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Does Corporate Governance Influence Misstatement Disclosure Timeliness?

Rapheal Joseph Hamilton
Syracuse University, rapheal.hamilton@gmail.com

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Abstract

The relationship between corporate governance and firm disclosure for firms in crisis, specifically firms in violation of GAAP, may differ from the relationship demonstrated in prior literature between governance and voluntary disclosure. An emerging stream of disclosure literature assumes that the relationship between corporate governance and misstatement disclosure choices mirror that found in prior voluntary disclosure literature though no study has empirically demonstrated that a similar relationship exists. Using a sample of 302 accounting irregularities disclosed between 2000 and 2006, I investigate the role of corporate governance, including both internal and external mechanisms, in influencing misstatement disclosure timeliness. I provide empirical evidence consistent with the value of in-the-money stock options incentivizing management to disclose material misstatements in a less timely manner and a non-linear relationship between management ownership and timeliness where lower levels of ownership improve timeliness and higher levels of ownership inhibit timeliness. The results also suggest that greater board independence, CFO turnover prior to the end of the misstated period, and greater risk of civil litigation improve misstatement disclosure timeliness, while greater board size and board classification have the opposite effect.

Keywords: Financial Misstatements; Restatements; Corporate Governance; Management Incentives, Disclosure Timeliness

JEL Classification: G34, M12, M41

Does Corporate Governance Influence Misstatement Disclosure Timeliness?

By

Rapheal J. Hamilton

BSB, Emporia State University, 1995

MBA, Syracuse University, 2004

MAPA, Syracuse University, 2004

DISSERTATION

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University

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1. Introduction

Over the past decade and as recently as 2011, the U.S. Securities Exchange Commission (SEC) has voiced its concern with the lack of urgency demonstrated by firms in disclosing misstatements uncovered in the firm's prior financials. A preliminary look at the timeliness of misstatement disclosures reveals that the SEC has good reason to be concerned. In 2006, the final year in this study's sample, 74 of 200 misstatements (37%) were disclosed more than two fiscal quarters after the end of the affected financials.

While it is unlikely that the time taken to disclose a misstatement is driven entirely by management, strategic behavior may reduce misstatement disclosure timeliness if utility maximizing managers (Jensen and Meckling, 1976) seek to avoid losses of personal wealth and reputation (Kothari, Shu, and Wysocki, 2009) due to firm value destruction accompanying misstatement revelations (Ettridge et al., 2010; Hennes, Leone, and Miller, 2008a; Palmrose, Richardson, Scholz, 2004; Anderson and Yohn, 2002; Kinney and McDaniel, 1989; Srinivasan, 2005).

Assuming investors prefer more timely financial information over less timely when making investment decisions, management's actions to disclose in a less timely manner are inconsistent with investor preferences. As a solution to the agency costs associated with this inconsistent behavior, Jensen and Meckling (1976) theorize that shareholders can employ compensation incentives and incur monitoring costs in an effort to better align management's incentives

with their own. While the prior misstatement disclosure literature has investigated the consequences of strategic misstatement disclosures such as Files (2011) investigation into the association between disclosure timeliness and the likelihood and level of SEC penalties and Myers, Scholz, and Sharp (2011) investigation into the market's reaction to management's choice of more obscure disclosure venues, no study has investigated the role of corporate governance in influencing misstatement disclosure timeliness.

There is sufficient reason to believe that the role of corporate governance in influencing misstatement disclosure choices may differ from prior evidence of its relationship with voluntary disclosures such as management forecasts. Daily, Dalton, and Cannella (2003) argue that the relationship between governance and firm performance is situation dependent thus limiting generalizability. They explain that the relationship between corporate governance and firm performance can vary between a firm in crisis and a firm not in crisis. In the case of financial misstatements, firms that violate GAAP are often in crisis as evidenced by their poor performance, high leverage, and limited cash-flow from operations (Ettridge et al., 2010; Efendi, Srivastava, and Swanson, 2010; Palmrose et al., 2004; Richardson, Tuna, and Wu, 2002; Kinney and McDaniel, 1989). This is the opposite of firms disclosing earnings forecasts which are often better performers (Lev and Penman, 1980; Miller, 2002). The association between misstatement disclosure and changes in stock liquidity and cost of capital following disclosure is consistent with a firm in crisis. While management forecasts (i.e. voluntary disclosure) increase stock liquidity and reduce cost of

capital (Ajinkya et al., 2005; Karamanou and Vafeas, 2005), misstatement disclosures result in the opposite and increase bid-ask spreads[1] (Anderson and Yohn, 2002), decrease stock liquidity (Bardos, 2011), and increase cost of capital (Botosan and Plumlee, 2002; Hribar and Jenkins, 2004; Kravet and Shevlin, 2010).

Using a comprehensive model including both internal and external governance mechanisms and a sample of 302 accounting irregularities disclosed between 2000 and 2006, I present empirical evidence of corporate governance influencing misstatement disclosure timeliness. Specifically, I demonstrate evidence consistent with the value of in-the-money stock options incentivizing management to disclose misstatements in a less timely manner and a non-linear relationship between management ownership and timeliness where the evidence is consistent with low levels of ownership improving timeliness and high levels of ownership reducing timeliness. I also find that while greater board independence, CFO turnover prior to the end of the misstated period, and the firm's litigation environment are all associated with more timely misstatement disclosures, greater board size and board classes are associated with less timely misstatement disclosures. The findings also provide empirical evidence that timeliness varies with the type of accounting issue involved in the misstatement.

The remainder of the paper is organized into the following sections. Section 2 discusses the underlying theory and develops expectations. Section 3 describes the sample selection. Section 4 outlines the methodology and variable

[1] Huberman and Halka (2001) and Chakravarty and Sarkar (1999) demonstrate a negative relationship between bid-ask spread and stock liquidity.

definitions. Section 5 discusses the empirical results. Section 6 discusses additional analysis. Section 7 concludes.

2. Theory and Expectations

2.1 Misstatement disclosure timeliness

Between 2000 and 2006[2], the market witnessed a seven-fold increase in the number of disclosures identifying material misstatements in prior financial reports (Scholz, 2008; GAO[3], 2002; GAO, 2006) and lost over $36 billion in market capitalization as a result (GAO, 2006). Figure 1 provides a preliminary look at the timeliness of accounting error and irregularity disclosures over the same period extracted from the GAO Financial Restatement Database.[4] On average, one-third (one-tenth) of the misstatements were disclosed more than two (four) fiscal quarters following the end of the misstated period (i.e. after management resumed reporting in accordance with GAAP).

This high frequency of less-than-timely disclosure has raised considerable concern from regulators over the last decade. In response to the accounting scandals of 2002 (e.g. Enron) and in clear acknowledgement of the existing issue of untimely misstatement disclosures, Section 409 of the Sarbanes-Oxley Act (SOX) mandated that public issuers disclose material changes in financial condition in an urgent manner (SOX, 2002). The SEC, charged with protecting

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[2] Because of restrictions on the availability of required data the study is limited to the period 2000-2006

[3] Government Accountability Office (GAO)

[4] Data for the figure is limited to accounting errors and irregularities identified in the GAO Financial Restatement Database for which an end-date for the misstatement period is identified in Audit Analytics.

public investors, implemented the SOX mandate in August 2004 with the release of *Final Rule: Additional Form 8-K Disclosure Requirements and Acceleration of Filing Date (Final Rule 8-K)*. In *Final Rule 8-K,* the SEC added a number of new corporate information events to the list of those requiring a Form 8-K submission including the determination of the management, auditor, or board that "previously issued financial statements covering one or more years or interim periods no longer should be relied upon because of an error in such financial statements" (SEC, 2004). In addition, the SEC shortened the Form 8-K submission deadline from 15 days to four days after occurrence of the event to "provide investors with better and faster disclosure of important corporate events" (SEC, 2004). Post *Final Rule 8-K*, timeliness remains a significant concern. In August 2008, the Advisory Committee on Improvements to Financial Reporting (ACIFR) final report to the SEC encouraged the regulatory body to further stress timely identification and disclosure of erroneous financials (ACIFR, 2008) and as recently as December 2011, the SEC reiterated its mandate "to require clear and timely disclosure by the market participants it oversees" and to ensure that a "very real threat of swift and stern enforcement" exists for those who do not meet these obligations (Gallagher, 2011).

2.2 Strategic misstatement disclosure

Although management is responsible for notifying investors when an error or otherwise misleading information is detected in prior financial statements (APB; FASB), managers may take actions to withhold such a disclosure. Agency theory holds that utility maximizing managers may behave in a manner

inconsistent with the best interests of shareholders (Jensen and Meckling, 1976). For example, according to Kothari et al. (2009), management tends to withhold disclosure of downward adjustments in management forecasts and dividends and discloses the information only after the benefit to management of withholding no longer exceeds the cost. They further demonstrate that this tendency is exacerbated by greater equity ownership and employment risk due to losses in personal wealth and reputation as a result of the expected negative market reaction to the bad news.

Following agency theory and the findings from Kothari et al. (2009), management may be motivated to withhold the disclosure of material misstatements for at least two reasons. The first is out of concern for wealth preservation. Given the negative stock returns associated with disclosure of misstatements in prior period financials (Ettridge et al., 2010; Hennes et al., 2008a; Palmrose et al. 2004; Anderson and Yohn, 2002), management with wealth tied to firm value (e.g. ownership, stock options) is likely to incur real wealth losses associated with a misstatement disclosure. Concerned with wealth preservation, management may be motivated to withhold the disclosure to avoid the negative market reaction. The second reason is out of concern for their reputation and continued employment. Prior literature demonstrates that managers are held accountable for misstatements. Specifically, shareholders of misstating firms question management credibility (Kinney and McDaniel, 1989) along with accounting practices and disclosure quality (GAO, 2002; Anderson and Yohn, 2002). Managers of misstating firms also find that their reputation is

tarnished (Srinivasan, 2005) and their future employment is jeopardized (Ettridge et al., 2010; Hennes et al., 2008a; Hennes, Leone, and Miller, 2010) following the disclosure. Concerned over loss of reputation and employment, managers may be motivated to withhold the misstatement from the market.

As Kothari et al. (2009) explains for manager's withholding negative forecast adjustments, there is likely a cost/benefit decision for withholding misstatement disclosures where once the costs of withholding the information no longer exceeds the benefit to management the misstatement is disclosed. Just where the shift in balance between benefits and costs occurs likely varies for each misstatement. In some cases, management may withhold the disclosure long enough to lock in profits while the firm is overvalued which is consistent with Beneish (1999) findings of increased insider selling prior to misstatement disclosure. In other cases management may withhold until the end of their term which would be consistent with studies such as Hennes et al. (2008a) that find increased senior management turnover following misstatement disclosure. Kothari et al. (2009) suggests that management withholds long enough to bury bad news with good news. Consistent with Kothari et al. (2009), Myers et al. (2011) finds that management withholds misstatements long enough to disclose them obscurely in lengthy periodic reports. History also demonstrates that scrutiny from regulators such as investigations can lead to misstatement disclosure (Palmrose et al., 2004; Hennes et al., 2008a).

2.3 Costs of strategic misstatement disclosure

Prior literature has demonstrated that management's decision to withhold bad news from the market can result in significant costs to the firm in the form of civil litigation and regulatory penalties. Under Rule 10b-5 (10b-5), investors are able to seek redress for harm caused by relying on misstated financial statements provided they meet the requirements to establish a claim. One such requirement is evidence of management's intent to deceive the investor. Where it can be demonstrated that management delayed the disclosure of the misrepresentation there is an increased likelihood of civil litigation (Skinner, 1994; Field, Lowry, and Shu, 2005). The same literature also notes that the delay in disclosure increases the cost of litigation defense and settlement by increasing the litigation window and the number of investors harmed.

Costs to the firm of management's disclosure choice may also include increased regulatory attention. Files (2011) demonstrates that less forthright misstatement disclosure results in an increased likelihood of SEC sanctions and increased monetary penalties for the firm. To be more exact, for each week it takes management to disclose a material misstatement, the average firm incurs an additional $443,000 in corporate penalties (Files, 2011).

2.4 Corporate governance and misstatement disclosure

Management's strategic disclosure behavior represents an agency cost to owners. Where agency costs exist because management's behavior diverges from owner preferences, shareholders can employ compensation incentives and

incur monitoring costs in an effort to align management's behavior (Jensen and Meckling, 1976).

While the influence of corporate governance on management disclosure practices is not a new subject, results from prior literature studying the influence of corporate governance on voluntary disclosure may not be generalizable to misstatement disclosures. Daily et al. (2003) explain that the relationship between corporate governance and firm performance can vary between a firm in crisis and a firm not in crisis. For example; the relationship between firm bankruptcy and institutional ownership depends on whether it is studied prior to the financial crisis, during the financial crisis, or following the financial crisis (Daily et al., 2003). Firms that violate GAAP are often in crisis as evidenced by their poor performance, high leverage, and limited cash-flows from operations (Ettridge et al., 2010; Efendi, Srivastava, and Swanson, 2010; Palmrose et al., 2004; Richardson, Tuna, and Wu, 2002; Kinney and McDaniel, 1989). This is the opposite of firms disclosing earnings forecasts which are often better performers (Lev and Penman, 1980; Miller, 2002). The association between misstatement disclosure and the change in stock liquidity and cost of capital is consistent with a firm in crisis. While management forecasts (i.e. voluntary disclosure) increase stock liquidity and reduce cost of capital (Ajinkya et al., 2005; Karamanou and Vafeas, 2005), misstatement disclosures result in the opposite and increase bid-ask spread[5] (Anderson and Yohn, 2002), decrease stock liquidity (Bardos, 2011),

[5] Bid-ask spreads are commonly used in the literature as a proxy for stock liquidity. The greater the bid ask spread the less liquid the stock (Huberman and Halka, 2001; Chakravarty and Sarkar, 1999).

and increase cost of capital (Botosan and Plumlee, 2002; Hribar and Jenkins, 2004; Kravet and Shevlin, 2010).

