Voluntary Disclosure from Multiple Sources and Information Environment*

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Abstract

We study a disclosure equilibrium where multiple informed individuals have conflicting disclosure motivations, and examine its implications for the market's information environment. We predict that the presence of an informed individual with a motivation to disclose *unfavorable* news about the firm mitigates the market's skepticism in the absence of disclosure, which in turn crowds out disclosure by the other informed individual who has a motivation to disclose *favorable* news about the firm. As a result, the unfavorably-motivated individual's disclosure decisions have countervailing effects on the amount of information available to the market and on analyst forecast accuracy depending on the favorableness of the underlying news. We formalize this relation using a parsimonious model of disclosure and analyst forecast. We find evidence of such relation in an empirical setting that entails a plausibly-exogenous change to the unfavorably-motivated individual's disclosure threshold: the staggered adoption of whistleblower protection laws.

Keywords: Information Environment, Discretionary Disclosure, Disclosure Motivation, Analyst Forecasts, Forecast Accuracy, Forecast Error, Whistleblower

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1 Introduction

We study a disclosure equilibrium where multiple informed individuals have conflicting disclosure motivations, and examine its implications on the market's information environment. The standard empirical literature on voluntary disclosure tends to focus on the disclosure motivation of a single informed individual, namely the manager (see Beyer et al., 2010 for a review). However, information can also be revealed by other informed individuals, such as whistleblowers, whose disclosure motivations are different from those of the managers. In this paper, we consider the presence of an informed individual with a motivation to disclose unfavorable news about the firm (hereinafter the unfavorably-motivated individual) and study how it affects the market's information equilibrium.

When the market expects extremely unfavorable information to be revealed by the unfavorably-motivated individual, this will mitigate the market's skepticism in the absence of disclosure. This, in turn, crowds out disclosure by an informed individual who has a motivation to disclose favorable information about the firm (hereinafter the favorably-motivated individual). As a result, the presence of the unfavorably-motivated individual has countervailing effects on the amount of information available to the market depending on the favorableness of the underlying news.

We formalize this intuition using a parsimonious model of disclosure and analyst forecast where absolute analyst forecast error proxies for the market's information environment. There are two informed individuals – perhaps corporate insiders – in the model. The two informed individuals have the same private knowledge about firm value but different "disclosure motivations". As is standard in voluntary disclosure models, the first informed individual, much like a manager, prefers the valuation to be as high as possible. He faces a cost of disclosure, which prevents a fully unraveling disclosure equilibrium. For example, for an informed corporate insider who prefers a favorable valuation, revealing favorable information may accompany proprietary costs associated with the competitors using this information against the disclosing firm's competitive advantage (Verrecchia, 1983). Thus, the favorably-motivated individual will disclose information only if it exceeds a certain threshold.

Extending this standard setup, we further assume the existence of the second informed individual who discloses unfavorable information about the firm, much like a whistleblower. Revealing unfavorable information about the firm is also costly, which prevents a full disclosure equilibrium. For example, the insider may forgo future opportunities to be gainfully employed, or risk being publicly excoriated for having turned against the firm (i.e., "bitten the hand that feeds"). To keep the model parsimonious (and to match the empirical setting), we assume that this second insider's disclosure motivation is not directly tied to the market's valuation but rather he simply discloses the unfavorable information whenever it is below an exogenous threshold. In the event that informed individuals reveal their private information, the market will incorporate it into the valuation to generate an accurate forecast. Alternatively, in the event that both informed individuals remain silent, the market will value the firm based on its conjecture about the informed individuals' disclosure strategies. As is standard in models where beliefs are formed rationally, all conjectures are self-fulfilling in equilibrium.

The presence of multiple informed individuals with conflicting disclosure motivations makes the equilibrium concept more subtle than may first appear. The model shows that the presence of an informed individual with a motivation to disclose unfavorable news about the firm mitigates the market's skepticism in the absence of disclosure. Consequently, as the unfavorably-motivated individual's disclosure threshold shifts to the right, it leads to more disclosure and lower absolute forecast error when the underlying news is unfavorable, but more important, it also crowds out disclosure by the favorably-motivated individual and increases absolute forecast error when the underlying news is favorable. This equilibrium result suggests that the unfavorably-motivated individual's disclosure decisions have countervailing effects on the amount of information available to the market and on absolute analyst forecast error depending on the favorableness of the underlying news.

We test our theoretical insights in an empirical setting that features a plausibly-exogenous change to the unfavorably-motivated individual's disclosure threshold: the staggered adoption of whistleblower protection laws between 2007 and 2010. Specifically, we exploit the staggered adoption of state False Claims Acts (FCAs) and study its effect on management guidance and absolute analyst forecast error. Previous studies on corporate whistleblower protection laws establish that under state-specific FCAs with a general qui tam provision, reporting financial fraud at a firm in which the state's pension fund had invested can result in monetary rewards from that state's government (Berger and Lee 2022; Rapp 2007). As a result, the adoption of state FCAs decreased (increased) corporate whistleblowers' cost (benefit) of revealing unfavorable information about a firm. Hence we exploit the staggered adoption of state FCAs as a setting that increased the unfavorably-motivated individual's disclosure threshold.

We expect the adoption of state FCAs to result in more information revelation and lower absolute forecast error for the affected firms when the firms have unfavorable news. However, when the firms have favorable news, we expect the adoption of state FCAs to result in less information revelation and greater absolute forecast error for the affected firms due to the disclosure crowding-out effect. The state FCAs were adopted by different states at different points in time, and the adoption schedule was likely exogenous to management guidance decisions and analysts' forecasting ability. This feature makes the adoption of state FCAs an ideal setting to study the relation between unfavorably-motivated individuals' disclosure threshold and the information environment.

We conduct a difference-in-differences analysis and compare the firms exposed to a state FCA whistleblower protection law to the ones not exposed to any state's FCAs. We first examine whether the adoption of the whistleblower protection law crowds out disclosure by the favorably-motivated individual. Based on prior literature's findings that document managers' incentives to disclose good news and maximize stock prices, we use management guidance of favorable news to capture disclosure by a favorably-motivated firm insider (e.g., Penman, 1980; Lev and Penman, 1990; Miller, 2002). We find a significant decrease in the frequency of favorable management guidance for those firms exposed to the state whistleblower protection laws compared to the ones that are not exposed. This finding corroborates our conjecture that the presence of an informed individual with a motivation to disclose unfavorable news about the firm crowds out the need for costly disclosure of favorable news by reducing the market's skepticism in the event of nondisclosure.

To the extent the expansion of the unfavorable disclosure region is matched by the contraction of the favorable disclosure region, the two effects could offset each other when estimated in combination. This suggests a non-straightforward relation between the adoption of whistleblower protection laws and the market's information environment proxied by the absolute analyst forecast error. To study this relation, we first estimate the overall effect of the whistleblower protection law on absolute analyst forecast error. Specifically, we conduct a difference-in-differences analysis on a full sample of analyst-firm-years to find that the overall effect of the adoption of whistleblower protection laws on absolute analyst forecast error is insignificant in the full sample estimation.

Next, we estimate the cross-sectional effect of the adoption of whistleblower protection laws on absolute analyst forecast error for unfavorable versus favorable news subsamples. We find that the change in the unfavorable disclosure threshold proxied by the adoption of the whistleblower protection laws has significant opposite effects on absolute analyst forecast error depending on the favorableness of the underlying news. Specifically, we find a significant decrease in absolute forecast error in the unfavorable news subsample, but a significant increase in the absolute error in the favorable news subsample. Our evidence suggests a nuanced relation between the adoption of whistleblower protection laws and the market's information environment – when multiple informed individuals have conflicting motivations to disclose their information, a change in the unfavorably-motivated individual's disclosure costs and benefits can interactively affect the disclosure motivations of the favorably-motivated individual, generating countervailing effects on the market's information environment depending on the underlying news.

A distinguishing feature of our analysis is the prediction that the unfavorably-motivated individual's disclosure decision has countervailing effects on the amount of information available to the market and on analysts' absolute forecast error depending on the favorableness of the underlying news. These specific predictions derived from theory should mitigate concerns about alternative explanations (e.g., omitted variables and reverse causality). For example, for an omitted variable to be able to explain our results, it would have to posit an alternative economic theory as to why the omitted variable is correlated with absolute analyst forecast error in opposite directions in the unfavorable and favorables news subsamples.

Nonetheless, in our additional analysis, we consider the possibility that the documented results are driven by the state pension funds' preferences to invest in certain firms for reasons related to the management guidance frequency or the analysts' forecasting ability, rather than by the state's adoption of general FCAs. To mitigate this concern, we conduct a falsification test where we replace the treatment variable for a firm's exposure to a general FCA with a variable for a firm's exposure to a Medicaid FCA. While exposures to both types of FCAs reflect state pension fund ownership, Medicaid FCA protects against Medicaid fraud only and does not protect against general financial fraud. Therefore, to the extent our results are driven by the change in the whistleblowers' costs and benefits of revealing unfavorable financial information about a firm, a firm's exposure to the Medicaid FCA should not have any impact on the management's guidance of favorable financial performance or on the analysts' forecasts of financial performance. Throughout our analyses, we do not find any significant effect of the Medicaid FCAs, which suggests that it is not the state pension fund's selective investing but rather the change in the whistleblower's disclosure equilibrium that drives our findings.

The contribution of this paper is threefold. First, we extend the literature on strategic disclosure by acknowledging the presence of multiple informed individuals with conflicting disclosure motivations. The vast majority of disclosure literature focuses on the disclosure motivation of a single informed individual, namely the manager (see Beyer et al., 2010 for a review). However, information can also be revealed by other informed individuals, such as whistleblowers, whose disclosure motivations are different from those of the managers.[1] Our findings show that considering their presence allows for a more nuanced understanding of a strategic disclosure equilibrium.

