)
PPE / average assets	-0.01124	0.43403
	(0.322)	(0.391)
Higher-order covenant controls	Yes	Yes
Lagged first-difference controls	Yes	Yes
Lagged covenant controls	Yes	Yes
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Observations	6,593	6,593
R^2	0.260	0.177

Appendix C: 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. Column (1) reports the estimation results of the OLS regression, and column (2) reports the results of the probit regression. Variables are defined in Appendix A. p-values 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) MFE	(2) Optim
Viol	0.00510***	0.42952***
	(0.000)	(0.000)
Zscore	0.00040	0.04888
	(0.307)	(0.157)
HHI	0.00403	0.08423
	(0.129)	(0.774)
ExtFin	-0.00984	0.63924
	(0.276)	(0.546)
Litig	0.00316**	0.32547**
	(0.032)	(0.012)
EarnVolt	-0.02299*	-1.00717
	(0.097)	(0.478)
Insto	-0.00125	-0.02993
	(0.562)	(0.878)
Loss	-0.00053	-0.08892
	(0.681)	(0.456)
ROA	-0.00435	-1.42313
	(0.768)	(0.326)
Return	-0.00933***	-0.93134***
	(0.000)	(0.000)
Bloated	0.00008	0.00728
	(0.693)	(0.670)
Size	-0.00038	-0.09835**
	(0.302)	(0.012)
Btm	0.00332*	0.18351*
	(0.062)	(0.080)
Coverage	-0.00051	-0.01567
	(0.455)	(0.807)
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Observations	958	958
R^2	0.103	0.0925