2.5 Bundling effect

Prior governance literature demonstrates the need to study alternate governance mechanisms (internal and external) simultaneously as the absence of a comprehensive design ignores the complementary and substitution effects (trade-offs) between the various governance mechanisms, commonly referred to as the bundling effect (Beatty and Zajac, 1994; Zajac and Westphal, 1994; Rediker and Seth, 1995; Laux and Laux, 2009; Cheng and Indjejikian, 2009).

2.6 Internal governance mechanisms

Owners have options for reigning in self-interested management. They can offer incentives to better align management behavior and they can incur costs necessary to monitor management and limit their divergent behavior (Jensen and Meckling, 1976). What mix of each mechanism owners choose is beyond the scope of this study but has been shown to depend on both firm specific factors such as organizational complexity and firm risk (Beatty and Zajac, 1994; Zajac and Westphal, 1994) and external factors such as the takeover, labor, and product markets (Cheng and Indjejikian, 2009).

2.6.1 Incentive compensation

Stock options and stock ownership link management's personal wealth to shareholder wealth and provide management with incentives to take actions aligned with shareholder interests (Jensen and Meckling, 1976), though their use

can be a “double-edged sword” both motivating management to avoid taking actions that destroy firm value while at some point comprising enough of management compensation to incentivize risk-avoidance (Zajac and Westphal, 1994). While Kothari et al. (2009) finds that management’s tendency to withhold downward adjustments in management earnings forecasts is exacerbated by greater management ownership; the role of incentive mechanisms in influencing management’s misstatement disclosure choices has yet to be empirically investigated. Greater compensation incentives, by design, likely sensitize management to the loss in firm value historically associated with misstatement disclosures and rather than encourage disclosure may instead discourage disclosure in an effort to preserve their personal wealth. Although management may choose to withhold disclosure initially, at some point the benefit to management (e.g. wealth preservation) of withholding may no longer exceed the cost of withholding (e.g. regulatory sanctions and penalties) leading management to release the disclosure (Kothari et al., 2009). Therefore, I expect that management with greater wealth tied to firm value through stock options and stock ownership will be less timely in their misstatement disclosures.

2.6.2 Board monitoring

While owners are concerned with management behaving in their best interests, portfolio diversification reduces the incentive for and efficiency of individual shareholder monitoring (Fama, 1980; Bhide, 1994). Where ownership is not concentrated, boards are the most efficient means with which to hire, fire, compensate, and monitor management (Fama and Jensen, 1983). Since owners

incur monitoring costs for the purpose of aligning management behavior with their own interests (Jensen and Meckling, 1976), it follows that more effectively monitored management will be more timely in their misstatement disclosures.

Prior literature demonstrates that greater board independence improves the effectiveness of board monitoring by reducing the influence of management on the board. For example; insider dominated boards offer weaker monitoring as executives in effect self-monitor and may have significant influence over those responsible for monitoring (e.g. career advancement) (Beatty and Zajac, 1994) and board independence has been shown to have a positive association with board committee independence and a negative association with earnings management (Beasley and Salterio, 2001; Klein, 2002; Vafeas, 2005). Since boards with greater independence better represent shareholder interests, I expect that firms with more independent boards will have more timely misstatement disclosure.

Board size may also influence the boards monitoring effectiveness. A greater number of directors can complicate coordination (Eisenberg, Sundgren, and Wells, 1998; Yermack, 1996) and lengthen the board decision making process (Shaw, 1976; Smith et al., 1994) consistent with smaller boards offering more effective monitoring. Given the demonstrated relationship between smaller boards and more effective monitoring, I expect that firms with smaller boards will have more timely misstatement disclosure.

2.6.3 Senior management dismissal

Threat of dismissal is a valuable governance mechanism employed by the board (Walsh and Seward, 1990) and is the “ultimate sanction” used to influence management behavior (James and Soref, 1981; Weisbach, 1988; Huson, Parrino, and Starks, 2001). Tasked with hiring and firing senior management (Fama and Jensen, 1983), it is the board’s responsibility to monitor and remove management who underperform or otherwise behave inconsistently with shareholder preferences (Morck, Shleifer, and Vishny, 1989). In the context of misstatements the board may choose to replace senior management that is either complicit in the misrepresentation or unwilling to properly disclose the misstatement. Where outgoing management is terminated for poor performance, the incoming manager may credibly blame the outgoing manager for current problems and take measures to “clean the books” with little reputational costs to the incoming manager (Murphy and Zimmerman, 1993). In the case of misstatement disclosures, new managers will likely seek to disclose any misrepresentations that occurred during the prior management’s tenure. If incoming management seeks to “clean the books,” I expect more timely misstatement disclosure as the result of senior management turnover.

2.7 External governance mechanisms

The corporate control market is a strong external governance mechanism that motivates management to maximize firm value under threat of takeover (Walsh and Seward, 1990). While the market exists, management can take measures designed to circumvent the threat of takeover (Walsh and Seward,

1990; Bebchuk and Cohen, 2005; Bebchuk, Cohen, and Ferrell, 2009). These anti-takeover measures serve to entrench management and further separate management from ownership. A highly successful and often used anti-takeover measure is the staggered or classified board (Bebchuk and Cohen, 2005; Bebchuk et al., 2009). The presence of a classified board decreases the attractiveness of takeovers to prospective acquirers by preventing the immediate transition of management. With respect to misstatement disclosures, I expect that classified boards will shield management from threat of takeover allowing them to make disclosure decisions that are suboptimal to investors and reduce disclosure timeliness.

Large shareholders, such as institutional owners, also serve as external monitors of management. Institutional shareholders often own considerably more shares than individual investors (Anderson and Reeb, 2003; Dharwadkar et al., 2008) making the cost of shirking their monitoring role much higher than that of more diffuse owners which serves as an incentive to “attend to the tasks of ownership” (Demsetz and Lehn, 1985). Bushee and Noe (2000) demonstrate an association between higher institutional ownership and more forthcoming disclosure. Contrary to the above theory, Ajinkya, Bhojraj, and Sengupta (2005) find that the private benefits and information generated from institutional ownership decrease the likelihood of voluntary disclosure. Given the mixed results from prior literature, I do not have an expectation for the role of institutional ownership in influencing misstatement disclosure timeliness.

In investigating auditor specialization, Dunn and Mayhew (2004) provide evidence that audit quality plays a role in enhancing client disclosures. The results imply that greater audit quality provides more effective monitoring of the firm's financial reporting process. Since the financial reporting process includes management's disclosure decision, I expect that greater audit quality will influence management to comply with regulatory disclosure requirements and disclose misstatements in a timely manner.

Finally, the firm's securities litigation environment may also serve as an external governance mechanism. Firms that face greater litigation risk, such as firms in industries prone to class action lawsuits, are more likely to issue voluntary disclosures (e.g. earnings warnings) (Skinner, 1994; Field et al., 2005). As a governance mechanism the threat of civil litigation may influence management's misstatement disclosure behavior. If greater litigation risk increases the cost to management of strategically disclosing misstatements, I expect that managers facing greater litigation risk will issue more timely misstatement disclosures.

3. Sample Selection

The sample begins with 582 accounting regularities identified by Hennes, Leone, and Miller (2008b) from the GAO Financial Restatement Database for the period 1997-2006. I restrict the sample to accounting irregularities for two reasons. First, the expected market reaction, threat of litigation, and turnover are all more severe for irregularities than for accounting errors (Palmrose et al.,

2004; Hennes et al., 2008a). The goal of this study is to determine if corporate governance influences management's misstatement disclosure decisions and this influence is most likely to be seen where management has the greatest incentive to behave strategically. In other words, I am more likely to find management taking actions to protect their personal wealth tied to firm value and protecting their employment and reputation where these things are most threatened. Likewise, I am more likely to see the effects of board monitoring on disclosure timeliness where the divergence between management self-interest and investor interest is greatest. Second, measuring timeliness as the number of days between the end of the misstatement period and the date of the misstatement disclosure is rather noisy. Myers et al. (2011) explains that a limitation of the measure is that timeliness is jointly determined by how quickly management detects the misstatement and how quickly management discloses the misstatement. By restricting the sample to accounting irregularities the measure is less likely to be impacted by the former as management is or should be aware of intentional misrepresentation (Hennes et al., 2008a).

The sample was further restricted to those observations for which misstatement details were available from the Audit Analytics - Audit Non-Reliance Database. There were 103 observations that occurred between 1997 and 1999 that were eliminated from the sample because the availability of non-reliance data begins in 2000. There were another 130 observations eliminated because there was no matching non-reliance data. Out of the remaining 349 observations 47 were missing required governance data. Governance data was

hand collected from firm 10-K and DEF-14 (Proxy) submissions available through the SEC-EDGAR database. Firm characteristics were collected from Compustat Fundamentals – Annual. Any missing firm characteristics were hand collected from 10-K submissions. Data necessary to calculate the magnitude of the earnings misstatement was collected from the Compustat Un-restated "As First Reported" Database. Any missing un-restated information was hand collected from representative misstatement disclosures (e.g., press releases, 8-Ks, 10-Ks).

The sample selection procedures are summarized more concisely in Table 1[6] along with the sample distribution by year and industry. The GAO dataset ends in June 2006 which explains the low number of observations for the final year of the sample. Table 1 also introduces the timeliness measure, *TIMELINESS*, and provides the average number of days taken to disclose the sample's accounting irregularities by year and industry. There is no statistical difference between the mean *TIMELINESS* for each year and industry.

{Insert Table 1: Sample selection and distribution}

4. Methodology

I conduct a multivariate analysis of the association between misstatement disclosure timeliness (dependent variable) and both internal and external governance mechanisms (independent variables) controlling for misstatement

[6] Out of the 302 disclosure observations there are 16 firms with two disclosures and one firm with three disclosures. The study's conclusions are robust to the exclusion of firms with multiple disclosures.

severity and complexity (both likely to influence disclosure timeliness) and firm characteristics that have been shown in prior literature to influence management's disclosure choices. Since the dependent variable measures the duration of time between the end of the misstated period and the misstatement disclosure, the study utilizes a proportional hazard model (Cox Partial Likelihood)[7] to estimate the parameters of the variables of interest. Hosmer and Lemeshow (1999) explain that the proportional hazard model can be used when the purpose of the analysis is to determine the influence of covariates on duration. The study's sample consists of single observations for each misstatement and the duration to disclosure is known for each observation (i.e. all observations are failures). In addition, all explanatory variables are measured once for each misstatement (i.e. time invariant). Finally ties are resolved using Breslow (1974) approximations.

$$\begin{aligned} TIMELINESS_i = f\,(&IN\text{-}THE\text{-}MONEY\ EXERCISABLE_i,\ IN\text{-}THE\text{-}MONEY\ UN\text{-}EXERCISABLE_i, \\ &CEO\ OWNERSHIP_i, CEO\ OWNERSHIP\ SQUARED_i,\ BOARD\ INDEPENDENCE_i, \\ &BOARD\ SIZE_i,\ CEO\ TURNOVER_i,\ CFO\ TURNOVER_i, CLASSIFIED\ BOARD_i, \\ &INSTITUTIONAL\ OWNERSHIP_i,\ AUDIT\ QUALITY_i, LITIGATION\ RISK_i, \\ &MISSTATEMENT\ CHARACTERISTICS_i,\ FIRM\ CHARACTERISTICS_i, \\ &YEAR\ DUMMIES,\ INDUSTRY\ DUMMIES) \end{aligned} \tag{1}$$

4.1 Dependent variable

The number of days between the end of the misstatement period and the misstatement disclosure date has emerged as the accepted measure for the

[7] The study's findings and conclusions are robust to using a simpler exponential model; $E(y_i) = e^{\vec{x}_i\vec{\beta}}$.

timeliness of misstatement disclosures (Files, 2011; Myers et al., 2011). While the exact cause for the variation in disclosure timing is not known, it is likely to be associated with the quality of internal controls (detection), complexity of the accounting issue, and management's disclosure timing decision. By restricting the sample to accounting irregularities, I attempt to remove the noise associated with detection of accounting errors which can be difficult for management to detect even in firms with strong internal accounting processes. Any noise due to detection that remains in the irregularity sample is likely to be negligible since accounting irregularities involve intentional misrepresentation which management either knew about or should have known about had they been diligent in their duties. I further attempt to isolate managements timing decision by controlling for the complexity of the accounting issue involved in the misstatement. Since timeliness is proxied by the number of days between the end of the misstatement period and the misstatement disclosure date, the greater the value of *TIMELINESS*, the less timely the disclosure.

4.2 Independent variables

The independent variables were hand collected from company proxy statements and periodic filings due to limited firm coverage from available governance datasets such as Execucomp and the Corporate Library. The only exception is institutional ownership which was extracted from the CDA/Spectrum Thomson Financial services database. Unless otherwise stated, the independent variables were measured at the end of the year preceding the end of the misstated period (i.e., the last period affected by the GAAP violation).

4.2.1 CEO Stock Options

Meant to serve as a long term incentive for the maximization of firm value, significant stock option accumulation can have an incongruent effect on management behavior (Zajac and Westphal, 1994). For instance, in periods of overvalued equity, management with significant in-the-money options are more likely to issue financial statements that violate GAAP in order to support the firm's short-term stock price (Efendi et al., 2007). I hand collect the value of both in-the-money options that are exercisable and in-the-money options that are un-exercisable from company periodic filings and proxy statements. The two values are calculated by taking the difference between the option strike price and the market price of the underlying stock and multiplying the result by the number of shares at the given strike price and summing across contracts. To control for heteroscedasticity in CEO sensitivity to the level of in-the-money stock options, I follow Efendi et al. (2007) and scale the value of the options by the CEO's total pay (salary + bonus). I include two stock option variables; one for *IN-THE-MONEY EXERCISABLE* and one for *IN-THE-MONEY UN-EXERCISABLE*. Given the findings in Efendi et al. (2007), I expect that CEO's with greater in-the-money exercisable stock options will be more sensitive to the short-term stock price and will take longer to disclose misstatements. Although un-exercisable options likely incentivize a longer horizon, their effect may be overshadowed by short term incentives (e.g. wealth preservation) from exercisable options. For this reason, I do not have an expectation for how in-the-money un-exercisable options should influence disclosure timeliness.