Second, we theoretically predict and empirically show that when multiple informed individuals have conflicting disclosure motivations, the unfavorably-motivated individual's disclosure decisions have countervailing effects on the market's information environment depending on the favorableness of the underlying news. An increase in the unfavorably-motivated individual's disclosure threshold leads to more information revelation and smaller absolute forecast error when the underlying news is unfavorable, but more important, crowds out disclosure by the favorably-motivated individual and increases absolute forecast error when the underlying news is favorable. These contrasting predictions are difficult to intuit in the absence of formal theory, and they highlight the importance of considering the dual sides of a strategic disclosure game. From an empirical perspective, our findings suggest that a seemingly insignificant empirical result on information environment outcomes such as forecast accuracy in a full sample estimation could in fact be a manifestation of two countervailing effects that offset each other. Moreover, from a regulatory perspective, our findings

[1] For example, in 2021, the SEC opened an investigation into Tesla over a whistleblower complaint that the company withheld information about its solar panel system defects, and the news drove Tesla's stock prices down. (https://www.reuters.com/markets/commodities/exclusive-sec-probes-tesla-over-whistleblower-claims-solar-panel-defects-2021-12-06/)

show that a policy aimed at influencing an informed individual's disclosure costs and benefits should be implemented with caution because it could also affect the disclosure decisions of other informed individuals and generate unintended consequences.

In our empirical application of the theoretical intuition, we focus on the motivation of the whistleblowers to disclose unfavorable information about the firm. However, the intuition potentially applies to a number of other settings that involve multiple informed individuals with conflicting disclosure motivations. For example, a change in corporate litigation environment, short-selling regulations, or a shift in competitive landscape could affect the disclosure decisions of unfavorably-motivated individuals. Consistent with this conjecture, Marinovic and Varas (2016) theoretically show that the presence of litigation risk can crowd out disclosures of favorable news. Similarly, Clinch et al. (2019) study the Reg SHO setting to find evidence of an increase in bad-news guidance and a decrease in good-news guidance for pilot firms compared to the control firms. Clinch et al. (2019) interpret their findings as short-sellers imposing litigation risk and reputation cost on the managers. Our paper extends their interpretation by showing how the presence of an unfavorably-motivated individual can crowd out disclosures of good news in a strategic disclosure game.[2]

Finally, our paper contributes to the literature on analysts' research and their information sources. Existing empirical literature on analyst forecasts cites disclosure from informed parties as one of the most important information sources for analysts. For example, Lang and Lundholm (1996) provide evidence that firms with more informative disclosure policies have more accurate analyst earnings forecasts. Similarly, Byard and Shaw (2003) find that higher quality disclosure increases the precision of information that financial analysts incorporate into their forecasts of annual earnings. In a similar vein, Chen et al. (2011) find that analyst forecast accuracy decreases

[2]In this paper, we focus on an exogenous change in the unfavorably-motivated individual's disclosure thresholds and its implications on disclosure equilibrium and analyst forecast accuracy. However, to the extent the unfavorably-motivated individual's disclosure decisions are also endogenous and strategic with respect to stock prices (e.g., his utility is decreasing in the market's valuation), one could hypothesize similar effects from an exogenous change in the favorably-motivated individual's disclosure thresholds. For example, a shift in competitive landscape, entry threats or patenting regulations can affect proprietary costs of disclosing favorable news and shift the favorably-motivated individual's disclosure thresholds. This, in turn, will affect the unfavorably-motivated individual's disclosure decisions and the information available to the market. Several prior studies establish the first-order relation between proprietary costs and information disclosure, such as management guidance and patent disclosures (e.g, Huang et al., 2017; Kim and Valentine, 2021). Our findings add to these studies by proposing a more nuanced relation between proprietary costs and information disclosure by individuals with conflicting disclosure motivations.

after companies stop providing guidance. Overall, prior empirical work supports a model where analysts provide accurate forecasts when informed individuals reveal their information, and less accurate forecasts in the absence of any revelation. We extend this literature by studying how the unfavorably-motivated individual's disclosure decisions affect the market's information environment and the analysts' forecast accuracy.

Related to our study, Balakrishnan et al. (2014) find that managers provide more management guidance following exogenous analyst brokerage closures in order to mitigate the adverse effect of coverage shocks on their stock liquidity. While their paper focuses on the substitutive role of analysts' forecasts and management guidance in shaping liquidity, we study the interactive information exchange between informed individuals and analysts. In a similar vein, Frenkel et al. (2020) model a setting where information may be voluntarily disclosed by a firm or by third party financial analysts and study its implications on price efficiency and market liquidity. Their work distinguishes between analysts uncovering information that is available versus unavailable to the firm whereas our paper focuses on conflicting disclosure motivations of multiple informed individuals with the same private information to study how their respective disclosure decisions affect the market's information environment. In this regard, our paper is related to the work by Acharya et al. (2011) that derives an endogenous voluntary disclosure equilibrium in a dynamic disclosure model involving a manager, investors, and public news sources. Also relevant for our study are Einhorn (2007) who models voluntary disclosure when investors are uncertain about the managers' reporting objective, Marinovic and Varas (2016) who model voluntary disclosure in the presence of litigation risk, Dye (2017) who studies optimal disclosure when there are penalties for nondisclosure, Einhorn (2018) who models voluntary disclosure in the presence of competing public and private information sources, and Bertomeu et al. (2021) who derives an efficient disclosure policy that is characterized by mandatory disclosures of extremely bad news and voluntary disclosures of extremely good news.

The remainder of our paper proceeds as follows. In Section 2 we illustrate our theoretical motivation using a parsimonious model of disclosure and analyst forecast. Section 3 explains the empirical setting related to the staggered adoption of whistleblower protection laws and describes the sample. Section 4 presents empirical results. Section 5 concludes the paper.

2 Theoretical Motivation

2.1. Overview

In this section, we use a simple model of disclosure and analyst forecast to motivate our empirical predictions. Our model introduces multiple informed individuals with conflicting disclosure motivations. We focus on how the presence of an informed individual who wants to disclose unfavorable information about the firm affects the disclosure equilibrium and absolute analyst forecast error where the absolute forecast error proxies for the market's information environment. We provide formal derivations and proofs in Appendix A.

2.2. Setup

Assume that there is a firm with an uncertain value $\tilde{x}$ that is uniformly distributed between 0 and 1 ($\tilde{x} \sim Unif[0, 1]$). There are two informed individuals (perhaps corporate insiders) in our model who know the realization of $\tilde{x} = x$. The first informed individual has a motivation tied to the valuation being as favorable as possible, and he will disclose information whenever $\tilde{x} = x \geq \tau_F$, where τ_F represents this individual's disclosure threshold. We refer to this individual as the favorably-motivated individual. The second informed individual is motivated to reveal unfavorable information about the firm, and he will disclose information whenever $\tilde{x} = x \leq \tau_U$, where τ_U represents this individual's disclosure threshold. We refer to this individual as the unfavorably-motivated individual.

Should one of the informed individuals disclose the realization of $\tilde{x}$, the market (and the analyst) will incorporate it into the valuation, giving an accurate valuation (y) at $y = x$ exactly. In the absence of such disclosure from either one of the informed individuals, the market will value the firm at $y = \hat{y}$, based on the conjectured distribution of $\tilde{x}$ and the disclosure strategies of the two informed individuals. In order to model the interaction between the two informed individuals' strategic disclosure motivations, we set τ_U as an exogenous variable and endogenize the favorably-motivated individual's disclosure equilibrium (τ_F), and the market's valuation (y). That is, our analysis focuses on how an exogenous change in τ_U affects the favorably-motivated individual's disclosure equilibrium (τ_F), and the analyst's absolute forecast error ($\Delta = E\left[|y - x|\right]$).

2.3. Equilibrium Analysis

We first derive the favorably-motivated individual's disclosure equilibrium (τ_F). The favorably-motivated individual will disclose information whenever $\tilde{x} = x$ is sufficiently favorable such that disclosure yields higher valuation than non-disclosure as follows:

$$x - c_F \geq \hat{y}, \tag{1}$$

where c_F is the favorably-motivated individual's cost associated with disclosing this information (Verrecchia, 1983), and $\hat{y}$ is the conjectured market valuation in the absence of disclosure (i.e., $\hat{y} = E[\tilde{x}|ND]$, where ND denotes non-disclosure). Thus, the favorably-motivated individual's disclosure threshold can be expressed as $\tau_F = \hat{y} + c_F$. In order to focus on internal disclosure thresholds, we assume that $0 < \tau_U < \hat{y} + c_F < 1$. That is, we focus on parameter values such that there is a disclosure region for each of the unfavorably-motivated individual ($\tau_U > 0$) and the favorably-motivated individual ($\tau_F = \hat{y} + c_F < 1$) and these two regions do not overlap ($\tau_U < \hat{y} + c_F$). These assumptions prevent the extreme disclosure equilibrium of full disclosure (all news is disclosed), or no disclosure (all news is withheld).

Given this setup, the disclosure regions where either one of the informed individuals reveal the accurate realization of $\tilde{x}$ exist in case of extreme news, i.e., at both ends of the distribution of $\tilde{x}$. We represent this disclosure region as:

$$D(\hat{y}; \tau_U, c_F) = [0, \tau_U] \cup [\hat{y} + c_F, 1]. \tag{2}$$

The non-disclosure region where both informed individuals remain silent exists in case of moderate news, i.e., at the middle of the distribution of $\tilde{x}$. We represent this non-disclosure region as:

$$N(\hat{y}; \tau_U, c_F) = [\tau_U, \hat{y} + c_F]. \tag{3}$$

Finally, the market's valuation in the absence of disclosure can be expressed as a conditional expectation as follows:

$$\hat{y} = E[\tilde{x}|ND] = \frac{\tau_U + \hat{y} + c_F}{2}. \tag{4}$$

Solving for $\hat{y}$, the market's valuation in case of nondisclosure is $\hat{y} = \tau_U + c_F$ in equilibrium. Thus, the favorably-motivated individual's disclosure threshold is $\tau_F = \tau_U + 2c_F$ in equilibrium, and the analyst's expected absolute forecast error is $\Delta = E[|y - x|] = \int_{\tau_U}^{\tau_F} |\hat{y} - x| \, dx = c_F^2$ in equilibrium.