4.2.3 CEO Ownership

Within agency theory, CEO ownership serves to align management's behavior with shareholder interests (Jensen and Meckling, 1976). Subsequent literature has identified a tradeoff between low levels of ownership that serve to align CEO interests and greater levels of ownership that foster CEO entrenchment and suggest that the relationship between the level of CEO ownership and the alignment of interests is non-linear (Jensen and Warner, 1988; McWilliam, 1990; Sundaramurthy, 1996). These findings are consistent with the management disclosure literature demonstrating that lower levels of CEO ownership are associated with a greater likelihood of issuing management forecasts (Karamanou and Vafeas, 2005) and increased voluntary disclosure quality (Eng and Mak, 2003). To control for this non-linearity in CEO ownership, I follow Sundaramurthy (1996) and include a variable for both the percentage of CEO ownership (*CEO OWNERSHIP*) and the percentage of CEO ownership squared (*CEO OWNERSHIP SQUARED*). CEO ownership is calculated as the number of shares owned by the CEO divided by the number of shares outstanding, both measured at the end of the year preceding the end of the misstated period. Data necessary to calculate CEO ownership was hand collected from company periodic filings and proxy statements. Given the non-linear relationship between CEO ownership and the voluntary forecast disclosure exhibited in prior literature, I expect that CEO ownership will incentivize management to disclose misstatements in a more timely manner, though as ownership increases the timeliness of disclosure will decrease as the CEO's

interests diverge from the owners. In other words, I expect to see a curvilinear relationship between CEO ownership and misstatement disclosure timeliness similar to that demonstrated in the prior literature for voluntary disclosure.

4.2.4 Board Independence

Greater outside membership on the board of directors decreases insider influence and strengthens the board's ability to effectively monitor management (Fama and Jensen, 1983; Beatty and Zajac, 1994). I calculate *BOARD INDEPENDENCE* as the number of outside directors[8] serving on the board, divided by the total number of directors. Board information was hand collected from company periodic filings and proxy statements. I expect that management monitored by boards with greater board independence will be more timely in their misstatement disclosures.

4.2.5 Board Size

The size of the firm's board of directors can affect its ability to monitor management. Small boards (less than 7 or 8 directors) are more likely to function effectively and are more difficult for the CEO to control (Jensen, 1993). *BOARD SIZE* is measured as the number of directors serving on the board and was hand collected from company periodic filings and proxy statements. If smaller boards are more effective monitors, I expect that management monitored by smaller boards will disclose misstatements in a more timely manner.

[8] Directors who are not employees of the firm and who are not relatives of employees of the firm are classified as outside directors.

4.2.6 Senior management dismissal

Should the board find it necessary, it has the ability to replace senior management (Fama and Jensen, 1983). Since incoming management often use the earlier part of their tenure as an opportunity to “clean the books” and have the ability to blame discrepancies on outgoing management (Murphy and Zimmerman, 1993), I expect that replacing senior management should lead to more timely misstatement disclosure. Given their joint responsibility for financial reporting, I include a variable for both *CEO TURNOVER* and *CFO TURNOVER*. I measure turnover as a change in the name of the executive in the year the misstatement period ends from that reported one year preceding the end of the misstated period. CEO and CFO names are hand collected from company periodic filings and proxy statements.

4.2.7 Classified boards

A classified, or staggered, board is the quintessential takeover defense (Bebchuk and Cohen, 2005; Bebchuk et al., 2009). Whether included in the charter or by-law, classified boards prevent acquirers from replacing the entire board at one time by staggering director terms (usually over the period of three years), making the acquisition less attractive. The concern for shareholders is that classified boards may entrench management, increasing agency costs by further driving a wedge between management and owners (Walsh and Seward, 1990). *CLASSIFIED BOARD* is an indicator variable equal to 1 if the board is classified and 0 otherwise. I identify classified boards as having two or more classes of directors listed in their company periodic filings or proxy statements for

the year ending before the end of the misstated period. Since a classified board further separates management for ownership, I expect that its presence reduces the cost to management of taking actions inconsistent with owner preferences and may result in less timely misstatement disclosure.

4.2.8 Institutional ownership

Evidence from the prior literature concerning the role of institutional ownership in aligning management disclosure practices with shareholder preferences is mixed. While Bushee and Noe (2000) demonstrate an association between higher institutional ownership and more forthcoming disclosure, Ajinkya et al. (2005) finds that the private benefits and information generated from institutional ownership decrease the likelihood of voluntary disclosure. Given the mixed results, I do not have an expectation for the role of institutional ownership in influencing misstatement disclosure timeliness. I extract the number of outstanding shares held by institutional owners from the CDA/Spectrum Thomson Financial Services (13F filings) database. I measure the percentage of institutional ownership at the end of the year preceding the end of the misstated period and calculate the variable, *INSTITUTIONAL OWNERSHIP*, as the number of shares owned by institutions divided by the number of shares outstanding.

4.2.9 Audit quality

Dunn and Mayhew (2004) demonstrate that industry-specialist audit firms have a positive association with disclosure quality. If this association is effected through greater auditing quality offered by specialization, audit quality in a more

general sense may influence management's disclosure practices. DeFond (1992) finds that name-brand is a good substitute for more complex measures of audit quality. If audit quality is associated with greater monitoring of management's disclosure practices, I expect that management subject to a higher quality auditor will disclose misstatements in a more timely manner. I use Audit-Analytics to identify firms that have Big X auditors contracted at the end of the misstated period. Following DeFond (1992), *AUDIT QUALITY* takes the value of 1 if the firm has a Big X auditor contracted at the end of the misstated period and 0 otherwise.

4.2.10 Litigation environment

Management facing greater litigation risk is more likely to voluntarily disclose bad news (Skinner, 1994; Field et al., 2005). I classify firms as operating within a highly litigious environment if their sector[9] has an above average percentage of firms with new securities litigation filings from 2000-2006.[10] The frequency of new securities litigation filings is provided by the Stanford Securities Litigation Clearinghouse. This process results in classifying the financial, health care, information technology, telecommunication services, and utilities sectors as highly litigious. *LITIGATION RISK* is measured as an indicator variable and takes the value of 1 if the firm is a member of one of the five "high litigation" sectors and 0 otherwise.

[9] As identified under the Global Industry Classification System (GICS).
[10] The period was chosen to coincide with the sample period.

4.3 Control variables

Control variables that measure the characteristics of the given misstatement disclosure are measured at the time of the disclosure with the exception of the magnitude of the misstatement in income, which is measured after completion of the restatement. Firm characteristics are measured at the end of the year preceding the end of the misstated period.

4.3.1 Accounting issue

Just as financial transactions vary in complexity, misstatements in transactions vary in complexity. Sorting through a revenue recognition issue or merger issue may be more complex than sorting through a selling, general, and administrative (SG&A) expense issue. I include a series of control variables to capture this variation in timeliness attributable to characteristics of the underlying accounting issue. I include a control variable for *REVENUE RECOGNITION ISSUE, LEASE ISSUE, INVENTORY ISSUE, MERGERS & ACQUISITION ISSUE, SG&A EXPENSES ISSUE, DEFERRED TAXES ISSUE, ACCRUALS ISSUE,* and *INTANGIBLE ASSETS ISSUE.*[11] All accounting issues were measured as indicator variables and take the value of 1 if the misstatement involves the accounting issue and 0 otherwise. It is possible for misstatements to involve more than one accounting issue. Accounting issue data was extracted from the Audit Analytics – Non-reliance Database.

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[11] Palmrose at al. (2004) introduce a continuous variable to account for the "pervasiveness" of the misstatement and is measured as the total number of accounting issues involved in the misstatement. I use the same accounting issues but decompose the measure into individual dichotomous variables as I wish to capture changes in the intercept due to particular aspects of the individual accounting issues.

4.3.2 Misstatement duration

The duration of misstated periods varies greatly between misstatement disclosures. Since greater misstatement durations involve multiple periods, the probability of an outside party such as the SEC or auditor uncovering the misstatement is likely greater than a misstatement with a shorter duration. The increased probability that an outside party may uncover the misstatement may factor into management's decision to withhold the disclosure. To control for this probability, I include a control variable for misstatement duration. I follow Palmrose et al. (2004) and calculate *MISSTATEMENT DURATION* as the number of quarters misstated divided by 4. Data necessary to calculate the misstatement duration was extracted from the Audit Analytics – Non-reliance Database.

4.3.3 Magnitude of misstatement in income

Consistent with the association of misstatement magnitude with misstatement severity (Palmrose et al., 2004) and misstatement disclosure timeliness (Myers et al., 2011) in the prior literature, I control for the magnitude of the misstatement of income. I calculate the *MISSTATEMENT IN INCOME* as the cumulative difference between the corrected net income and the as-first-reported net income extracted from the Compustat Un-restated Database over the duration of the misstated period. To control for heteroscedasticity, I scale the cumulative difference by firm assets measured one year prior to the end of the misstated period.

4.4.4 Post-SOX announcement

SOX implementation has changed the landscape of misstatement disclosures (Scholz, 2008). Misstatements disclosed post-SOX involve lower dollar amounts and are less likely to involve fraud and core income items (Burks, 2011; Hennes et al., 2008; Scholz, 2008). SOX holds management to a higher disclosure standard likely increasing the cost to management of withholding a misstatement disclosure. I classify misstatement disclosures as a post-SOX announcement if the disclosure is released after August 29, 2002, the effective date of the SOX legislation (SOX, 2002). *POST-SOX ANNOUNCEMENT* is an indicator variable that takes the value of 1 if the misstatement disclosure occurs after August 29, 2002 and 0 otherwise.

4.4.5 Post-Final-Rule 8-K announcement

Final Rule 8-K became effective on August 23, 2004, and requires firms to disclose material misstatements within four days of determining that prior financials can no longer be relied upon by investors for decision making (SEC, 2004). The purpose of the regulation was to dissuade firms from making initial disclosure of the misstatements in periodic submissions and instead disclose in the more transparent, event-driven, Form 8-K. Myers et al. (2011) finds that firms are more likely to disclose misstatements using the Form 8-K following the implementation of *Final-Rule 8-K*. I classify misstatement disclosures as a post-Final-Rule 8-K announcement if the disclosure is released after August 23, 2004. *POST-FINAL-RULE 8-K ANNOUNCEMENT* is an indicator variable that takes

the value of 1 if the misstatement disclosure occurs after August 23, 2004 and 0 otherwise.

4.4.6 Firm size

I include a variable for firm size to control for the known association between larger firms and higher voluntary disclosure quality (Eng and Mak, 2003). *FIRM SIZE* is measured as the natural logarithm of the firm's book value of total assets one year prior to the end of the misstated period. Asset data was extracted from Compustat – Annual[12].

4.4.7 Firm leverage

Eng and Mak (2003) further find that firms with lower debt have higher voluntary disclosure quality so I include a variable for firm leverage to control for the impact of debt on management decisions across debt levels (Ettridge et al., 2010; Palmrose et al., 2004; Richardson et al., 2002; Kinney and McDaniel, 1989). *FIRM LEVERAGE* was calculated by dividing the firm's book value of long-term debt by the firm's book value of total assets both measured one year prior to the end of the misstated period. Debt and asset data was extracted from Compustat – Annual.

[12] Misstatement disclosure fiscal year may differ from the calendar year of the disclosure. For this reason, the announcements in this study are aligned with their fiscal year before matching with Compustat firm data. Approximately one-fifth of the restatements in the sample required alignment before merging with control data.

4.4.8 Temporal and industry effects

I control for industry[13] and year fixed effects to capture shifts in the timeliness of misstatement disclosures over time and industry disclosure practices.

4.5 Descriptive statistics

Table 2 presents the descriptive statistics on the variables measuring disclosure timeliness, corporate governance, misstatement characteristics, and firm characteristics. On average, accounting irregularities in the sample took 170 days to disclose, overstated net income by 4.1% of assets, and impacted 2.5 years of financials. The time elapsed before disclosure is consistent at the mean and median with summary statistics in both Files (2011) and Myers et al. (2011). Out of the 302 observations, 49% involved revenue recognition, 11% involved leases, 21% involved inventory, 13% involved mergers and acquisition, 23% involved selling, general, and administrative expenses, 12% involved deferred taxes, 30% involved accruals, and 3% involved intangible assets. Consistent with irregularities being more pervasive (Palmrose et al., 2004) and involving earnings manipulation (Ettridge et al., 2010; Hennes et al., 2008; Richardson et al., 2002; Beneish, 1999), 48% of the misstatements involve multiple accounting issues and 71% involve revenue recognition, inventory, and/or accruals.

The average misstating CEO owns 7% of the firm's outstanding stock and has over 4 times (2 times) their total salary in value from in-the-money exercisable stock options (in-the-money un-exercisable stock options). The

[13] I use the same industry classification utilized in Song and Walkling (1993).

average board has 8 directors and 78% on average are outsiders. Over 26% of the CEOs and 40% of the CFOs were replaced in the year prior to the end of the misstated period. A large number of the firms (54%) have classified boards and over 86% have a Big X auditor at the end of the misstated period. The mean institutional ownership is 43% and over 58% of the firms operate in a highly litigious sector.

Finally, the sample's mean firm size is $685M (unreported) and firm leverage is 22%. The mean firm size is greater than that for the Compustat universe over the same period, which is consistent with Ettridge et al.'s (2010) findings that fraud firms tend to be larger in size. The mean leverage is also greater, which is consistent with prior literature finding a positive association between misstatements and financial distress (Ettridge et al., 2010; Palmrose et al., 2004; Richardson et al., 2002; Kinney and McDaniel, 1989).

{Insert Table 2: Descriptive statistics}

5. Empirical Results

5.1 Univariate

Table 3 provides the Pearson correlation coefficients for the pairings between misstatement disclosure *TIMELINESS* and the study's governance and control measures. Three of the internal governance measures demonstrate a significant univariate association with misstatement disclosure timeliness in the expected direction and none of the external governance measures demonstrate

significant univariate association with misstatement disclosure timeliness. Consistent with the expectation that CEO's with greater in-the-money exercisable stock options will be more sensitive to the short-term stock price and will take longer to disclose misstatements, *IN-THE-MONEY EXERCISABLE* has a significant positive correlation with *TIMELINESS*. Consistent with the expectation that management monitored by boards with greater board independence will be more timely in their misstatement disclosures, *BOARD INDEPENDENCE* has a significant negative correlation with *TIMELINESS*. Finally, consistent with the expectation that incoming senior management looking to "clean the books" should lead to more timely misstatement disclosure, *CFO TURNOVER* has a significant negative association with *TIMELINESS*.

{Insert Table 3: Pearson correlation matrices}

Table 3 does not demonstrate a significant correlation between *CEO OWNERSHIP* and *TIMELINESS*. To determine if this lack of correlation is consistent with prior literature's suggestion that CEO ownership has a non-linear relation with incentive alignment between the CEO and shareholders (Jensen and Warner, 1988; McWilliam, 1990; Sundaramurthy, 1996), I look at *TIMELINESS* over six stratifications of CEO ownership; starting with five even quintiles and creating a sixth stratification by segregating from the first quintile those CEOs with no (zero) ownership in the firm. The sixth stratification is important for exposition because prior literature leads me to expect a distinct

difference between no ownership (no alignment) and an epsilon of ownership (some alignment) (Karamanou and Vafeas, 2005; Eng and Mak, 2003).

Table 4 demonstrates the non-linear relationship between *CEO OWNERSHIP* and *TIMELINESS.* The switch from a monotonic decrease in *TIMELINESS* starting with zero CEO ownership to a monotonic increase beginning in the third quintile is consistent with a curvilinear relationship between CEO ownership and misstatement disclosure timeliness. The univariate evidence is consistent with extant literature identifying a shift between low levels of ownership that serve to align CEO interests and greater levels of ownership that foster CEO entrenchment suggesting that the relationship between the level of CEO ownership and alignment of interests is non-linear (Jensen and Warner, 1988; McWilliam, 1990; Sundaramurthy, 1996).

{Insert Table 4: CEO ownership and misstatement disclosure timeliness}

5.2 Multivariate

Table 5 presents the results of the proportional hazard model. The table includes six models. All of the models include cluster adjusted standard errors for industry heteroscedasticity and the final model includes dummies for year and industry. Negative coefficients from the hazard model are interpreted as a decrease in the rate of a failure (disclosure) occurring in time *t* conditional on the failure not occurring in time *t-1*. Therefore a negative coefficient is interpreted as contributing to less timely disclosure.

Model 1 includes the management incentive compensation measures (one of two sub-sets of the internal governance mechanisms). The measure for the CEO's sensitivity to changes in firm value, *IN-THE-MONEY EXERCISABLE*, is significant and negative, consistent with greater value from in-the-money exercisable stock options incentivizing management to disclose misstatements in a less timely manner. The second stock option measure, *IN-THE-MONEY UN-EXERCISABLE*, is not significant. I did not have an expectation for the second measure since un-exercisable options likely incentivize a longer horizon, a horizon that may be over-shadowed by short term incentives (e.g. wealth preservation) from exercisable options. I included two variables to represent CEO ownership and capture the expected non-linear relationship. The first, *CEO OWNERSHIP* is significant and in the positive direction consistent with CEO ownership incentivizing management to disclose misstatements in a timely manner. The second, *CEO OWNERSHIP SQUARED* is significant and negative. The significant positive coefficient for *CEO OWNERSHIP* and the significant negative coefficient for *CEO OWNERSHIP SQUARED* are consistent with a non-linear relationship between CEO ownership and disclosure timeliness where low levels of CEO ownership incentivize more timely disclosure but at a certain threshold of ownership the CEO becomes incentivized to disclose in a less timely manner.

Model 2 includes the board monitoring measures (the second sub-set of the internal governance mechanisms).[14] The measure of the board's independence from senior management influence, *BOARD INDEPENDENCE*, is significant and positive, consistent with more effective monitoring of management leading to better alignment with shareholder interests and more timely misstatement disclosure. *BOARD SIZE*, the study's measure for the board's decision efficiency, is not significant in the reduced model. Out of the two measures for the board's use of senior management dismissal as a monitoring mechanism, *CEO TURNOVER* is not significant and *CFO TURNOVER* is significant and positive. Morck et al. (1989) notes that it is generally more difficult for the board to replace the CEO as opposed to replacing other senior management. The study may lack significance for the *CEO TURNOVER* measure because of this increased difficulty. The significant positive result for *CFO TURNOVER* is consistent with incoming CFOs "cleaning the books" and in the process improving the timeliness of the misstatement disclosure.[15]

Model 3 includes the external governance measures. The significant negative coefficient for *CLASSIFIED BOARD* is consistent with the anti-takeover defense entrenching management and reducing disclosure timeliness. Given the mixed findings in prior literature on the influence of institutional investors on firm disclosure, I did not have an expectation for the study's measure of institutional

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[14] Inclusion of a variable for board meeting frequency [un-tabulated] results in a positive and statistically significant coefficient consistent with greater board involvement generating more timely disclosure. The study's primary results are robust to this additional inclusion.

[15] The study's results are robust to controlling for the simultaneous turnover of both the CEO and CFO in the year prior to the end of the misstated period. The results for inclusion of an interaction term [un-tabulated] are significant and positive equating to misstatement disclosure occurring over two times faster than disclosures without prior turnover.

monitoring, *INSTITUTIONAL OWNERSHIP*, the results for which are insignificant. Although the coefficient sign is in the expected direction for *AUDIT QUALITY*, the result is not significant. The study's measure for the firm's securities ligation environment, *LITIGATION RISK*, is significant and positive, consistent with greater litigation risk increasing the cost to management of withholding disclosure and therefore incentivizing more timely misstatement disclosure.

Model 4 includes the misstatement and firm characteristic control measures. It is interesting to note that disclosure timeliness depends in part on the accounting issue involved in the misstatement. The coefficient for *MERGERS AND ACQUISTION ISSUE* and *DEFERRED TAXES ISSUE* are significantly negative based on a two tailed test, suggesting that misstatements involving mergers and acquisitions or deferred taxes may be more complex or have other characteristics that require a longer period before disclosure. The coefficient for *LEASE ISSUE* is significantly positive based on a two-tailed test, suggesting that lease issues may be considered less harmful to management, and therefore, require less time to disclose. The results for both of the study's measures for misstatement severity are statistically significant. First, *MISSTATEMENT DURATION* is significantly positive consistent with longer lasting irregularities being disclosed in a more timely manner. Second, *MISSTATEMENT IN INCOME* is significantly negative suggesting that more severe overstatements in income are disclosed in a more timely manner. The

result for *MISSTATEMENT IN INCOME* is consistent with findings from Myers et al. (2011) that demonstrate more timely disclosure for income overstatements.

Model 5 includes all of the internal and external governance measures and the misstatement and firm characteristic measures. A comprehensive design that simultaneously considers the internal and external governance mechanisms acknowledges the complimentary and substitution effects between mechanisms as demonstrated in prior literature (Beatty and Zajac, 1994; Zajac and Westphal, 1994; Rediker and Seth, 1995; Laux and Laux, 2009; Cheng and Indjejikian, 2009). The governance mechanisms and controls maintain the signs on coefficients and significance levels are consistent with those reported for Models 1 through 4. When considering the mechanisms simultaneously, the study's measure for board decision efficiency, *BOARD SIZE*, becomes significant maintaining its negative coefficient from Model 2. The result for *BOARD SIZE* provides evidence that smaller boards known for more efficient decisions (Jensen, 1993) are more effective at aligning management's behavior with shareholder preference, resulting in more timely misstatement disclosure. *REVENUE RECOGNITION ISSUE* which has a negative and significant coefficient in Model 5 suggests that there are certain characteristics (e.g. complexity or severity) of revenue misstatements that lead to less timely disclosure. *FIRM SIZE* also becomes significant in Model 5 with a positive coefficient consistent with prior literature finding greater disclosure quality for larger firms (Eng and Mak, 2003).

Model 6[16] includes the internal and external governance measures, the misstatement and firm characteristic measures, and indicator variables to capture year and industry fixed effects. Because *POST-SOX ANNOUNCEMENT* and *POST-FINAL-RULE-8-K ANNOUNCEMENT* are measured based on time and over 74% of the disclosures in the sample are announced post-SOX, both measures are highly collinear with the indicator variables for the year dummies and are removed from Model 6.[17] The internal and external governance measures from Models 1 through 5 maintain their significance in Model 6 and demonstrate stable coefficients. The results for the controls also remain consistent with Models 1 through 5 with the exception of *SG&A EXPENSES ISSUE* which has a significant positive coefficient in Model 6 suggesting that management finds misstatements involving SG&A expenses less threating or less complex leading to more timely disclosure.[18]

{Insert Table 5: Misstatement disclosure timeliness: Proportional hazard model}

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[16] The study's results are robust to inclusion of controls for management's choice of disclosure venue (e.g. Press Release, Form 8-K, Form 10-K/Q) [un-tabulated]. The coefficients for the venue controls are consistent with expectations established by Myers et al., (2011) with press releases being the most timely followed by Form 8-K submissions, then Form 10-K/Q submissions though the resulting coefficients are not statistically significant.

[17] Inclusion of *POST-SOX ANNOUNCEMENT* and *POST-FINAL-RULE-8-K ANNOUNCEMENT* in Model 6 despite the collinearity does not alter any of the conclusions drawn from Model 6 as tabulated though it does make interpretation of the two announcement variables cumbersome and does not change their overall significance from Table 5.

[18] Partitioning the sample into accelerated (148 observations) and non-accelerated (154 observations) filers reveals interesting results. While management's sensitivity to changes in the short-term stock price (stock options and ownership) is positively associated with the time elapsed before disclosure for both accelerated and non-accelerated filers, the proxies for monitoring effectiveness are only statistically significant for the non-accelerated filers [un-tabulated].

5.3 Limitations

The study's results are limited in their generalizability to the greater misstatement population. The fact that accounting errors are rather innocuous when compared to accounting irregularities as evidenced by the greater negative stock returns around firm's disclosing the latter (Hennes et al., 2008a), leads me to believe that management may have less motivation (e.g. wealth preservation) to behave strategically when it comes to disclosing accounting errors.

6. Additional Analysis

6.1 Misstatement disclosure transparency and corporate governance

The purpose of this section is to determine if disclosure transparency, another misstatement disclosure choice, is influenced by compensation incentives, board monitoring, and external governance in a manner similar to those demonstrated for disclosure timeliness. Since investor's likely prefer more transparent information over less transparent, my expectations for the relationships between the various internal and external governance mechanisms and transparency are the same as those for the main study.

Table 6 presents the results of a multivariate logit regression with disclosure in Form 8-K as the dependent variable and the independent and control variables from the main study. The sub-sample for Table 6 includes only those misstatements that are disclosed in a Form 8-K or a periodic filing such as a 10-K or 10-Q. The sub-sample is partitioned into a pre *Final-Rule 8-K* and a post *Final Rule 8-K* since the regulation added financial misstatements as a

reportable event and compliance likely increased the cost to management of choosing to disclose in a periodic filing versus the Form 8-K. This design is consistent with Myer's et al. (2011) finding that firms are more likely to disclose misstatements transparently in the Form 8-K than obscurely in a periodic filing such as a 10-K or 10-Q post *Final-Rule 8-K*.

Table 6 includes three models, the first model, Model 1, includes the entire sub-sample of disclosures in 8-Ks, 10-Qs, or 10-Ks. Models 2 and 3 partition the sub-sample into pre-Final-Rule 8-K and post-Final Rule 8-K.

The results for the transparency model are largely insignificant and fail to support the majority of the expected relationships with the exception of *IN-THE-MONEY EXERCISABLE* which is significant and negative consistent with wealth preservation incentivizing less transparent misstatement disclosure.

{Insert Table 6: Misstatement disclosure transparency and governance}

6.2 Accounting error disclosure timeliness

Hennes et al. (2008a) demonstrates a significant difference in the stock returns to disclosures of accounting irregularities versus stock returns to accounting errors. They find a more negative return on average for irregularity disclosures (-14%) than error disclosures (-2%). I restricted my sample to accounting irregularities recognizing that this greater destruction in firm value may motivate managers to behave more strategically since the market reaction to accounting errors is less severe. In other words, I am more likely to find management taking actions to protect their personal wealth tied to firm value and

protecting their employment and reputation where these things are most threatened. This holds for board monitoring as well. I am more likely to see the effects of board monitoring on disclosure timeliness where the divergence between management self-interest and investor interest is greatest.

While including accounting errors in the study's main model and conditioning on irregularity is an alternate methodology to the one used, hand collecting the governance data would be very costly and would offer little benefit should managers prove less concerned about the market's reaction to an error. Another option is to extract the governance data from available governance datasets such as *Execucomp,* but limited data availability significantly reduces the sample size and biases the sample toward larger firms (e.g., S&P 1500).

Rather than combine irregularity observations that have hand collected governance data with error observations that have dataset extracted governance data, I chose to limit the study's main sample to accounting irregularities and save the error sample for additional analysis.

Table 7 presents the descriptive statistics for the accounting error sample. The sample begins with 2,121 observations from the GAO Financial Restatement Database classified as accounting errors by Hennes et al. (2008b). Due to data availability restrictions only 1,095 observations were matched with their respective misstatement characteristics. Panel B highlights the difficulty in using available governance databases such as *Execucomp* and *Corporate Library* to extract data necessary for the internal and external governance measures. Since the number of observations with matching CEO ownership data was less

than 1%, CEO ownership is not considered in the multivariate analysis that follows.