The analyst's expected absolute forecast error can be further broken down into the expected absolute error when the underlying news is unfavorable ($0 \leq \tilde{x} \leq 0.5$) and when it is favorable ($0.5 < \tilde{x} \leq 1$). When the underlying news is unfavorable ($0 \leq \tilde{x} \leq 0.5$), the expected absolute error can be calculated as $\Delta_U = \int_{\min(\tau_U, 0.5)}^{\min(0.5, \tau_U + 2c_F)} |\tau_U + c_F - x| dx$. When the underlying news is favorable ($0.5 < \tilde{x} \leq 1$), the expected absolute error can be calculated as $\Delta_F = \int_{\max(0.5, \tau_U)}^{\max(\tau_U + 2c_F, 0.5)} |\tau_U + c_F - x| dx$.

Our chief interest is in examining how disclosure equilibrium and analyst's absolute forecast error change as the unfavorably-motivated individual's disclosure threshold (τ_U) changes. Mathematically, we study this relation by examining the signs of $\frac{d\tau_F}{d\tau_U}$, $\frac{d\Delta}{d\tau_U}$, $\frac{d\Delta_U}{d\tau_U}$, and $\frac{d\Delta_F}{d\tau_U}$. As we illustrate in detail in Appendix A, comparative statics analysis yields the following predictions. First, as τ_U increases, τ_F also increases ($\frac{d\tau_F}{d\tau_U} > 0$). Second, as τ_U increases, Δ remains unchanged ($\frac{d\Delta}{d\tau_U} = 0$). Third, as τ_U increases, Δ_U (weakly) decreases ($\frac{d\Delta_U}{d\tau_U} \leq 0$). Fourth, as τ_U increases, Δ_F (weakly) increases ($\frac{d\Delta_F}{d\tau_U} \geq 0$).

Collectively, this suggests that as the unfavorably-motivated individual's disclosure region expands, it crowds out disclosure by the favorably-motivated individual. Because the effect coming from the expansion in the lower-tail disclosure region is offset by the effect coming from a simultaneous contraction in the upper-tail disclosure region, change in τ_U has no overall effect on the absolute forecast error (Δ). However, looking at the absolute forecast error when the underlying news is unfavorable versus favorable, we find a more nuanced relation between τ_U and Δ. An increase in τ_U decreases absolute forecast error when the underlying news is unfavorable, but it increases the error when the underlying news is favorable. Our subsequent empirical analyses test these predictions in a setting that features a plausibly-exogenous change to the unfavorably-motivated individual's disclosure threshold: the staggered adoption of whistleblower protection laws.

3 Sample and Variable Measurement

In our empirical analysis, we exploit the staggered adoption of whistleblower protection laws as a setting that increased the unfavorably-motivated individual's disclosure threshold. Specifically, we focus on the staggered adoption of state False Claims Acts (FCAs) between 2007 to 2010. In 2007, Rapp (2007) proposed a legal theory that state FCAs with a general qui tam provision can decrease (increase) the whistleblowers' cost (benefit) of revealing unfavorable information about a firm owned by state-sponsored pension funds from the general FCA states. Specifically, reporting financial fraud at a firm in which the state's pension fund had invested can result in monetary rewards from that state's government because misrepresentation of the firm's financial performance can be interpreted as defrauding the state government. Further supporting this claim, Berger and Lee (2022) study a legal theory on state FCAs developed by Rapp (2007), analyze federal FCA whistleblowing cases, conduct interviews with legal authorities, and examine 10-K disclosures of FCA exposures to conclude that the general state FCAs indeed increased the whistleblowing risk for the affected firms. Relatedly, Dey et al. (2021) also provide evidence that the financial incentives on whistleblowing under the cash-for-information program of the False Claims Act increased the number of lawsuit filings and helped compensate the whistleblowers for exposing corporate misconduct. Given this evidence, we begin our sample period in 2007, the year in which the legal theory for state FCAs was first developed. Our sample period ends in 2010 to ensure that our results are unaffected by the Dodd-Frank whistleblower program, which was implemented by the SEC in 2011 for all public U.S. firms simultaneously.

Unique to this setting, different states adopt FCAs at different points in time, and the state FCAs vary in terms of their coverage of fraud. As of 2010, 17 states and the District of Columbia had general FCAs that protect whistleblowers against revealing frauds including financial fraud, whereas 11 states had Medicaid FCAs that only protect against Medicaid fraud (e.g., kickbacks to medical professionals), and the remaining 22 states had not adopted any FCAs. Accordingly, this setting creates variation in the whistleblowers' costs and benefits of disclosing unfavorable information about a firm. Because we are primarily interested in information revelation about firms' *financial* performance, we focus on the general FCAs throughout our analysis, and use the adoption of Medicaid FCAs in our falsification tests. Appendix B details the state-specific FCAs.

We first create a sample of firm-years from 2007 to 2010 to study how an increase in the unfavorably-motivated individual's disclosure threshold affects the favorably-motivated individual's disclosure equilibrium. We obtain firm characteristics data from Compustat, stock prices data from CRSP, management guidance data from IBES Guidance, and state pension fund ownership data from Thomson Reuter's Institutional Holdings data (13F). We eliminate firms in the healthcare industry (SIC 8000-8099) to ensure that healthcare companies that are subject to Medicaid FCAs do not drive the treatment effect of general FCAs. It is important in our setting to focus on general FCAs (as opposed to Medicaid FCAs) because general FCAs provide protection for whistleblowers of *financial* fraud. After eliminating observations with missing control variables, our final sample for the management guidance analysis consists of 13,295 firm-year observations.

Panel A of Table 1 provides descriptive statistics for the variables used in the management guidance analysis. Based on prior literature's findings that document managers' incentives to disclose good news and maximize stock prices, we use management guidance to capture disclosure by a favorably-motivated firm insider (e.g., Penman, 1980; Lev and Penman, 1990; Miller, 2002). Moreover, we focus on management guidance that conveys favorable news, where favorable news is defined as one that beats consensus to further narrow down on revelation of favorable news. Specifically, we define *Guidance* as the frequency of management guidance issued during a given year that beats consensus. In addition, we also zero in on management guidance of earnings news, which is the most common and representative type of management guidance, and define *GuidanceEarn* as the frequency of management earnings guidance that beats consensus.[3] The mean value of *Guiance* (*GuidanceEarn*) in the sample is 1.37 (0.61).

Next, our main independent variable of interest is *FCA_G*. *FCA_G* is defined as an indicator variable equal to one if at least one share of a firm is held by a state pension fund from a state with a general FCA in a given year, and zero otherwise. The mean value of *FCA_G* in our sample is 0.67. We also create a variable *FCA_M* for a falsification analysis. *FCA_M* equals one if at least one share of a firm is held by a state pension fund from a state with a Medicaid FCA in a given year, and zero otherwise. The mean value of *FCA_M* in our sample is 0.40. Looking at the

[3]Guidance that beats consensus are identified as the ones where IBES 'guidance_code' equals 2.

variation in *FCA_G* across firms, we find that among the 4,573 firms in the sample, 1,467 are never treated by the general FCA, 314 firms become treated during the sample period, and 2,792 firms are always treated. Similarly, looking at the firms' exposure to the Medicaid FCAs, 2,443 firms are never treated by the Medicaid FCA, 956 firms become treated during the sample period, and 1,174 firms are always treated. Appendix B provides detailed information on state-specific FCA adoptions, which we obtain from Berger and Lee (2022). Appendix C presents the list of state pension funds in our sample.

We also control for a set of firm characteristics following prior research. For an average firm-year observation in our sample, the shares of the firms are owned by a state's pension fund 66 percent of the time (*Own*), the firm size defined as the natural logarithm of total asset (*Size*) is 7.19, and the market-to-book ratio defined as the market value of equity divided by the book value of equity (*Mtb*) is 2.84. The average firm-year observation in our sample has *Leverage* of 0.33, *Roa* of 0.03, and experiences loss (*Loss*) 20 percent of the time. The average earnings volatility (*Earnvol*) in the sample is 0.06, average return volatility (*Retvol*) is 0.12, and the average of the natural logarithm of the cumulative buy-and-hold-return (*Return*) is 0.03.

For our second set of analyses, we create a sample of analyst-firm-years from 2007 to 2010 in a similar manner to study how an increase in the unfavorably-motivated individual's disclosure threshold affects the information available to the analysts. After eliminating firms in the healthcare industry (SIC 8000-8099) and eliminating observations with missing values, our final sample consists of 66,183 analyst-firm-years at the intersection of Compustat, CRSP, IBES, and Thomson Reuter's Institutional Holdings data (13F).

Panel B of Table 1 provides descriptive statistics for the variables used in our analyst forecast error analysis. We use analysts' EPS forecast as a surrogate for the market's expectations and their absolute forecast error as a proxy for the market's information environment. Smaller absolute forecast error implies better information environment. We measure analyst forecast error as the absolute difference between the latest analyst forecast and the actual EPS, deflated by the firm's security price two days before the forecast announcement date (*AbsFE*). In calculating *AbsFE*, we follow the approach from Clement and Tse (2005). Specifically, we (i) only include analyst forecasts issued no earlier than 1 year ahead and no later than 30 days before the fiscal year-end, and retain the last forecast an analyst issues for a given firm in a particular year; (ii) eliminate all analyst forecasts with no prior year data on forecast accuracy; and (iii) also eliminate observations for which the absolute value of the price-deflated analyst forecast error is above 0.40. The mean value of *AbsFE* in the sample is 0.01.