{Insert Table 7: Accounting error sample}

Table 8 presents the results of the proportional hazard model and includes seven variations. Models 7 includes indicator variables to control for year and industry fixed effects and does not include *POST-SOX ANNOUNCEMENT* and *POST-FINAL-RULE 8-K* announcement following the same rationale given for Table 5. Model 1 and 2 both demonstrate a significant positive coefficient for *POST-FINAL-RULE 8-K,* consistent with improved timeliness following implementation of the regulation. The significant positive coefficients for *INSTITUTIONAL OWNERSHIP* and *LITIGATION RISK* in Model 2 are consistent with greater institutional ownership and high litigation risk resulting in more timely disclosure of accounting errors. Model 3 includes *CLASSIFIED BOARD* without significant results. Because of the number of observations missing data on board classification, *CLASSIFIED BOARD* is not included in Model 6 or 7. The results of Models 4 through 7 consistently demonstrate a significant positive coefficient for *IN-THE-MONEY EXERCISABLE*, opposite the expectation, and in clear contrast to the findings for accounting irregularities. This result appears to be consistent with management having greater incentive to withhold the more severe accounting irregularity disclosures. Model 7 further demonstrates a significant positive coefficient for *BOARD INDEPENDENCE* and *AUDIT QUALITY,* consistent with greater independence and higher quality audits improving disclosure timeliness for accounting errors. Finally, the coefficient for

MISSTATEMENT IN INCOME is consistently negative and significant in Models 3 through 7 consistent with more timely disclosure of accounting errors resulting in large income overstatements.

{Insert Table 8: Error disclosure timeliness: Proportional hazard model}

7. Conclusions

This study uses variation in the time elapsed between the last financials misstated and management's initial misstatement disclosure to measure the relationship between internal and external corporate governance mechanisms and misstatement disclosure timeliness. Gaining an understanding of the relationship between the two is important. Prior literature on the relationship between governance and voluntary disclosures has limited generalizability to the misstatement disclosure setting as firms in crisis may demonstrate different corporate governance relationships compared to firms not in crisis.

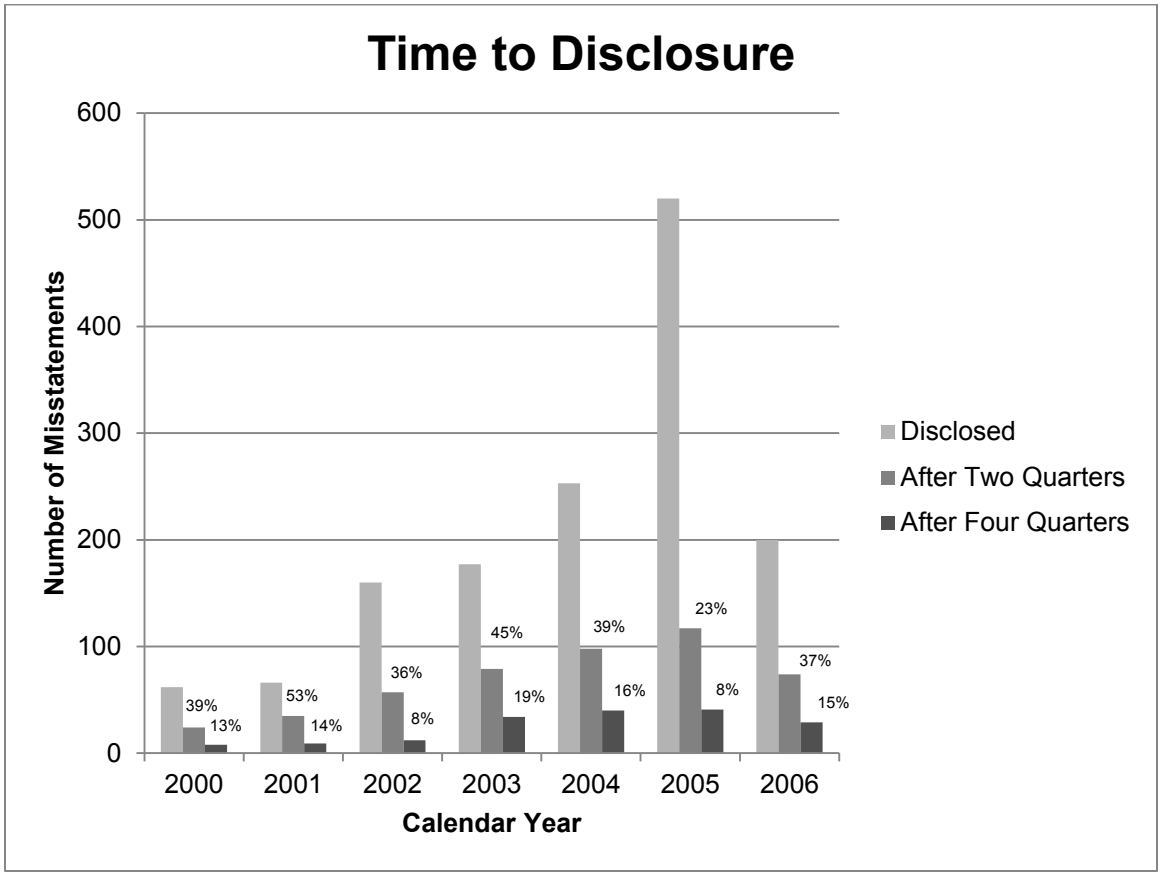
Using a proportional hazard model inclusive of both internal and external governance mechanisms and a sample of 302 accounting irregularities disclosed between 2000 and 2006, I present empirical evidence of corporate governance influencing misstatement disclosure timeliness. Specifically, I present evidence consistent with the value of in-the-money stock options incentivizing management to disclose misstatements in a less timely manner[19] and a non-

[19] One standard deviation change from the mean *IN-THE-MONEY EXERCISABLE* results in a 10% change in the rate of disclosure.

linear relationship between management ownership and timeliness where the evidence is consistent with low levels of ownership improving timeliness and high levels of ownership reducing timeliness[20]. I also find evidence consistent with greater board independence[21], CFO turnover[22] prior to the end of the misstated period, and the firm's litigation environment[23] contributing to more timely misstatement disclosure and greater board size[24] and board classification[25] resulting in less timely misstatement disclosure.

[20] A one standard deviation increase in CEO ownership from 0.0% (the 25th percentile) results in a 57% increase in the rate of disclosure, a one standard deviation increase in CEO ownership from 5.4% (the 75th percentile) results in a 42% increase in the rate of disclosure, and a one standard deviation increase in CEO ownership from 32.2% (the 95th percentile) results in a 15% decrease in the rate of disclosure.
[21] One standard deviation change from the mean *BOARD INDEPENDENCE* results in a 28% change in the rate of disclosure.
[22] CFO turnover prior to the end of the misstated period results in a 32% increase in the rate of disclosure.
[23] Operating in a highly litigious sector results in a 33% increase in the rate of disclosure.
[24] One standard deviation change from the mean *BOARD SIZE* results in a 14% change in the rate of disclosure.
[25] A classified board results in a 15% decrease in the rate of disclosure.

Figure 1 Misstatement disclosure timeliness (2000-2006)



Notes:

a) Data for the figure is limited to accounting errors and irregularities identified in the GAO Financial Restatement Database for which an end-date for the misstatement period is identified in Audit Analytics.
b) The data for CY2006 does not reflect a full year as the GAO Dataset ends June 2006.

Table 1
Sample selection and distribution by year and industry

Panel A: Sample selection		Mean # of Days to Disclose [*TIMELINESS*]
Accounting irregularities (initial sample)	582	
Less missing misstatement data	233	
Less missing governance data	47	
Final sample	302	170

Panel B: Distribution by year	# Observations	Percent of Sample	Mean # of Days to Disclose [*TIMELINESS*]
2000	17	5.6%	150
2001	25	8.3%	195
2002	55	18.2%	170
2003	33	10.9%	165
2004	53	17.5%	164
2005	82	27.2%	164
2006	37	12.3%	189

Panel C: Distribution by industry	# Observations	Percent of Sample	Mean # of Days to Disclose [*TIMELINESS*]
Chemicals	21	7.0%	179
Communication, Gas, Electric, and Sanitation	33	10.9%	170
Construction	4	1.3%	212
Financial	41	13.6%	166
Food and Tobacco	6	2.0%	179
Hotels, Motels, and Tourism	1	0.3%	109
Leather, Stone	1	0.3%	217
Lumber, Furniture, Paper, and Print	5	1.7%	186
Machinery	37	12.3%	149
Measuring Instruments	14	4.6%	150
Mining	7	2.3%	130
Petroleum and Rubber	4	1.3%	231
Primary and Fabricated Metals	5	1.7%	187
Retail Trade	22	7.3%	178
Services	71	23.5%	178
Textiles and Apparel	6	2.0%	183
Transportation	8	2.6%	202
Wholesale Trade	11	3.6%	151
Miscellaneous	5	1.7%	140

Panel A outlines the sample selection beginning with the 582 accounting irregularities identified by HLM in their online dataset. The final sample consists of 302 accounting irregularity observations after eliminating 233 observations for missing misstatement data and 47 for missing governance data necessary to measure variables used in the study. Panel B provides the sample distribution by year and the mean value of the study's primary dependent variable, ***TIMELINESS****, for each year. There is no statistical difference between the mean number of days to disclosure and the sample mean for any of the years. Panel C provides the sample distribution by industry and the mean value of the study's primary dependent variable,* ***TIMELINESS****, for each industry. There is no statistical difference between the mean number of days to disclosure and the sample mean for any of the industries.*

Table 2
Descriptive statistics

	n	Mean	Standard Deviation	25th percentile	Median	75th percentile
TIMELINESS	302	170.16	100.67	115.00	144.00	205.00
IN-THE-MONEY EXERCISABLE	302	4.21	12.59	0.00	0.38	2.77
IN-THE-MONEY UN-EXERCISABLE	302	2.06	6.93	0.00	0.11	1.41
CEO OWNERSHIP	302	0.07	0.12	0.01	0.02	0.05
BOARD INDEPENDENCE	302	0.78	0.13	0.71	0.82	0.88
BOARD SIZE	302	8.25	2.64	6.00	8.00	10.00
CEO TURNOVER	302	0.26	0.44	0.00	0.00	1.00
CFO TURNOVER	302	0.40	0.49	0.00	0.00	1.00
CLASSIFIED BOARD	302	0.54	0.50	0.00	1.00	1.00
INSTITUTIONAL OWNERSHIP	302	0.43	0.38	0.00	0.44	0.82
AUDIT QUALITY	302	0.86	0.35	1.00	1.00	1.00
LITIGATION RISK	302	0.58	0.49	0.00	1.00	1.00
REVENUE RECOGNITION ISSUE	302	0.49	0.50	0.00	0.00	1.00
LEASE ISSUE	302	0.11	0.32	0.00	0.00	0.00
INVENTORY ISSUE	302	0.21	0.41	0.00	0.00	0.00
MERGERS & ACQUISITION ISSUE	302	0.13	0.34	0.00	0.00	0.00
SG&A EXPENSES ISSUE	302	0.23	0.42	0.00	0.00	0.00
DEFERRED TAXES ISSUE	302	0.12	0.33	0.00	0.00	0.00
ACCRUALS ISSUE	302	0.30	0.46	0.00	0.00	1.00
INTANGIBLE ASSETS ISSUE	302	0.03	0.16	0.00	0.00	0.00
MISSTATEMENT DURATION	302	2.57	1.69	1.25	2.25	3.50
MISSTATEMENT IN INCOME	302	-0.041	0.199	-0.019	-0.004	0.000
POST-SOX ANNOUNCEMENT	302	0.74	0.44	0.00	1.00	1.00
POST-FINAL-RULE 8-K ANNOUNCEMENT	302	0.43	0.50	0.00	0.00	1.00
FIRM SIZE [ln(total assets)]	302	6.53	2.30	4.81	6.48	7.97
FIRM LEVERAGE	302	0.22	0.22	0.02	0.18	0.34

Table 2 describes the dependent, independent, and control variables used in the study to examine the influence of internal and external governance on the timeliness of misstatement disclosures. The mean and median ***TIMELINESS*** is consistent with summary statistics in both Files (2011) and Myers et al. (2011). Continuous variables (with the exception of the dependent variable) are winsorized at the top and bottom one percent to mitigate the influence of outliers.