Our main independent variable of interest that captures a firm's exposure to state general FCAs (*FCA_G*) and a falsification analysis variable that captures a firm's exposure to state Medicaid FCAs (*FCA_M*) as well as the controls for firm characteristics are as previously defined. For the purpose of this analysis, we also include a set of controls for analyst characteristics. The mean value of the analysts' general forecasting experience is (*Gexp*) is 8 (years) and the mean value of the analysts' firm-specific forecasting experience (*Fexp*) is 5 (years). An average analyst in our sample provides forecasts for 17 firms (*Ncomp*) and for 4 industries (*Nind*), and 9 percent of the analysts are identified to be employed by a large broker (*Dtop10*). The mean value of the natural logarithm of the number of days between the analyst's forecast announcement and the forecast's target fiscal-end date is (*EstimatAage*) is 4.43. All variables are defined in Appendix D.

4 Empirical Results

We begin our empirical analysis by testing whether the whistleblower protection law altered informed individuals' disclosure motivations. While it is difficult to directly test for the increase in disclosure by an unfavorably-motivated individual due to the lack of a comprehensive dataset on the whistleblowing activity (Stubben and Welch, 2020), a number of prior studies establish management guidance as a common type of disclosure by a favorably-motivated firm insider, namely the manager (Penman, 1980; Lev and Penman, 1990; Miller, 2002). Therefore, we predict that a firm's exposure to the whistleblower protection law will have a negative effect on management earnings guidance of favorable news.

To test this prediction, we estimate the following regression equation:

$$Guidance(GuidanceEarn)_{jt} = \beta_1 \cdot FCA\_G_{jt} + \Gamma \cdot Controls_{jt} + \varepsilon_{jt}. \tag{5}$$

Specifically, we regress the frequency of favorable management guidance (*Guidance*, *GuidanceEarn*) on an indicator variable that equals one if the firm-year is subject to any state's general FCA law and zero otherwise (*FCA_G*), and a set of control variables. Following prior disclosure literature, we control for firm size (*Size*), market-to-book ratio (*Mtb*), leverage (*Leverage*), accounting and stock performance (*Roa, Loss, Return*), and the volatility of the performance (*Earnvol, Retvol*). Moreover, we also include a control variable that equals one if a firm's shares were owned by at least one state pension fund in the previous year, and zero otherwise (*Own*). This allows us to focus on the effect arising from the exposure to the state FCAs as opposed to the effect from the changes in fund ownership. The estimation results are reported in Table 2.

Consistent with our prediction, we find a significant decrease in favorable management guidance following the adoption of the whistleblower protection laws (t-stats -2.14 and -1.97). This result suggests that an increase in the unfavorably-motivated individual's disclosure threshold crowds out disclosure by the favorably-motivated individual, highlighting the importance of considering the dual sides of a strategic disclosure game.

In our subsequent test, we consider the possibility that the documented effects are driven by the state pension funds' investment preferences rather than by the adoption of general state FCAs. To mitigate such concerns, we conduct a falsification test where we replace the treatment variable for a firm's exposure to a general FCA (*FCA_G*) with a variable for a firm's exposure to a Medicaid FCA (*FCA_M*). Exposures to both general and Medicaid FCAs reflect state pension fund ownership. However, unlike general FCA which protects against financial fraud, Medicaid FCA protects against Medicaid fraud only. Therefore, to the extent the documented effects are driven by changes in the costs and benefits of revealing unfavorable financial information about the firm, the firm's exposure to Medicaid FCA should have no impact on management guidance of favorable financial performance. However, if our results are instead driven by state pension funds choosing to invest in firms with certain characteristics for reasons related to the management guidance frequency, we will continue to observe similar treatment effects in the Medicaid FCA adoption setting.

Table 3 presents the falsification analysis that estimates the effect of the Medicaid FCAs on the frequency of favorable management guidance. We do not find any significant effect of the Medicaid FCAs on the frequency of management guidance (t-stats -1.00 and -0.62). This finding suggests that it is not the pension funds' selective investing but rather the changes to the costs and benefits of revealing unfavorable financial information about a firm that drives our results.

Having documented the effects of the whistleblower protection law on disclosure equilibrium, we next turn to its effect on the market's information environment proxied by the analysts' absolute forecast error. We first estimate the overall effect of an increase in the unfavorable disclosure threshold on analyst's absolute forecast error. Theory suggests that the adoption of the whistleblower protection law will have a muted overall effect on the absolute forecast error to the extent the effect coming from the expansion in the lower-tail disclosure region is offset by the effect coming from a simultaneous contraction in the upper-tail disclosure region. To analyze this relation, we estimate the following regression equation:

$$AbsFE_{ijt} = \beta_1 \cdot FCA\_G_{jt} + \Gamma \cdot Controls_{ijt} + \varepsilon_{ijt}. \tag{6}$$

$AbsFE_{ijt}$ is our measure of analysts' absolute forecast error for analyst i, firm j, at year t, and FCA_G_{jt} is an indicator variable that equals one if firm j is subject to any state's general FCA law in year t, and zero otherwise. *Controls* is a vector of control variables. Following prior literature, we include the following control variables in our tests: firm size (*Size*), market-to-book ratio (*Mtb*), leverage (*Leverage*), accounting and stock performance (*Roa, Loss, Return*), and the volatility of the performance (*Earnvol, Retvol*). We also control for a number of analyst characteristics, including the analysts' forecasting ability (*Gexp, Fexp*), portfolio complexity (*Ncomp, Nind*), available resources (*Dtop10*), and how far in advance of the target date the forecast was announced (*EstimateAge*). In addition, we include a control variable that equals one if a firm's shares were owned by at least one state pension fund in the previous year, and zero otherwise (*Own*) to focus on the effect arising from the exposure to the state FCAs as opposed to the effect from the changes in fund ownership.

Table 4 presents results from estimating equation (6) on a full sample of analyst-firm-years. Column (1) includes firm and year fixed effects to control for unobservable firm characteristics and the general time trend in the staggered adoption setting, and column (2) includes analyst, firm, and year fixed effects to additionally account for unobservable analyst characteristics. In the full sample estimation, we do not find any significant effect of the general state FCAs on analysts' absolute forecast error (t-stats are -0.25 and -0.04). This null result suggests that the relation between the adoption of whistleblower protection laws and absolute forecast error may be more nuanced than it may first appear. We explore this relation in our next set of empirical analysis where we estimate the cross-sectional effect of the adoption of whistleblower protection laws on absolute forecast error in the subsamples of firms with unfavorable versus favorable news.

Our model predicts that when the cost (benefit) of revealing unfavorable information decreases (increases), the subsample with unfavorable earnings news experiences an expansion in the lower-tail disclosure region by the unfavorably-motivated individual. As a result of this increased information revelation, analysts' absolute forecast error decreases when the underlying earnings news is unfavorable. In contrast, in the subsample with favorable earnings news, we expect to observe a crowding out effect and a contraction in the upper-tail disclosure region by the favorably-motivated individual. This reduction in disclosure should increase the analyst's absolute forecast error when the underlying earnings news is favorable.

To test this prediction, we conduct cross-sectional analyses on subsamples of firms with unfavorable-versus-favorable earnings news. To create the subsamples, we normalize each firm's realized EPS using the mean and the standard deviation of its EPS realizations over the past eight years. We then sort our sample based on the normalized EPS to classify each observation into an unfavorable or favorable earnings subsample. This approach allows us to account for the relative nature of unfavorable versus favorable earnings news across different firms using past performance as the benchmark.[4] One empirical challenge with our model is that, while the theory suggests that disclosure regions exist on either side of the distribution, it is silent on the exact location of the thresholds within our sample. For this reason, we use multiple cutoffs to classify each observation into an unfavorable or favorable earnings subsample and test the robustness of our results to different cutoff choices. Ideally, we would want to choose a cutoff that lies within the non-disclosure region. If our choice of the cutoff lies outside of the non-disclosure region, it would lead us to find weak or insignificant cross-sectional effects on analysts' absolute forecast error.

[4]For example, for a company that has been recording consecutive losses, EPS realization barely above zero could be considered favorable news, while this may not be the case for other firms.

We re-estimate regression equation (6) on a subsample with unfavorable earnings news, and then again on a subsample with favorable earnings news. We use the 40^{th}-percentile, 50^{th}-percentile, or the 60^{th}-percentile of the normalized EPS as the cutoff and classify an observation into an unfavorable (favorable) subsample if its normalized EPS lies below (above) this cutoff point. We expect to observe a negative β_1 in the unfavorable subsample, reflecting the expansion in the lower-tail disclosure region and more information revelation by the unfavorably-motivated individual. In contrast, in the subsample with favorable earnings news, we expect to find a positive β_1, reflecting the contraction in the upper-tail disclosure region and less information revelation by the favorably-motivated individual.

Table 5 presents the cross-sectional estimation results using the three different sets of unfavorable versus favorable earnings subsamples. In Panel A of Table 5, we use the 40^{th}-percentile of the normalized EPS to create the unfavorable versus favorable earnings subsamples. In a similar manner, in Panel B and Panel C of Table 5, we use the 50^{th}-percentile and the 60^{th}-percentile of the normalized EPS to create the unfavorable versus favorable earnings subsamples. Column (1) and column (2) report the estimation results in the unfavorable-earnings subsample. Column (1) includes firm and year fixed effects to control for unobservable firm characteristics and the general time trend in the staggered adoption setting, and column (2) includes analyst, firm, and year fixed effects to additionally control for unobservable analyst characteristics. In contrast, column (3) and column (4) report the estimation results in the favorable-earnings subsample, with firm and year fixed effects, and with analyst, firm, and year fixed effects, respectively.