TIMELINESS measures the number of days between the end of the misstatement period and the misstatement disclosure date; ***IN-THE-MONEY EXERCISABLE*** measures the value of the CEO's in-the-money exercisable stock options at the end of the year preceding the misstatement end date and is calculated by taking the difference between the option strike price and the market price of the underlying stock and multiplying the results by the number of option shares and dividing by CEO total pay (salary + bonus); ***IN-THE-MONEY UN-EXERCISABLE*** measures the value of the CEO's in-the-money un-exercisable stock options at the end of the year preceding the end of the misstatement period and is calculated by taking the difference between the option strike price and the market price of the underlying stock and multiplying the results by the number of option shares and dividing by CEO total pay (salary + bonus); ***CEO OWNERSHIP*** measures the CEO's stockholdings in the misstating firm at the end of the year preceding the end of the misstatement period and is calculated by dividing the number of shares owned by the CEO by the number of shares outstanding; ***BOARD INDEPENDENCE*** is calculated by dividing the number of outside directors by the total number of directors both measured at the end of the year preceding the end of the misstatement period; ***BOARD SIZE*** is the number of directors serving on the board measured at the end of the year preceding the end of the misstatement period; ***CEO TURNOVER*** is an indicator variable that takes the value of 1 if the CEO was replaced in the year prior to the end of the misstatement period and 0 otherwise; ***CFO TURNOVER*** is an indicator variable that takes the value of 1 if the CFO was replaced in the year prior to the end of the misstatement period and 0 otherwise; ***CLASSIFIED BOARD*** is an indicator variable that takes the value of 1 if the board has two or more classes of directors at the end of the year preceding the end of the misstatement period and 0 otherwise; ***INSTITUTIONAL OWNERSHIP*** is calculated by dividing the number of shares held by institutional owners by the number of shares outstanding, both measured at the end of the year preceding the end of the misstatement period; ***AUDIT QUALITY*** is an indicator variable that takes the value of 1 if the firm has a Big X auditor contracted at the end of the misstated period and 0 otherwise; ***LITIGATION RISK*** is an indicator variable that takes the value of 1 if the firm operates in a highly litigious sector (financial, health care, information technology, telecommunication services, or utilities) at the end of the misstatement period and 0 otherwise; ***REVENUE RECOGNITION ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to revenue recognition and 0 otherwise; ***LEASE ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to operating or capital leases and 0 otherwise; ***COST OF GOODS SOLD ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to cost of goods sold and 0 otherwise; ***MERGERS & ACQUISITION ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to a merger or acquisition and 0 otherwise; ***SG&A EXPENSES ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to selling, general, or administrative expenses and 0 otherwise; ***DEFERRED TAXES ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to deferred taxes and 0 otherwise; ***ACCRUALS ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to accruals and 0 otherwise; and ***INTANGIBLE ASSETS ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to intangible assets and 0 otherwise; ***MISSTATEMENT DURATION*** is the number of misstated quarters divided by 4; ***MISSTATEMENT IN INCOME*** is measured as the cumulative difference between the corrected net income and the as-first-reported net income over the misstatement duration; ***POST-SOX ANNOUNCEMENT*** is an indicator variable that takes the value of 1 if the misstatement disclosure occurs after August 29, 2002 and 0 otherwise; ***POST-FINAL-RULE 8-K ANNOUNCEMENT*** is an indicator variable that takes the value of 1 if the misstatement disclosure occurs after August 23, 2004 and 0 otherwise; ***FIRM SIZE*** is measured as the natural logarithm of the firm's total assets one year prior to the end of the misstated period; ***FIRM LEVERAGE*** is measured by dividing the firm's long-term debt by the firm's total assets both measured one year prior to the end of the misstated period.

Table 3

Pearson correlation matrices

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
TIMELINESS (1)	1.00																								
IN-THE-MONEY EXERCISABLE (2)	**0.12**	1.00																							
IN-THE-MONEY UN-EXERCISABLE (3)	0.01	**0.33**	1.00																						
CEO OWNERSHIP (4)	0.05	-0.02	-0.05	1.00																					
BOARD INDEPENDENCE (5)	**-0.09**	0.00	0.08	**-0.41**	1.00																				
BOARD SIZE (6)	0.00	0.00	-0.05	**-0.24**	**0.32**	1.00																			
CEO TURNOVER (7)	-0.09	-0.03	**0.15**	**-0.16**	0.07	0.08	1.00																		
CFO TURNOVER (8)	**-0.11**	-0.03	**0.12**	-0.08	0.06	0.00	**0.33**	1.00																	
CLASSIFIED BOARD (9)	0.02	0.02	0.04	**-0.14**	**0.13**	0.09	**0.11**	0.01	1.00																
INSTITUTIONAL OWNERSHIP (10)	-0.01	**0.10**	0.03	**-0.25**	**0.16**	**0.17**	-0.05	**-0.10**	**0.11**	1.00															
AUDIT QUALITY (11)	0.00	0.06	0.07	**-0.28**	**0.26**	**0.26**	**0.13**	0.04	**0.18**	**0.28**	1.00														
LITIGATION RISK (12)	-0.09	**0.14**	**0.10**	-0.08	**0.11**	-0.07	0.09	-0.03	0.08	0.05	0.04	1.00													
REVENUE RECOGNITION ISSUE (13)	0.04	0.05	0.04	-0.05	0.07	**-0.11**	**0.15**	**0.14**	**0.10**	-0.09	0.04	**0.16**	1.00												
LEASE ISSUE (14)	-0.08	-0.01	-0.04	-0.07	0.05	**0.20**	-0.05	-0.03	-0.05	**0.17**	0.09	0.00	**-0.14**	1.00											
INVENTORY ISSUE (15)	-0.02	-0.09	-0.09	-0.01	-0.04	-0.01	0.04	**0.14**	-0.04	-0.08	-0.02	**-0.19**	0.07	-0.03	1.00										
MERGERS & ACQUISITION ISSUE (16)	**0.13**	0.02	0.01	0.03	-0.02	0.03	-0.01	0.00	-0.05	-0.04	-0.04	-0.01	-0.05	0.05	0.04	1.00									
SG&A EXPENSES ISSUE (17)	-0.03	-0.03	0.00	0.01	**-0.10**	**-0.17**	0.02	-0.05	-0.03	-0.06	-0.05	0.02	-0.07	-0.07	-0.09	-0.07	1.00								
DEFERRED TAXES ISSUE (18)	0.09	0.05	0.00	0.02	0.07	0.00	-0.08	-0.08	0.00	**0.13**	0.01	**0.13**	**-0.17**	0.03	**-0.14**	0.00	0.06	1.00							
ACCRUALS ISSUE (19)	0.01	0.04	-0.08	-0.04	0.05	**0.18**	0.05	0.08	0.00	**0.16**	**0.10**	-0.04	0.04	**0.15**	0.03	-0.02	-0.03	0.00	1.00						
INTANGIBLE ASSETS ISSUE (20)	0.01	-0.05	0.00	0.07	0.02	0.06	0.04	**0.12**	-0.01	-0.01	**-0.11**	-0.03	0.00	-0.06	-0.04	0.06	-0.09	-0.06	-0.02	1.00					
MISSTATEMENT DURATION (21)	**-0.13**	0.00	-0.07	**-0.16**	0.09	**0.16**	0.05	0.03	-0.03	**0.18**	**0.14**	-0.02	-0.06	**0.12**	0.01	0.03	-0.03	**0.14**	0.04	0.04	1.00				
MISSTATEMENT IN INCOME (22)	0.07	0.05	0.02	-0.08	**0.29**	**0.19**	0.00	0.05	0.03	0.02	**0.22**	-0.04	-0.01	0.05	0.04	-0.02	-0.04	0.01	0.09	0.01	0.03	1.00			
POST-SOX ANNOUNCEMENT (23)	0.05	0.06	-0.04	-0.05	0.07	-0.01	-0.06	0.03	0.07	**0.19**	**-0.13**	0.06	0.04	**0.14**	**-0.10**	-0.01	**-0.18**	**0.13**	0.06	0.05	**0.21**	-0.03	1.00		
POST-FINAL-RULE 8-K ANNOUNCEMENT (24)	-0.01	0.05	-0.03	0.00	0.01	0.00	**-0.11**	0.04	0.00	**0.11**	**-0.22**	0.02	-0.06	**0.18**	-0.07	**-0.10**	**-0.18**	**0.12**	-0.02	0.06	**0.19**	0.02	**0.52**	1.00	
FIRM SIZE (25)	-0.07	0.05	0.00	**-0.33**	**0.32**	**0.69**	0.09	-0.02	0.05	**0.22**	**0.45**	0.00	-0.08	**0.17**	-0.08	0.07	-0.09	0.01	**0.12**	0.02	**0.28**	**0.19**	0.05	-0.02	1.00
FIRM LEVERAGE	0.00	0.06	-0.03	-0.04	0.01	**0.26**	0.02	0.00	-0.09	0.09	**0.12**	**-0.21**	-0.02	0.08	-0.02	0.03	**-0.12**	**-0.12**	0.06	**0.12**	**0.11**	0.04	0.04	-0.07	**0.28**

Table 3 presents Pearson correlation coefficients for the study's dependent, independent, and control variables used in the study to examine the influence of internal and external governance on the timeliness of misstatement disclosure.

Continuous variables are winsorized at the top and bottom one percent to mitigate the influence of outliers. Significant correlations at the 10% level or better are **bolded**.

TIMELINESS measures the number of days between the end of the misstatement period and the misstatement disclosure date; ***IN-THE-MONEY EXERCISABLE*** measures the value of the CEO's in-the-money exercisable stock options at the end of the year preceding the misstatement end date and is calculated by taking the difference between the option strike price and the market price of the underlying stock and multiplying the results by the number of option shares and dividing by CEO total pay (salary + bonus); ***IN-THE-MONEY UN-EXERCISABLE*** measures the value of the CEO's in-the-money un-exercisable stock options at the end of the year preceding the end of the misstatement period and is calculated by taking the difference between the option strike price and the market price of the underlying stock and multiplying the results by the number of option shares and dividing by CEO total pay (salary + bonus); ***CEO OWNERSHIP*** measures the CEO's stockholdings in the misstating firm at the end of the year preceding the end of the misstatement period and is calculated by dividing the number of shares owned by the CEO by the number of shares outstanding; ***BOARD INDEPENDENCE*** is calculated by dividing the number of outside directors by the total number of directors both measured at the end of the year preceding the end of the misstatement period; ***BOARD SIZE*** is the number of directors serving on the board measured at the end of the year preceding the end of the misstatement period; ***CEO TURNOVER*** is an indicator variable that takes the value of 1 if the CEO was replaced in the year prior to the end of the misstatement period and 0 otherwise; ***CFO TURNOVER*** is an indicator variable that takes the value of 1 if the CFO was replaced in the year prior to the end of the misstatement period and 0 otherwise; ***CLASSIFIED BOARD*** is an indicator variable that takes the value of 1 if the board has two or more classes of directors at the end of the year preceding the end of the misstatement period and 0 otherwise; ***INSTITUTIONAL OWNERSHIP*** is calculated by dividing the number of shares held by institutional owners by the number of shares outstanding, both measured at the end of the year preceding the end of the misstatement period; ***AUDIT QUALITY*** is an indicator variable that takes the value of 1 if the firm has a Big X auditor contracted at the end of the misstated period and 0 otherwise; ***LITIGATION RISK*** is an indicator variable that takes the value of 1 if the firm operates in a highly litigious sector (financial, health care, information technology, telecommunication services, or utilities) at the end of the misstatement period and 0 otherwise; ***REVENUE RECOGNITION ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to revenue recognition and 0 otherwise; ***LEASE ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to operating or capital leases and 0 otherwise; ***COST OF GOODS SOLD ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to cost of goods sold and 0 otherwise; ***MERGERS & ACQUISITION ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to a merger or acquisition and 0 otherwise; ***SG&A EXPENSES ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to selling, general, or administrative expenses and 0 otherwise; ***DEFERRED TAXES ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to deferred taxes and 0 otherwise; ***ACCRUALS ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to accruals and 0 otherwise; and ***INTANGIBLE ASSETS ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to intangible assets and 0 otherwise; ***MISSTATEMENT DURATION*** is the number of misstated quarters divided by 4; ***MISSTATEMENT IN INCOME*** is measured as the cumulative difference between the corrected net income and the as-first-reported net income over the misstatement duration; ***POST-SOX ANNOUNCEMENT*** is an indicator variable that takes the value of 1 if the misstatement disclosure occurs after August 29, 2002 and 0 otherwise; ***POST-FINAL-RULE 8-K ANNOUNCEMENT*** is an indicator variable that takes the value of 1 if the misstatement disclosure occurs after August 23, 2004 and 0 otherwise; ***FIRM SIZE*** is measured as the natural logarithm of the firm's total assets one year prior to the end of the misstated period; ***FIRM LEVERAGE*** is measured by dividing the firm's long-term debt by the firm's total assets both measured one year prior to the end of the misstated period.

Table 4

CEO ownership and misstatement disclosure timeliness

	n	*CEO OWNERSHIP*			*TIMELINESS*	
		Min	Mean	Max	Mean	Median
CEO OWNERSHIP: Zero	8	0.000	0.000	0.000	220	169
CEO OWNERSHIP: First Quintile	53	0.000	0.001	0.003	175	140
CEO OWNERSHIP: Second Quintile	60	0.004	0.008	0.014	158	132
CEO OWNERSHIP: Third Quintile	61	0.014	0.020	0.029	164	139
CEO OWNERSHIP: Fourth Quintile	60	0.029	0.046	0.074	170	154
CEO OWNERSHIP: Fifth Quintile	60	0.075	0.252	0.626	177	156

Table 4 demonstrates the non-linear relationship between CEO ownership and misstatement disclosure timeliness. The higher the value of ***TIMELINESS*** the less timely the misstatement disclosure.

TIMELINESS measures the number of days between the end of the misstatement period and the misstatement disclosure date; ***CEO OWNERSHIP*** measures the CEO's stockholdings in the misstating firm at the end of the year preceding the end of the misstatement period and is calculated by dividing the number of shares owned by the CEO by the number of shares outstanding.

Table 5

Misstatement disclosure timeliness: Irregularity sample - Proportional Hazard Model (Cox Partial Likelihood)

$$TIMELINESS_i = f\,(IN\text{-}THE\text{-}MONEY\ EXERCISABLE_i,\ IN\text{-}THE\text{-}MONEY\ UN\text{-}EXERCISABLE_i,\ CEO\ OWNERSHIP_i,\ CEO\ OWNERSHIP\ SQUARED_i,\ BOARD\ INDEPENDENCE_i,$$
$$BOARD\ SIZE_i,\ CEO\ TURNOVER_i,\ CFO\ TURNOVER_i,\ CLASSIFIED\ BOARD_i,\ INSTITUTIONAL\ OWNERSHIP_i,\ AUDIT\ QUALITY_i,\ LITIGATION\ RISK_i,$$
$$MISSTATEMENT\ CHARACTERISTICS_i,\ FIRM\ CHARACTERISTICS_i,\ YEAR\ DUMMIES,\ INDUSTRY\ DUMMIES)$$

		Model 1			Model 2			Model 3			Model 4			Model 5			Model 6		
Independent Variables	E	Coef.	H. Ratio	z stat.	Coef.	H. Ratio	z stat.	Coef.	H. Ratio	z stat.	Coef.	H. Ratio	z stat.	Coef.	H. Ratio	z stat.	Coef.	H. Ratio	z stat.
IN-THE-MONEY EXERCISABLE	(-)	-0.01	0.99	-6.19 ***										-0.01	0.99	-2.30 **	-0.01	0.99	-2.33 ***
IN-THE-MONEY UN-EXERCISABLE		0.00	1.00	0.71										0.00	1.00	0.05	0.00	1.00	0.31
CEO OWNERSHIP	(+)	1.82	6.17	1.79 **										3.53	34.19	2.07 **	4.60	99.34	2.07 **
CEO OWNERSHIP SQUARED	(-)	-4.06	0.02	-1.99 **										-5.90	0.00	-1.89 **	-7.60	0.00	-1.90 **
BOARD INDEPENDENCE	(+)				0.62	1.87	1.48 *							1.07	2.92	2.19 **	1.88	6.57	2.67 ***
BOARD SIZE	(-)				-0.01	0.99	-0.19							-0.06	0.94	-1.73 **	-0.06	0.95	-1.89 **
CEO TURNOVER	(+)				0.11	1.12	0.71							0.15	1.16	0.99	0.06	1.06	0.31
CFO TURNOVER	(+)				0.22	1.24	1.57 *							0.24	1.27	1.54 *	0.28	1.32	1.68 **
CLASSIFIED BOARD	(-)							-0.13	0.88	-1.43 *				-0.08	0.92	-0.72	-0.17	0.85	-1.33 *
INSTITUTIONAL OWNERSHIP								0.01	1.01	0.07				0.01	1.01	0.03	-0.25	0.78	-1.12
AUDIT QUALITY	(+)							0.03	1.03	0.14				-0.22	0.81	-0.92	-0.06	0.94	-0.18
LITIGATION RISK	(+)							0.16	1.17	1.46 *				0.30	1.35	3.11 ***	0.28	1.33	1.37 *
REVENUE RECOGNITION ISSUE											-0.12	0.89	-0.95	-0.22	0.80	-2.04 **	-0.41	0.66	-2.75 ***
LEASE ISSUE											0.40	1.49	2.53 **	0.43	1.53	2.29 **	0.53	1.70	2.72 ***
INVENTORY ISSUE											0.08	1.08	0.64	0.14	1.15	1.03	0.27	1.30	1.50
MERGERS & ACQUISITION ISSUE											-0.46	0.63	-3.16 ***	-0.56	0.57	-3.48 ***	-0.68	0.50	-3.89 ***
SG&A EXPENSES ISSUE											0.00	1.00	0.03	0.03	1.03	0.27	0.21	1.24	1.76 *
DEFERRED TAXES ISSUE											-0.33	0.72	-2.35 **	-0.39	0.68	-2.63 ***	-0.53	0.59	-2.37 **
ACCRUALS ISSUE											-0.03	0.97	-0.25	-0.01	0.99	-0.13	-0.04	0.96	-0.32
INTANGIBLE ASSETS ISSUE											-0.04	0.96	-0.17	-0.26	0.77	-1.01	-0.01	0.99	-0.05
MISSTATEMENT DURATION	(+)										0.08	1.09	3.57 ***	0.08	1.08	2.57 ***	0.07	1.07	1.83 **
MISSTATEMENT IN INCOME	(-)										-0.51	0.60	-1.63 *	-0.49	0.61	-1.34 *	-0.76	0.47	-1.58 *
POST-SOX ANNOUNCEMENT	(+)										-0.15	0.86	-0.80	-0.24	0.79	-1.16			
POST-FINAL-RULE 8-K ANNOUNCEMENT	(+)										-0.06	0.95	-0.44	-0.04	0.96	-0.33			
FIRM SIZE [ln(total assets)]	(+)										0.05	1.05	1.06	0.10	1.10	2.80 ***	0.11	1.12	2.87 **
FIRM LEVERAGE	(-)										-0.30	0.74	-1.33 *	-0.03	0.97	-0.12	0.10	1.10	0.33
Industry & Year Dummies			No			No			No			No			No			Yes	
Cluster Adj. Std. Errors: Industry			Yes			Yes			Yes			Yes			Yes			Yes	
Model Statistics																			
n				302			302			302			302			302			302
Wald ChiSqd				60.1 ***			19.9 ***			3.5			162.1 ***			1239.4 ***			245684.1 ***

Table 5 uses a Cox Partial Likelhood model and provides the resulting hazard ratios representing the influence of internal and external corporate governance on misstatement disclosure timeliness. Ties in ***TIMELINESS*** are broken using Breslow (1974) approximation. Continuous variables are winsorized at the top and bottom one percent with the exception of the dependent variable (***TIMELINESS***) to mitigate the influence of outliers.

*, **, *** Significant at the 10%, 5%, and 1% levels respectively, based on a one-tail test if the expectation is given, else a two-tail test.

TIMELINESS measures the number of days between the end of the misstatement period and the misstatement disclosure date; ***IN-THE-MONEY EXERCISABLE*** measures the value of the CEO's in-the-money exercisable stock options at the end of the year preceding the misstatement end date and is calculated by taking the difference between the option strike price and the market price of the underlying stock and multiplying the results by the number of option shares and dividing by CEO total pay (salary + bonus); ***IN-THE-MONEY UN-EXERCISABLE*** measures the value of the CEO's in-the-money un-exercisable stock options at the end of the year preceding the end of the misstatement period and is calculated by taking the difference between the option strike price and the market price of the underlying stock and multiplying the results by the number of option shares and dividing by CEO total pay (salary + bonus); ***CEO OWNERSHIP*** measures the CEO's stockholdings in the misstating firm at the end of the year preceding the end of the misstatement period and is calculated by dividing the number of shares owned by the CEO by the number of shares outstanding; ***BOARD INDEPENDENCE*** is calculated by dividing the number of outside directors by the total number of directors both measured at the end of the year preceding the end of the misstatement period; ***BOARD SIZE*** is the number of directors serving on the board measured at the end of the year preceding the end of the misstatement period; ***CEO TURNOVER*** is an indicator variable that takes the value of 1 if the CEO was replaced in the year prior to the end of the misstatement period and 0 otherwise; ***CFO TURNOVER*** is an indicator variable that takes the value of 1 if the CFO was replaced in the year prior to the end of the misstatement period and 0 otherwise; ***CLASSIFIED BOARD*** is an indicator variable that takes the value of 1 if the board has two or more classes of directors at the end of the year preceding the end of the misstatement period and 0 otherwise; ***INSTITUTIONAL OWNERSHIP*** is calculated by dividing the number of shares held by institutional owners by the number of shares outstanding, both measured at the end of the year preceding the end of the misstatement period; ***AUDIT QUALITY*** is an indicator variable that takes the value of 1 if the firm has a Big X auditor contracted at the end of the misstated period and 0 otherwise; ***LITIGATION RISK*** is an indicator variable that takes the value of 1 if the firm operates in a highly litigious sector (financial, health care, information technology, telecommunication services, or utilities) at the end of the misstatement period and 0 otherwise; ***REVENUE RECOGNITION ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to revenue recognition and 0 otherwise; ***LEASE ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to operating or capital leases and 0 otherwise; ***COST OF GOODS SOLD ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to cost of goods sold and 0 otherwise; ***MERGERS & ACQUISITION ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to a merger or acquisition and 0 otherwise; ***SG&A EXPENSES ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to selling, general, or administrative expenses and 0 otherwise; ***DEFERRED TAXES ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to deferred taxes and 0 otherwise; ***ACCRUALS ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to accruals and 0 otherwise; and ***INTANGIBLE ASSETS ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to intangible assets and 0 otherwise; ***MISSTATEMENT DURATION*** is the number of misstated quarters divided by 4; ***MISSTATEMENT IN INCOME*** is measured as the cumulative difference between the corrected net income and the as-first-reported net income over the misstatement duration; ***POST-SOX ANNOUNCEMENT*** is an indicator variable that takes the value of 1 if the misstatement disclosure occurs after August 29, 2002 and 0 otherwise; ***POST-FINAL-RULE 8-K ANNOUNCEMENT*** is an indicator variable that takes the value of 1 if the misstatement disclosure occurs after August 23, 2004 and 0 otherwise; ***FIRM SIZE*** is measured as the natural logarithm of the firm's total assets one year prior to the end of the misstated period; ***FIRM LEVERAGE*** is measured by dividing the firm's long-term debt by the firm's total assets both measured one year prior to the end of the misstated period.

Table 6

Misstatement disclosure transparency and corporate governance

DV = *DISCLOSURE IN 8-K*		Model 1 Full sub-sample			Model 2 Pre Final-Rule 8-K sub-sample			Model 3 Post Final-Rule 8-K sub-sample		
Independent Variables	E	Coef.	z stat.		Coef.	z stat.		Coef.	z stat.	
IN-THE-MONEY EXERCISABLE	(-)	-0.018	-1.57	*	0.048	1.67	**	-0.065	-2.88	***
IN-THE-MONEY UN-EXERCISABLE		-0.016	-0.47		-0.093	-0.88		0.033	0.51	
CEO OWNERSHIP	(+)	1.796	0.34		-4.997	-0.61		16.024	1.08	
CEO OWNERSHIP SQUARED	(-)	-3.143	-0.35		9.825	0.67		-31.709	-1.40	*
BOARD INDEPENDENCE	(+)	-3.671	-2.18		-1.732	-0.64		-15.162	-3.03	
BOARD SIZE	(-)	0.059	0.65		0.107	0.79		-0.046	-0.23	
CEO TURNOVER	(+)	-0.250	-0.54		-0.348	-0.54		-0.529	-0.67	
CFO TURNOVER	(+)	-0.390	-0.98		-0.268	-0.45		-0.834	-1.07	
CLASSIFIED BOARD	(-)	-0.782	-2.19	**	-0.727	-1.09		-1.438	-1.93	**
INSTITUTIONAL OWNERSHIP		-0.221	-0.49		-0.481	-0.59		-0.603	-0.76	
AUDIT QUALITY	(+)	-0.123	-0.21		-0.681	-0.60		0.586	0.40	
LITIGATION RISK	(+)	0.479	1.06		0.274	0.40		0.103	0.14	
REVENUE RECOGNITION ISSUE		1.053	2.86	***	0.630	1.18		2.012	2.08	**
LEASE ISSUE		0.082	0.14		1.090	1.32		-0.363	-0.37	
INVENTORY ISSUE		-0.476	-1.04		-0.367	-0.63		-1.013	-1.09	
MERGERS & ACQUISITION ISSUE		0.152	0.29		0.457	0.63		-0.130	-0.16	
SG&A EXPENSES ISSUE		0.104	0.25		1.226	1.93	*	-1.496	-1.21	
DEFERRED TAXES ISSUE		-0.033	-0.07		-1.772	-2.10	**	0.396	0.38	
ACCRUALS ISSUE		-0.123	-0.31		0.681	1.15		-0.565	-0.70	
INTANGIBLE ASSETS ISSUE		-0.231	-0.17					-0.591	-0.45	
MISSTATEMENT DURATION	(+)	0.261	2.67	***	0.039	0.23		0.276	1.26	
MISSTATEMENT IN INCOME	(-)	-2.169	-0.52		-3.696	-0.67		-0.385	-0.11	
POST-FINAL-RULE 8-K ANNOUNCEMENT	(+)	3.144	1.96	**						
FIRM SIZE [ln(total assets)]	(+)	-0.282	-2.17	**	-0.148	-0.72		-0.542	-1.52	*
FIRM LEVERAGE	(-)	0.342	0.42		-0.657	-0.47		2.324	1.35	*
Industry & Year FE		Yes			Yes			Yes		
White Robust Std Errors		Yes			Yes			Yes		
Intercept		1.551	0.64		3.908	1.67	*	18.814	4.01	***
Model Statistics										
n			254			124			130	
Wald ChiSqd			77.85	***		33.50			62.28	**

Table 6 presents the results from a logit regression of the decision to disclose in Form 8-K on the independent and control variables from the main study.

*, **, *** Significant at the 10%, 5%, and 1% levels respectively, based on a one-tail test if the expectation is given, else a two-tail test.

DISCLOSURE IN 8-K takes the value of 1 if the misstatement is disclosed within the Form 8-K and 0 if disclosed in the 10-K or 10-Q; ***IN-THE-MONEY EXERCISABLE*** measures the value of the CEO's in-the-money exercisable stock options at the end of the year preceding the misstatement end date and is calculated by taking the difference between the option strike price and the market price of the underlying stock and multiplying the results by the number of option shares and dividing by CEO total pay (salary + bonus); ***IN-THE-MONEY UN-EXERCISABLE*** measures the value of the CEO's in-the-money un-exercisable stock options at the end of the year preceding the end of the misstatement period and is calculated by taking the difference between the option strike price and the market price of the underlying stock and multiplying the results by the number of option shares and dividing by CEO total pay (salary + bonus); ***CEO OWNERSHIP*** measures the CEO's stockholdings in the misstating firm at the end of the year preceding the end of the misstatement period and is calculated by dividing the number of shares owned by the CEO by the number of shares outstanding; ***BOARD INDEPENDENCE*** is calculated by dividing the number of outside directors by the total number of directors both measured at the end of the year preceding the end of the misstatement period; ***BOARD SIZE*** is the number of directors serving on the board measured at the end of the year preceding the end of the misstatement period; ***CEO TURNOVER*** is an indicator variable that takes the value of 1 if the CEO was replaced in the year prior to the end of the misstatement period and 0 otherwise; ***CFO TURNOVER*** is an indicator variable that takes the value of 1 if the CFO was replaced in the year prior to the end of the misstatement period and 0 otherwise; ***CLASSIFIED BOARD*** is an indicator variable that takes the value of 1 if the board has two or more classes of directors at the end of the year preceding the end of the misstatement period and 0 otherwise; ***INSTITUTIONAL OWNERSHIP*** is calculated by dividing the number of shares held by institutional owners by the number of shares outstanding, both measured at the end of the year preceding the end of the misstatement period; ***AUDIT QUALITY*** is an indicator variable that takes the value of 1 if the firm has a Big X auditor contracted at the end of the misstated period and 0 otherwise; ***LITIGATION RISK*** is an indicator variable that takes the value of 1 if the firm operates in a highly litigious sector (financial, health care, information technology, telecommunication services, or utilities) at the end of the misstatement period and 0 otherwise; ***REVENUE RECOGNITION ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to revenue recognition and 0 otherwise; ***LEASE ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to operating or capital leases and 0 otherwise; ***COST OF GOODS SOLD ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to cost of goods sold and 0 otherwise; ***MERGERS & ACQUISITION ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to a merger or acquisition and 0 otherwise; ***SG&A EXPENSES ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to selling, general, or administrative expenses and 0 otherwise; ***DEFERRED TAXES ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to deferred taxes and 0 otherwise; ***ACCRUALS ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to accruals and 0 otherwise; and ***INTANGIBLE ASSETS ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to intangible assets and 0 otherwise; ***MISSTATEMENT DURATION*** is the number of misstated quarters divided by 4; ***MISSTATEMENT IN INCOME*** is measured as the cumulative difference between the corrected net income and the as-first-reported net income over the misstatement duration; ***POST-SOX ANNOUNCEMENT*** is an indicator variable that takes the value of 1 if the misstatement disclosure occurs after August 29, 2002 and 0 otherwise; ***POST-FINAL-RULE 8-K ANNOUNCEMENT*** is an indicator variable that takes the value of 1 if the misstatement disclosure occurs after August 23, 2004 and 0 otherwise; ***FIRM SIZE*** is measured as the natural logarithm of the firm's total assets one year prior to the end of the misstated period; ***FIRM LEVERAGE*** is measured by dividing the firm's long-term debt by the firm's total assets both measured one year prior to the end of the misstated period.