The estimation results show that the effects of the whistleblower protection law on analysts' information environment are strikingly different depending on the underlying news. In the unfavorable earnings subsample, we consistently find a significant decrease in analysts' absolute forecast error for those firms that are subject to the whistleblower protection laws (t-stats range between -1.75 and -2.79). However, in the favorable earnings subsample, we consistently find a significant increase in analysts' absolute forecast error for those firms that are subject to the whistleblower protection laws (t-stats range between 2.15 and 3.53). These results are robust across multiple different cutoff choices and fixed effects structures. Collectively, our findings suggest that the dual sides of a strategic disclosure game can give rise to countervailing effects in different subsamples of firms which may offset each other in a full sample estimation.

A distinguishing feature of our analysis is that we predict the unfavorably-motivated individual's disclosure decisions to have countervailing effects on analysts' information environment depending on the favorableness of the underlying news. These specific predictions derived from theory should mitigate concerns about alternative explanations, because such an explanation would have to posit an alternative economic theory for the opposite effects on analysts' absolute forecast error that change signs depending on the favorableness of the underlying news.

Nonetheless, similar to Table 3 above, we further consider the possibility that the documented cross-sectional effects are driven by the state pension funds' investment preferences rather than by the adoption of general state FCAs. Specifically, we conduct a falsification analysis by replacing the treatment variable for a firm's exposure to a general FCA (FCA_G) with a variable for a firm's exposure to a Medicaid FCA (FCA_M) and repeating the analyses reported in Table 5. To the extent the documented effects are driven by changes in the costs and benefits of revealing unfavorable financial information about the firm, the firm's exposure to Medicaid FCA should have no impact on analysts' forecasts of financial performance. However, if our results are instead driven by state pension funds choosing to invest in firms with certain characteristics for reasons related to the analysts' forecasting abilities, we will observe similar treatment effects in the Medicaid FCA adoption setting.[5]

In Table 6, we examine the cross-sectional effect of the Medicaid FCAs on analysts' absolute forecast error in subsamples of firms with unfavorable versus favorable earnings news. We do not find any significant effect of the Medicaid FCAs on analysts' absolute forecast error across multiple different cutoffs for the subsamples and different fixed effects structures (t-stats range between -1.43 to 1.53). These results suggest that our findings are unlikely to be explained by the pension funds' selective investing but rather by the changes to the costs and benefits of revealing unfavorable financial information about a firm.

Collectively, our empirical results show that an increase in the unfavorably-motivated individual's disclosure threshold has countervailing effects on the market's information environment and

[5]This is because exposures to both general and Medicaid FCAs reflect state pension fund ownership, but unlike general FCA which protects against financial fraud, Medicaid FCA protects against Medicaid fraud only.

the analysts' absolute forecast error depending on the favorableness of the underlying news. Specifically, it decreases analysts' absolute forecast error when the underlying news is unfavorable, but it increases the error when the underlying news is favorable. This result is consistent with our theory and empirical analysis which show that the presence of an informed individual with a motivation to disclose unfavorable news about the firm crowds out disclosure by the other informed individual who has a motivation to disclose favorable news about the firm.

5 Conclusion

In this paper, we study a disclosure equilibrium when multiple informed individuals have conflicting disclosure motivations, and examine its implications for the market's information environment. We predict that the presence of an informed individual with a motivation to disclose unfavorable news about the firm crowds out disclosure by the other informed individual who has a motivation to disclose favorable news about the firm. As a result, an increase in the unfavorably-motivated individual's disclosure threshold has countervailing effects on disclosure and on analyst forecast accuracy when the underlying news is unfavorable versus when it is favorable.

We formalize this relation in the context of a parsimonious model of disclosure and analyst forecast. We test our theoretical insights in an empirical setting that features a quasi-exogenous change to the unfavorably-motivated individual's disclosure threshold. Specifically, we exploit the staggered adoption of whistleblower protection laws, which presumably decreased (increased) the costs (benefits) of revealing unfavorable information about a firm. Consistent with the crowding out effect, we find a decrease in the frequency of favorable management guidance in firms that are subject to the whistleblower protection law. Furthermore, we predict and find that those firms exposed to the whistleblower protection law experience a decrease in analysts' absolute forecast error when the underlying news is unfavorable, but they experience an increase in the error when the underlying news is favorable, and that the two countervailing effects offset each other in a full sample estimation.

Collectively, our integrated, theoretical-and-empirical analysis provides a novel way to think about the dual sides of a strategic disclosure game. Our findings show that acknowledging the presence of multiple informed individuals with conflicting disclosure motivations leads to a richer and more nuanced set of empirical predictions.

Appendix A A model of disclosure and analyst forecast

A.1. Setup

Let $\tilde{x}$ represent an uncertain firm value, where $\tilde{x} = x$ represents the realization of $\tilde{x}$. We assume that $\tilde{x}$ is uniformly distributed between 0 and 1 ($\tilde{x} \sim Unif[0,1]$). There are two informed individuals (perhaps corporate insiders) in our game who know the realization $\tilde{x} = x$. The first informed individual has a motivation tied to the valuation being as favorable as possible, and he will disclose information whenever $\tilde{x} = x \geq \tau_F$, where τ_F represents this individual's disclosure threshold. We refer to this individual as the favorably-motivated individual. The second informed individual is motivated to reveal unfavorable information about the firm, and he will disclose information whenever $\tilde{x} = x \leq \tau_U$, where τ_U represents this individual's disclosure threshold. We refer to this individual as the unfavorably-motivated individual.

Should one of the informed individuals disclose the realization of $\tilde{x}$, the market (the analyst) will incorporate it into the valuation, giving an accurate valuation (y) at $y = x$ exactly. In the absence of such disclosure from either one of the informed individuals, the market will value the firm at $y = \hat{y}$ based on the conjectured distribution of $\tilde{x}$ and the disclosure strategies of the two informed individuals. In order to model the interaction between the two informed individual's strategic disclosure motivation, we set τ_U as an exogenous variable and endogenize the favorably-motivated individual's disclosure requilibrium (τ_F) and the market's valuation (y). That is, our analysis focuses on how an exogenous change in τ_U affects the favorably-motivated individual's disclosure equilibrium (τ_F), and the analyst's absolute forecast error ($\Delta = E[|y - x|]$).[6]

A.2. Equilibrium

We first derive the favorably-motivated individual's disclosure equilibrium (τ_F). The favorably-motivated individual will disclose information whenever $\tilde{x} = x$ is sufficiently favorable such that disclosure yields higher valuation than non-disclosure as follows:

$$x - c_F \geq \hat{y}. \tag{7}$$

c_F is the favorably-motivated individual's cost associated with disclosing this information (Ver-

[6] We use the term 'absolute forecast error' and 'forecast error' interchangeably.

recchia, 1983), and $\hat{y}$ is the conjectured market valuation in the absence of disclosure (i.e., $\hat{y} = E[\tilde{x}|ND]$, where ND denotes non-disclosure). Thus, the favorably-motivated individual's disclosure threshold can be expressed as $\tau_F = \hat{y} + c_F$. In order to focus on internal disclosure thresholds, we assume that $0 < \tau_U < \hat{y} + c_F < 1$. That is, we focus on parameter values such that there is a disclosure region for each of the unfavorably-motivated individual ($0 < \tau_U$) and the favorably-motivated individual ($\hat{y} + c_F < 1$), and these two regions do not overlap ($\tau_U < \hat{y} + c_F$). These assumptions prevent the extreme disclosure equilibrium of full disclosure (all news is disclosed), or no disclosure (all news is withheld).

Given this setup, the disclosure regions where either one of the informed individuals reveal the accurate realization of $\tilde{x}$ exist in case of extreme news, i.e., at both ends of the distribution of $\tilde{x}$. We represent this disclosure region as:

$$D(\hat{y}; \tau_U, c_F) = [0, \tau_U] \cup [\hat{y} + c_F, 1]. \tag{8}$$

The non-disclosure region where both informed individuals remain silent will exist in case of moderate news, i.e., at the middle of the distribution of $\tilde{x}$. We represent this non-disclosure region as:

$$N(\hat{y}; \tau_U, c_F) = [\tau_U, \hat{y} + c_F]. \tag{9}$$

Assuming that the market values the firm at its expected value in the event of non-disclosure, the market's valuation in the absence of disclosure can be expressed as follows:

$$\hat{y} = E[\tilde{x}|ND] = \frac{\tau_U + \hat{y} + c_F}{2}. \tag{10}$$

Solving for $\hat{y}$, the market's valuation in case of non-disclosure is $\hat{y} = \tau_U + c_F$ in equilibrium. Thus, the favorably-motivated individual's disclosure threshold can be expressed as $\tau_F = \tau_U + 2c_F$ in equilibrium. Our assumption of $\hat{y} + c_F < 1$ therefore implies that the cost of disclosure for the favorably-motivated individual has an upper limit of $c_F < \frac{1-\tau_U}{2}$.

Next, using the analyst's forecast as a surrogate for the market's valuation, the analyst's expected forecast error can be expressed as follows:

$$\Delta = \int_{\tau_U}^{\tau_F} |\hat{y} - x| dx \tag{11}$$

$$= \int_{\tau_U}^{\tau_U + c_F} (\tau_U + c_F - x) dx + \int_{\tau_U + c_F}^{\tau_U + 2c_F} (-\tau_U - c_F + x) dx \tag{12}$$

$$= c_F^2. \tag{13}$$

A.3. Analysis

This section analyzes the effects of a change in the unfavorably-motivated individual's disclosure threshold (τ_U). When the unfavorably-motivated individual's costs and benefits of disclosing unfavorable information change, this will change his disclosure threshold (τ_U). We first examine how a change in τ_U affects the favorably-motivated individual's disclosure decisions. Recall that in equilibrium, the favorably-motivated individual's disclosure threshold can be expressed as $\tau_F = \tau_U + 2c_F$. It is straightforward to show that as τ_U increases, τ_F also increases:

$$\frac{d\tau_F}{d\tau_U} > 0. \tag{14}$$

This result suggests that as τ_U increases and unfavorably-motivated individual's disclosure region expands on the left side of the distribution, τ_F also increases and the favorably-motivated individual's disclosure region contracts on the right side of the distribution.

The expansion in one of the disclosure regions accompanied by a contraction in the other disclosure region suggests an ambiguous overall effect of τ_U on the analyst's absolute forecast error. To formally examine this effect, we conduct comparative statics analysis on $\Delta = c_F^2$ with respect to τ_U to find $\frac{d\Delta}{d\tau_U} = 0$. This result suggests that even when the unfavorably-motivated individual's disclosure region expands (i.e., an increase in τ_U), overall, the analyst's absolute forecast error does not change because the favorably-motivated individual's disclosure region simultaneously contracts. From an empirical perspective, this result implies that a seemingly insignificant effect on analysts' absolute forecast error in a full sample empirical estimation could in fact be a manifestation of two countervailing effects that offset each other.

To further explore this explanation, we next calculate the expected absolute forecast error in two subsamples of distributions, the unfavorable news subsample ($0 \leq \tilde{x} \leq 0.5$), and the favorable news subsample ($0.5 < \tilde{x} \leq 1$). When the underlying news is unfavorable ($0 \leq \tilde{x} \leq 0.5$), the expected absolute forecast error can be calculated as $\Delta_U = \int_{\min(\tau_U,0.5)}^{\min(0.5,\tau_U+2c_F)} |\tau_U + c_F - x|dx$. When the underlying news is favorable($0.5 < \tilde{x} \leq 1$), it can be calculated as $\Delta_F = \int_{\max(0.5,\tau_U)}^{\max(\tau_U+2c_F,0.5)} |\tau_U + c_F - x|dx$. Specific expressions for Δ_U and Δ_F vary depending on the range of τ_U. In Table A.1., we consider four cases that are mutually exclusive in the order of increasing magnitudes of τ_U, and summarize the expressions for Δ_U and Δ_F. Note that the expected absolute forecast error is 0 when either one of the informed individuals reveal their information ($D(\hat{y}; \tau_U, c_F)$).

Table A.1. Expected Absolute Forecast Error

Case	Distribution	Δ_U	Δ_F
1	$0 < \tau_U \leq 0.5 - 2c_F$	c_F^2	0
2	$0.5 - 2c_F < \tau_U \leq 0.5 - c_F$	$0.5\tau_U^2 + \tau_U c_F - 0.5\tau_U + c_F^2 - 0.5c_F + 0.125$	$0.5\tau_U + 0.5c_F - 0.5\tau_U^2 - \tau_U c_F - 0.125$
3	$0.5 - c_F < \tau_U \leq 0.5$	$0.5\tau_U + 0.5c_F - 0.5\tau_U^2 - \tau_U c_F - 0.125$	$0.5\tau_U^2 + \tau_U c_F - 0.5\tau_U + c_F^2 - 0.5c_F + 0.125$
4	$0.5 \leq \tau_U$	0	c_F^2

$\Delta_U^{(i)}$ denotes expected absolute forecast error in the unfavorable news subsample (i.e., when $0 \leq \tilde{x} \leq 0.5$) for case i, where $i \in \{1, 2, 3, 4\}$. $\Delta_F^{(i)}$ denotes expected absolute forecast error in the favorable news subsample (i.e., when $0.5 < \tilde{x} \leq 1$) for case i, where $i \in \{1, 2, 3, 4\}$. Derivations of the expected absolute forecast errors are straightforward. For example, in case 1, all realizations of $\tilde{x} = x$ above 0.5 will be disclosed by the favorably-motivated individual. Therefore, $\Delta_U^{(1)} = c_F^2$, and $\Delta_F^{(1)} = 0$. In case 2, we observe partial disclosure in both the unfavorable and favorable news subsamples. Thus, $\Delta_U^{(2)} = \int_{\tau_U}^{0.5} |\tau_U + c_F - x|dx = \int_{\tau_U}^{\tau_U+c_F} (\tau_U + c_F - x)dx + \int_{\tau_U+c_F}^{0.5} (-\tau_U - c_F + x)dx = 0.5\tau_U^2 + \tau_U c_F - 0.5\tau_U + c_F^2 - 0.5c_F + 0.125$, and $\Delta_F^{(2)} = \int_{0.5}^{\tau_U+2c_F} |\tau_U + c_F - x|dx = \int_{0.5}^{\tau_U+2c_F} (-\tau_U - c_F + x)dx = 0.5\tau_U + 0.5c_F - 0.5\tau_U^2 - \tau_U c_F - 0.125$. $\Delta_U^{(3)}$, $\Delta_F^{(3)}$, $\Delta_U^{(4)}$ and $\Delta_F^{(4)}$ can be calculated in a similar manner. Note that within each case, Δ_U is weakly decreasing in τ_U, and Δ_F is weakly increasing in τ_U ($\frac{d\Delta_U^{(i)}}{d\tau_U} \leq 0$; $\frac{d\Delta_F^{(i)}}{d\tau_U} \geq 0$). Also note that when $\tau_U = 0.5 - 2c_F$, $\Delta_U^{(1)} = \Delta_U^{(2)}$ and $\Delta_F^{(1)} = \Delta_F^{(2)}$. Similarly, when $\tau_U = 0.5 - c_F$, $\Delta_U^{(2)} = \Delta_U^{(3)}$ and $\Delta_F^{(2)} = \Delta_F^{(3)}$, and when $\tau_U = 0.5$, $\Delta_U^{(3)} = \Delta_U^{(4)}$ and $\Delta_F^{(3)} = \Delta_F^{(4)}$. Therefore, across all cases, Δ_U is weakly decreasing in τ_U, and Δ_F is weakly increasing in τ_U ($\frac{d\Delta_U}{d\tau_U} \leq 0$; $\frac{d\Delta_F}{d\tau_U} \geq 0$).

Thus, as an unfavorably-motivated individual's disclosure region expands (i.e., an increase in τ_U), the analyst's absolute forecast error (weakly) decreases when the underlying news is unfavorable ($\frac{d\Delta_U}{d\tau_U} \leq 0$), but it (weakly) increases when the underlying news is favorable ($\frac{d\Delta_F}{d\tau_U} \geq 0$). This result holds even in the absence of any direct changes to the favorably-motivated individual's disclosure cost (c_F), because a change in τ_U indirectly affects τ_F by influencing the market's expectation in the event of nondisclosure. Combined with the earlier analysis, this analysis suggests that a seemingly insignificant empirical result on analysts' absolute forecast error in the full sample estimation could in fact be a manifestation of two countervailing effects that offset each other at different cross-sections.

Appendix B State-specific False Claim Acts

This table describes state-by-state FCA provisions as of 2010 (Bucy et al. 2010; Rapp 2012; Berger and Lee 2022). The data are from Berger and Lee (2022). The column for FCA Type shows whether the state has adopted its own FCA, and if it has, whether its coverage is general (General) or Medicaid only (Medicaid). The column for qui tam represents whether the state's FCA has a provision that allows a private citizen to file a lawsuit on behalf of the state government and obtain a portion of the money received. The shaded states are those with state pension funds in our sample.

State	Year Passed	FCA Type	Qui tam	Code Section
Alabama		No		
Alaska		No		
Arizona	2009	Medicaid	No	Rev. Stat. Ann. § 36-2918
Arkansas	2009	Medicaid	No	Ark. Code Ann. §§ 20-77-901 to -902
California	1987	General	Yes	Cal. Gov't Code §12650 et seq
Colorado	2010	Medicaid	Yes	§Senate Bill (S.B.) 10-167
Connecticut		No		
DC	1998	General	Yes	DC ST § 2-308.14
Delaware	2000	General	Yes	Del. Code Ann. Tit. 6, § 1201 et seq
Florida	1994	General	Yes	Fla. Stat. § 68.081 et seq
Georgia	2007	Medicaid	Yes	Ga. Code § 49-4-4168
Hawaii	2001	General	Yes	Haw. Rev. Stat. § 661-22 et seq
Idaho		No		
Illinois	1992	General	Yes	Ill. Comp. Stat. Ann. § 175.1 et seq
Indiana	2005	General	Yes	Ind. Code § 5-11-5.5
Iowa		No		
Kansas		No		
Kentucky		No		
Louisiana	1997	Medicaid	Yes	La. Rev. Stat. Ann. § 46:438 et seq
Maine		No		
Maryland		No		
Massachusetts	2000	General	Yes	Mass Ann. Laws Ch. 12 § 5(A)-(O)
Michigan	2008	Medicaid	Yes	MCL § 400.601 et seq
Minnesota		No		
Mississippi		No		
Missouri	2007	Medicaid	No	Mo. Ann. Stat. § 191.905 (1),(3),(4),(11)
Montana	2005	General	Yes	Mont. Code, Ch. 465 HB 146
Nebraska	1996	Medicaid	No	§Neb. Rev. Stat. Ann. § 68-936
Nevada	1999	General	Yes	Nev.Rev.Stat. § 657.010 et seq
New Hampshire	2005	Medicaid	Yes	New Hamp. RSA § 167:61
New Jersey	2008	General	Yes	N.J.S.A. § 2A:32C-1
New Mexico	2004	General	Yes	N.M. Stat. Ann. § 27-14-1 et seq
New York	2007	General	Yes	NY Stat. § 39-13-187 et seq
North Carolina	2009	General	Yes	N.C. Gen. Stat. §§ 1-605, -608
North Dakota		No		
Ohio		No		
Oklahoma	2007	General	Yes	Section 5053, title 63
Oregon		No		
Pennsylvania		No		
Rhode Island	2008	General	Yes	Ch. 9-1. 1-1
South Carolina		No		
South Dakota		No		
Tennessee	2001	General	Yes	§ 4-18-101 et seq
Texas	1995	Medicaid	Yes	Tex. Hum. Res. Code § 36.001-36.117
Utah		No		
Vermont		No		
Virginia	2003	General	Yes	Va. Code Ann. § 8.01-216.1
Washington		No		
West Virginia		No		
Wisconsin	2008	Medicaid	Yes	§ 20.931
Wyoming		No		

Appendix C State pension funds in the sample

This table presents the list of state pension funds that owned shares of firms in our sample during 2007-2010 as identified in Thomson Reuter's 13F filings. The N reported in column 2 indicates the total number of firm-years in our sample that each fund holds during 2007-2010.

State Pension Fund Name	**N**	**Percent**
Alaska Retirement Management Board	179	0.21
California Public Employees Retirement System	9,390	11.26
California State Teachers Retirement System	129	0.15
Colorado Public Employees Retirement Association	6,688	8.02
Florida State Board of Administration	7,082	8.49
Kentucky Teachers Retirement System	5,278	6.33
Missouri Employee Retirement System	35	0.04
New Jersey Better Educational Savings Trust Fund	269	0.32
New Jersey Common Pension Fund A	1,270	1.52
New Jersey Common Pension Fund D	71	0.09
New Jersey Common Pension Fund E	60	0.07
New Jersey State Employees Deferred Compensation	663	0.80
New Mexico Educational Retirement Board	1,748	2.10
New York State Common Retirement Fund	6,341	7.60
New York State Teachers Retirement System	5,062	6.07
Ohio Public Employees Retirement System	8,143	9.77
Ohio Teachers Retirement System	7,403	8.88
Oregon Public Employees Retirement Fund	1,222	1.47
Pennsylvania Public School Employees System	6,217	7.46
Texas Employees Retirement system	3,743	4.49
Texas Teachers Retirement System	3,744	4.49
Virginia Retirement System	4,840	5.80
Wisconsin Investment Board	3,809	4.57
Total	**83,386**	**100.00**

Appendix D Variable definitions

This table presents variable definitions.

Variable	Definition
Main Variables	
Guidance	Frequency of management guidance issued during a given year that conveys favorable news, where favorable news is defined as one that beats consensus
GuidanceEarn	Frequency of management earnings guidance issued during a given year that conveys favorable news, where favorable news is defined as one that beats consensus
AbsFE	The absolute difference between the latest analyst EPS forecast and the actual EPS, deflated by the firm's security price 2 days before the forecast announcement date
FCA_G	An indicator variable equal to one if a firm's share is held by a state pension fund from a state with a general FCA in a given year, and zero otherwise
FCA_M	An indicator variable equal to one if a firm's share is held by a state pension fund from a state with a Medicaid FCA in a given year, and zero otherwise
Control Variables	
Own	An indicator variable equal to one if a firm was held by a state pension fund in the previous year, and zero otherwise
Size	Natural logarithm of total asset in millions of dollars
Mtb	Market value of common equity divided by book value of common equity
Leverage	Sum of current and long-term liabilities divided by total asset
Roa	Income before extraordinary items divided by total asset
Loss	An indicator variable that equals one for observations with negative *Roa*
Earnvol	Standard deviation of *Roa* for the past five years
Retvol	Standard deviation of monthly returns during the year
Return	Natural logarithm of gross cumulative buy-and-hold returns during the year
Gexp	Number of years for which analyst i supplied at least one forecast through year t, deflated by 100
Fexp	Number of years through year t for which analyst i supplied at least one forecast for firm j, deflated by 100
Ncomp	Number of firms for which analyst i supplied at least one forecast during year t, deflated by 100
Nind	Number of two-digit SICs for which analyst i supplied at least one forecast during year t, deflated by 100
Dtop10	An indicator variable equal to 1 if the total number of analysts employed by the same broker as analyst i is in the top decile during year t and zero otherwise.
EstimateAge	Natural logarithm of the number of days between analyst i's forecast announcement and the forecast's target fiscal-end date

References

Acharya, V. V., DeMarzo, P., and Kremer, I. 2011. Endogenous information flows and the clustering of announcements. *American Economic Review*, 101(7), 2955-79.

Balakrishnan, K., Billings, M. B., Kelly, B., and Ljungqvist, A. 2014. Shaping liquidity: On the causal effects of voluntary disclosure. *The Journal of Finance*, 69(5), 2237-2278.

Berger, P. G., and Lee, H. 2022. Did the Dodd–Frank Whistleblower Provision Deter Accounting Fraud?. *Journal of Accounting Research*, 60(4), 1337-1378.

Bertomeu, J., Vaysman, I., and Xue, W. 2021. Voluntary versus mandatory disclosure. *Review of Accounting Studies*, 26, 658-692.

Beyer, A., Cohen, D. A., Lys, T. Z., and Walther, B. R. 2010. The financial reporting environment: Review of the recent literature. *Journal of Accounting and Economics*, 50(2-3), 296-343.

Bucy, P., Diesenhaus, J., Raspanti, M. S., Chestnut, H., Merrell, K., and Vacarella, C. 2010. States, statutes, and fraud: A study of emerging state efforts to combat white collar crime. *Cardozo L. Rev.*, 31, 1523-1535.

Byard, D., and Shaw, K. W. 2003. Corporate disclosure quality and properties of analysts' information environment. *Journal of Accounting, Auditing & Finance*, 18(3), 355-378.

Chen, S., Matsumoto, D., and Rajgopal, S. 2011. Is silence golden? An empirical analysis of firms that stop giving quarterly earnings guidance. *Journal of Accounting and Economics*, 51(1-2), 134-150.

Clement, M. B., and Tse, S. Y. 2005. Financial analyst characteristics and herding behavior in forecasting. *The Journal of Finance*, 60(1), 307-341.

Clinch, G. J., Li, W., and Zhang, Y. 2019. Short selling and firms' disclosure of bad news: Evidence from Regulation SHO. *Journal of Financial Reporting*, 4(1), 1-23.

Dey, A., Heese, J., and Pérez-Cavazos, G. 2021. Cash-for-information whistleblower programs: Effects on whistleblowing and consequences for whistleblowers. *Journal of Accounting Research*, 59(5), 1689-1740.

Dye, R. A. 2017. Optimal disclosure decisions when there are penalties for nondisclosure. *The RAND Journal of Economics*, 48(3), 704-732.

Einhorn, E. 2007. Voluntary disclosure under uncertainty about the reporting objective. *Journal of Accounting and Economics*, 43(2-3), 245-274.

Einhorn, E. 2018. Competing information sources. *The Accounting Review*, 93(4), 151-176.

Frenkel, S., Guttman, I., and Kremer, I. 2020. The effect of exogenous information on voluntary disclosure and market quality. *Journal of Financial Economics*, 138(1), 176-192.

Huang, Y., Jennings, R., and Yu, Y. 2017. Product market competition and managerial disclosure of earnings forecasts: Evidence from import tariff rate reductions. *The Accounting Review*, 92(3), 185-207.

Kim, J., and Valentine, K. 2021. The innovation consequences of mandatory patent disclosures. *Journal of Accounting and Economics*, 71(2-3), 101381.

Lang, M. H., and Lundholm, R. J. 1996. Corporate disclosure policy and analyst behavior. *The Accounting Review*, 467-492.

Lev, B., and Penman, S. H. 1990. Voluntary forecast disclosure, nondisclosure, and stock prices. *Journal of Accounting Research*, 28(1), 49-76.

Marinovic, I., and Varas, F. 2016. No news is good news: Voluntary disclosure in the face of litigation. *The RAND Journal of Economics*, 47(4), 822-856.

Miller, G. S. 2002. Earnings performance and discretionary disclosure. *Journal of Accounting Research*, 40(1), 173-204.

Penman, S. H. 1980. An empirical investigation of the voluntary disclosure of corporate earnings forecasts. *Journal of Accounting Research*, 132-160.

Rapp, G. C. 2007. Beyond protection: invigorating incentives for Sarbanes-Oxley corporate and securities fraud whistleblowers. *Boston University Law Review*, 87, 91.

Rapp, G. C. 2012. Mutiny by the Bounties-The Attempt to Reform Wall Street by the New Whistleblower Provisions of the Dodd-Frank Act. *BYU Law Review*, 73: 73-152.

Stubben, S. R., and Welch, K. T. 2020. Evidence on the use and efficacy of internal whistleblowing systems. *Journal of Accounting Research*, 58(2), 473-518.

Verrecchia, R. E. 1983. Discretionary disclosure. *Journal of Accounting and Economics*, 5, 179-194.

Table 1
Descriptive Statistics

Panel A. Management Guidance Analysis Sample (Firm-Year Level)

	Obs.	Mean	Std.Dev.	Q1	Median	Q3
Guidance	13,295	1.37	2.55	0.00	0.00	2.00
GuidanceEarn	13,295	0.61	1.49	0.00	0.00	0.00
FCA_G	13,295	0.67	0.47	0.00	1.00	1.00
FCA_M	13,295	0.40	0.49	0.00	0.00	1.00
Own	13,295	0.66	0.47	0.00	1.00	1.00
Size	13,295	7.19	1.93	5.85	7.06	8.39
Mtb	13,295	2.84	3.37	1.18	1.83	3.08
Leverage	13,295	0.33	0.21	0.16	0.33	0.48
Roa	13,295	0.03	0.10	0.01	0.03	0.08
Loss	13,295	0.20	0.40	0.00	0.00	0.00
Earnvol	13,295	0.06	0.09	0.01	0.03	0.06
Retvol	13,295	0.12	0.07	0.08	0.11	0.15
Return	13,295	0.03	0.52	-0.25	0.05	0.33

Panel B. Analyst Forecast Error Analysis Sample (Analyst-Firm-Year Level)

	Obs.	Mean	Std.Dev.	Q1	Median	Q3
AbsFE	66,183	0.01	0.04	0.00	0.00	0.01
FCA_G	66,183	0.68	0.47	0.00	1.00	1.00
FCA_M	66,183	0.59	0.49	0.00	1.00	1.00
Own	66,183	0.68	0.47	0.00	1.00	1.00
Size	66,183	8.24	1.80	6.97	8.19	9.49
Mtb	66,183	2.95	2.96	1.34	2.11	3.40
Leverage	66,183	0.36	0.19	0.22	0.37	0.50
Roa	66,183	0.04	0.11	0.01	0.05	0.09
Loss	66,183	0.19	0.40	0.00	0.00	0.00
Earnvol	66,183	0.05	0.06	0.01	0.03	0.06
Retvol	66,183	0.11	0.06	0.07	0.10	0.14
Return	66,183	-0.02	0.53	-0.27	0.05	0.29
Gexp	66,183	0.08	0.04	0.04	0.07	0.10
Fexp	66,183	0.05	0.03	0.03	0.04	0.06
Ncomp	66,183	0.17	0.07	0.12	0.16	0.21
Nind	66,183	0.04	0.03	0.02	0.03	0.05
Dtop10	66,183	0.09	0.29	0.00	0.00	0.00
EstimateAge	66,183	4.43	0.57	4.08	4.22	4.68

This table presents descriptive statistics for the variables used in our analysis. Panel A presents summary statistics of the variables for the management guidance analysis, measured at the firm-year level from 2007 to 2010. Panel B presents summary statistics of the variables for the analyst forecast error analysis, measured at the analyst-firm-year level from 2007 to 2010. All variables are defined in Appendix D.

Table 2
Whistleblower Protection and Management Guidance

	Guidance	GuidanceEarn
	(1)	(2)
FCA_G	-0.215**	-0.117**
	(-2.14)	(-1.97)
Own	-0.213**	-0.024
	(-2.14)	(-0.40)
Size	0.568**	0.292*
	(2.34)	(1.87)
Mtb	0.042***	0.028***
	(2.69)	(3.00)
Leverage	0.485	-0.099
	(1.21)	(-0.39)
Roa	1.916***	1.046***
	(4.25)	(3.79)
Loss	-0.049	-0.012
	(-0.66)	(-0.28)
Earnvol	-0.237	-0.641*
	(-0.38)	(-1.67)
Retvol	0.883**	0.548**
	(2.12)	(2.05)
Return	0.221***	0.159***
	(4.58)	(5.38)
Observations	13,295	13,295
Adj R-Squared	0.458	0.369
Firm FE	Yes	Yes
Year FE	Yes	Yes

This table estimates the relation between the adoption of whistleblower protection law and management guidance on a sample of firm-year observations from 2007 to 2010. All variables are defined in Appendix D. *t*-statistics appear in parentheses and are based on standard errors clustered at the firm level. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels (two-tail), respectively.

Table 3
Whistleblower Protection and Management Guidance Falsification Test

	Guidance	GuidanceEarn
	(1)	(2)
FCA_M	-0.079	-0.029
	(-1.00)	(-0.62)
Own	-0.252**	-0.047
	(-2.50)	(-0.75)
Size	0.563**	0.288*
	(2.32)	(1.85)
Mtb	0.042***	0.028***
	(2.70)	(3.00)
Leverage	0.479	-0.102
	(1.19)	(-0.39)
Roa	1.924***	1.050***
	(4.27)	(3.81)
Loss	-0.048	-0.011
	(-0.65)	(-0.26)
Earnvol	-0.262	-0.653*
	(-0.42)	(-1.70)
Retvol	0.865**	0.541**
	(2.09)	(2.03)
Return	0.221***	0.159***
	(4.58)	(5.38)
Observations	13,295	13,295
Adj R-Squared	0.457	0.369
Firm FE	Yes	Yes
Year FE	Yes	Yes

This table presents a falsification analysis on the relation between the adoption of Medicaid whistleblower protection law and management guidance on a sample of firm-year observations from 2007 to 2010. All variables are defined in Appendix D. t-statistics appear in parentheses and are based on standard errors clustered at the firm level. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels (two-tail), respectively.

Table 4
Whistleblower Protection and Analyst Forecast Error: Overall Effects

	AbsFE	AbsFE
	(1)	(2)
FCA_G	-0.000	-0.000
	(-0.25)	(-0.04)
Own	-0.002	-0.002
	(-0.94)	(-0.99)
Size	-0.004***	-0.005***
	(-3.09)	(-4.21)
Mtb	0.000***	0.000***
	(2.80)	(2.62)
Leverage	-0.009**	-0.007**
	(-2.35)	(-2.00)
Roa	-0.020***	-0.018***
	(-3.80)	(-3.44)
Loss	0.010***	0.010***
	(9.99)	(9.56)
Earnvol	-0.016***	-0.013**
	(-2.85)	(-2.32)
Retvol	0.100***	0.098***
	(19.41)	(18.92)
Return	-0.009***	-0.009***
	(-15.36)	(-15.26)
Gexp	-0.005	-0.335***
	(-1.15)	(-3.27)
Fexp	0.003	0.004
	(0.47)	(0.73)
Ncomp	0.002	-0.011*
	(0.74)	(-1.81)
Nind	0.006	0.029
	(0.69)	(1.12)
Dtop10	0.001*	-0.000
	(1.71)	(-0.42)
EstimateAge	0.007***	0.007***
	(24.62)	(19.40)
Observations	66,183	66,183
Adj R-Squared	0.502	0.512
Analyst FE	No	Yes
Firm FE	Yes	Yes
Year FE	Yes	Yes

This table presents the overall effects of the adoption of whistleblower protection law on analyst forecast error. All variables are defined in Appendix D. t-statistics appear in parentheses and are based on standard errors clustered at the analyst level. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels (two-tail), respectively.

Table 5

Whistleblower Protection and Analyst Forecast Error: Cross-sectional Effects

Panel A. Panel A. Unfavorable (40%) / Favorable (60%)

	Unfavorable		Favorable	
	(1)	(2)	(3)	(4)
FCA_G	-0.006*	-0.006*	0.002**	0.002**
	(-1.82)	(-1.75)	(2.23)	(2.15)
Observations	26,481	26,481	39,702	39,702
Adj R-Squared	0.528	0.533	0.542	0.561
Controls	Yes	Yes	Yes	Yes
Analyst FE	No	Yes	No	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Panel B. Unfavorable (50%) / Favorable (50%)

	Unfavorable		Favorable	
	(1)	(2)	(3)	(4)
FCA_G	-0.006**	-0.006**	0.003**	0.003**
	(-2.36)	(-2.18)	(2.52)	(2.33)
Observations	33,088	33,088	33,095	33,095
Adj R-Squared	0.511	0.511	0.563	0.605
Controls	Yes	Yes	Yes	Yes
Analyst FE	No	Yes	No	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Panel C. Unfavorable (60%) / Favorable (40%)

	Unfavorable		Favorable	
	(1)	(2)	(3)	(4)
FCA_G	-0.005***	-0.005***	0.006***	0.006***
	(-2.79)	(-2.62)	(3.53)	(2.84)
Observations	39,706	39,706	26,477	26,477
Adj R-Squared	0.510	0.513	0.582	0.620
Controls	Yes	Yes	Yes	Yes
Analyst FE	No	Yes	No	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

This table presents cross-sectional analysis on the relation between the adoption of whistleblower protection law and analyst forecast error for subsamples with unfavorable versus favorable earnings news, respectively. To construct the subsamples, we normalize each firm's realized EPS for the forecast period using the mean and the standard deviation of its EPS realizations over the past eight years. In Panel A (Panel B, Panel C), an observation is classified into an unfavorable subsample if its normalized EPS value falls in the lower 40% (50%, 60%), and into a favorable subsample if it falls in the upper 60% (50%, 40%). All variables are defined in Appendix D. t-statistics appear in parentheses and are based on standard errors clustered at the analyst level. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels (two-tail), respectively.

Table 6

Whistleblower Protection and Analyst Forecast Error: Cross-sectional Effects Falsification Test

Panel A. Panel A. Unfavorable (40%) / Favorable (60%)

	Unfavorable		Favorable	
	(1)	(2)	(3)	(4)
FCA_M	0.000	-0.000	-0.000	-0.000
	(0.16)	(-0.10)	(-0.76)	(-0.10)
Observations	26,481	26,481	39,702	39,702
Adj R-Squared	0.528	0.533	0.542	0.561
Controls	Yes	Yes	Yes	Yes
Analyst FE	No	Yes	No	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Panel B. Unfavorable (50%) / Favorable (50%)

	Unfavorable		Favorable	
	(1)	(2)	(3)	(4)
FCA_M	-0.000	-0.001	0.000	0.001
	(-0.19)	(-0.41)	(0.61)	(1.25)
Observations	33,088	33,088	33,095	33,095
Adj R-Squared	0.511	0.511	0.563	0.605
Controls	Yes	Yes	Yes	Yes
Analyst FE	No	Yes	No	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Panel C. Unfavorable (60%) / Favorable (40%)

	Unfavorable		Favorable	
	(1)	(2)	(3)	(4)
FCA_M	-0.001	-0.002	0.001	0.001
	(-1.08)	(-1.43)	(0.72)	(1.53)
Observations	39,706	39,706	26,477	26,477
Adj R-Squared	0.510	0.513	0.582	0.620
Controls	Yes	Yes	Yes	Yes
Analyst FE	No	Yes	No	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

This table presents cross-sectional falsification analysis on the relation between the adoption of Medicaid whistleblower protection law and analyst forecast error for subsamples with unfavorable versus favorable earnings news, respectively. To construct the subsamples, we normalize each firm's realized EPS for the forecast period using the mean and the standard deviation of its EPS realizations over the past eight years. In Panel A (Panel B, Panel C), an observation is classified into an unfavorable subsample if its normalized EPS value falls in the lower 40% (50%, 60%), and into a favorable subsample if it falls in the upper 60% (50%, 40%). All variables are defined in Appendix D. t-statistics appear in parentheses and are based on standard errors clustered at the analyst level. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels (two-tail), respectively.