Table 7

Accounting error sample selection and descriptive statistics

Panel A: Sample selection

Accounting irregularities (initial sample)	2,121
Less missing misstatement data	1,026
Final sample	1,095

Panel B: Descriptive statistics

	n	Mean	Standard Deviation	25th percentile	Median	75th percentile
TIMELINESS	1095	189.31	129.65	121.00	145.00	213.00
IN-THE-MONEY EXERCISABLE	318	4.61	10.54	0.08	1.42	4.54
IN-THE-MONEY UN-EXERCISABLE	318	1.64	2.87	0.00	0.49	1.67
CEO OWNERSHIP	7	0.10	0.12	0.01	0.01	0.27
BOARD INDEPENDENCE	240	0.67	0.15	0.57	0.70	0.80
BOARD SIZE	240	9.35	2.89	7.00	9.00	11.00
CEO TURNOVER	316	0.16	0.36	0.00	0.00	0.00
CFO TURNOVER	79	0.01	0.11	0.00	0.00	0.00
CLASSIFIED BOARD	152	0.64	0.48	0.00	1.00	1.00
INSTITUTIONAL OWNERSHIP	821	0.46	0.33	0.14	0.46	0.75
AUDIT QUALITY	1095	0.79	0.41	1.00	1.00	1.00
LITIGATION RISK	1051	0.51	0.50	0.00	1.00	1.00
REVENUE RECOGNITION ISSUE	1095	0.21	0.40	0.00	0.00	0.00
LEASE ISSUE	1095	0.18	0.38	0.00	0.00	0.00
INVENTORY ISSUE	1095	0.10	0.29	0.00	0.00	0.00
MERGERS & ACQUISITION ISSUE	1095	0.14	0.34	0.00	0.00	0.00
SG&A EXPENSES ISSUE	1095	0.14	0.34	0.00	0.00	0.00
DEFERRED TAXES ISSUE	1095	0.11	0.31	0.00	0.00	0.00
ACCRUALS ISSUE	1095	0.13	0.34	0.00	0.00	0.00
INTANGIBLE ASSETS ISSUE	1095	0.05	0.21	0.00	0.00	0.00
MISSTATEMENT DURATION	1095	2.05	1.56	0.75	1.75	3.00
MISSTATEMENT IN INCOME	1044	-0.007	0.053	-0.002	0.000	0.000
POST-SOX ANNOUNCEMENT	1095	0.86	0.34	1.00	1.00	1.00
POST-FINAL-RULE 8-K ANNOUNCEMENT	1095	0.60	0.49	0.00	1.00	1.00
FIRM SIZE [ln(total assets)]	1044	5.66	2.19	4.14	5.66	7.14
FIRM LEVERAGE	1042	0.20	0.24	0.00	0.12	0.31

Table 7 describes the accounting error sample. Continuous variables are winsorized at the top and bottom one percent with the exception of the dependent variable (***TIMELINESS***) to mitigate the influence of outliers.

TIMELINESS measures the number of days between the end of the misstatement period and the misstatement disclosure date; ***IN-THE-MONEY EXERCISABLE*** measures the value of the CEO's in-the-money exercisable stock options at the end of the year preceding the misstatement end date and is calculated by taking the difference between the option strike price and the market price of the underlying stock and multiplying the results by the number of option shares and dividing by CEO total pay (salary + bonus); ***IN-THE-MONEY UN-EXERCISABLE*** measures the value of the CEO's in-the-money un-exercisable stock options at the end of the year preceding the end of the misstatement period and is calculated by taking the difference between the option strike price and the market price of the underlying stock and multiplying the results by the number of option shares and dividing by CEO total pay (salary + bonus); ***CEO OWNERSHIP*** measures the CEO's stockholdings in the misstating firm at the end of the year preceding the end of the misstatement period and is calculated by dividing the number of shares owned by the CEO by the number of shares outstanding; ***BOARD INDEPENDENCE*** is calculated by dividing the number of outside directors by the total number of directors both measured at the end of the year preceding the end of the misstatement period; ***BOARD SIZE*** is the number of directors serving on the board measured at the end of the year preceding the end of the misstatement period; ***CEO TURNOVER*** is an indicator variable that takes the value of 1 if the CEO was replaced in the year prior to the end of the misstatement period and 0 otherwise; ***CFO TURNOVER*** is an indicator variable that takes the value of 1 if the CFO was replaced in the year prior to the end of the misstatement period and 0 otherwise; ***CLASSIFIED BOARD*** is an indicator variable that takes the value of 1 if the board has two or more classes of directors at the end of the year preceding the end of the misstatement period and 0 otherwise; ***INSTITUTIONAL OWNERSHIP*** is calculated by dividing the number of shares held by institutional owners by the number of shares outstanding, both measured at the end of the year preceding the end of the misstatement period; ***AUDIT QUALITY*** is an indicator variable that takes the value of 1 if the firm has a Big X auditor contracted at the end of the misstated period and 0 otherwise; ***LITIGATION RISK*** is an indicator variable that takes the value of 1 if the firm operates in a highly litigious sector (financial, health care, information technology, telecommunication services, or utilities) at the end of the misstatement period and 0 otherwise; ***REVENUE RECOGNITION ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to revenue recognition and 0 otherwise; ***LEASE ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to operating or capital leases and 0 otherwise; ***COST OF GOODS SOLD ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to cost of goods sold and 0 otherwise; ***MERGERS & ACQUISITION ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to a merger or acquisition and 0 otherwise; ***SG&A EXPENSES ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to selling, general, or administrative expenses and 0 otherwise; ***DEFERRED TAXES ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to deferred taxes and 0 otherwise; ***ACCRUALS ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to accruals and 0 otherwise; and ***INTANGIBLE ASSETS ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to intangible assets and 0 otherwise; ***MISSTATEMENT DURATION*** is the number of misstated quarters divided by 4; ***MISSTATEMENT IN INCOME*** is measured as the cumulative difference between the corrected net income and the as-first-reported net income over the misstatement duration; ***POST-SOX ANNOUNCEMENT*** is an indicator variable that takes the value of 1 if the misstatement disclosure occurs after August 29, 2002 and 0 otherwise; ***POST-FINAL-RULE 8-K ANNOUNCEMENT*** is an indicator variable that takes the value of 1 if the misstatement disclosure occurs after August 23, 2004 and 0 otherwise; ***FIRM SIZE*** is measured as the natural logarithm of the firm's total assets one year prior to the end of the misstated period; ***FIRM LEVERAGE*** is measured by dividing the firm's long-term debt by the firm's total assets both measured one year prior to the end of the misstated period.

Table 8

Misstatement disclosure timeliness: Accounting error sample - Proportional Hazard Model (Cox Partial Likelihood)

$$TIMELINESS_i = f\,(IN\text{-}THE\text{-}MONEY\ EXERCISABLE_i, IN\text{-}THE\text{-}MONEY\ UN\text{-}EXERCISABLE_i, CEO\ OWNERSHIP_i, CEO\ OWNERSHIP\ SQUARED_i, BOARD\ INDEPENDENCE_i,$$
$$BOARD\ SIZE_i, CEO\ TURNOVER_i, CFO\ TURNOVER_i, CLASSIFIED\ BOARD_i, INSTITUTIONAL\ OWNERSHIP_i, AUDIT\ QUALITY_i, LITIGATION\ RISK_i,$$
$$MISSTATEMENT\ CHARACTERISTICS_i, FIRM\ CHARACTERISTICS_i, YEAR\ DUMMIES, INDUSTRY\ DUMMIES)$$

		Model 1			Model 2			Model 3			Model 4			Model 5			Model 6			Model 7		
Independent Variables	E	Coef.	H. Ratio	z stat.	Coef.	H. Ratio	z stat.	Coef.	H. Ratio	z stat.	Coef.	H. Ratio	z stat.	Coef.	H. Ratio	z stat.	Coef.	H. Ratio	z stat.	Coef.	H. Ratio	z stat.
IN-THE-MONEY EXERCISABLE	(-)										0.01	1.01	4.03	0.02	1.02	2.91	0.01	1.01	2.17	0.01	1.01	1.60
IN-THE-MONEY UN-EXERCISABLE											-0.01	0.99	-0.29	0.01	1.01	0.60	0.01	1.01	0.52	-0.01	0.99	-0.62
BOARD INDEPENDENCE	(+)													0.83	2.30	2.03 **	0.67	1.96	1.37 *	1.05	2.85	1.44 *
BOARD SIZE	(-)													0.06	1.06	2.12	0.06	1.06	2.15	0.09	1.10	3.26
CEO TURNOVER	(+)																					
CFO TURNOVER	(+)																					
CLASSIFIED BOARD	(-)							-0.22	0.80	-0.93												
INSTITUTIONAL OWNERSHIP					0.45	1.58	4.79 ***	0.03	1.03	0.07							-0.15	0.86	-0.49	-0.58	0.56	-1.23
AUDIT QUALITY	(+)				-0.10	0.90	-0.94	1.82	6.19	2.52 ***							0.78	2.18	2.51 ***	0.79	2.20	1.37 *
LITIGATION RISK	(+)				0.20	1.23	3.59 ***	0.29	1.34	1.80 **							0.17	1.18	1.13	-0.08	0.92	-0.32
REVENUE RECOGNITION ISSUE		0.09	1.09	1.31	0.00	1.00	-0.05	-0.36	0.70	-1.54	0.12	1.12	1.16	-0.06	0.94	-0.47	-0.09	0.91	-0.64	0.00	1.00	0.00
LEASE ISSUE		0.10	1.10	0.94	0.04	1.04	0.37	0.18	1.19	0.94	0.28	1.32	2.30 **	0.35	1.42	2.70 ***	0.39	1.48	2.59 ***	0.32	1.37	0.81
INVENTORY ISSUE		0.15	1.16	2.86 ***	0.21	1.23	1.97 **	0.29	1.33	0.85	0.01	1.01	0.03	0.26	1.30	0.87	0.23	1.26	0.82	0.48	1.61	1.20
MERGERS & ACQUISITION ISSUE		0.02	1.02	0.18	0.00	1.00	-0.03	-0.17	0.84	-0.59	-0.09	0.91	-0.50	-0.21	0.81	-0.88	-0.21	0.81	-0.88	-0.18	0.83	-0.52
SG&A EXPENSES ISSUE		-0.03	0.97	-0.55	-0.08	0.92	-0.99	0.19	1.21	0.63	-0.06	0.94	-0.28	-0.15	0.86	-0.57	-0.02	0.98	-0.08	0.09	1.10	0.27
DEFERRED TAXES ISSUE		-0.02	0.98	-0.28	-0.09	0.91	-0.78	0.48	1.61	1.02	-0.13	0.88	-0.44	-0.13	0.88	-0.39	-0.01	0.99	-0.03	-0.21	0.81	-0.38
ACCRUALS ISSUE		-0.22	0.80	-1.75 *	-0.18	0.84	-1.45	-0.79	0.45	-2.87 ***	-0.25	0.78	-1.36	-0.33	0.72	-1.39	-0.44	0.65	-1.79 *	-0.35	0.71	-1.30
INTANGIBLE ASSETS ISSUE		0.03	1.03	0.26	-0.09	0.91	-0.72	0.94	2.55	2.04 **	0.15	1.16	0.96	0.26	1.30	1.06	0.50	1.65	1.67 *	0.54	1.71	1.45
MISSTATEMENT DURATION	(+)	0.04	1.04	2.32 **	0.04	1.04	1.88 **	0.05	1.05	1.06	0.03	1.03	0.88	0.03	1.03	0.49	0.03	1.03	0.44	0.07	1.07	0.98
MISSTATEMENT IN INCOME	(-)	0.09	1.09	0.13	-1.13	0.32	-1.00	-13.52	0.00	-1.50 *	-7.90	0.00	-3.43 ***	-10.49	0.00	-4.33 ***	-12.18	0.00	-5.27 ***	-10.93	0.00	-3.07 ***
POST-SOX ANNOUNCEMENT	(+)	-0.25	0.78	-2.48	-0.30	0.74	-2.23	-0.44	0.64	-0.84	-0.32	0.72	-1.30	-0.45	0.64	-1.17	-0.46	0.63	-0.91			
POST-FINAL-RULE 8-K ANNOUNCEMENT	(+)	0.33	1.40	5.25 ***	0.28	1.32	3.82 ***	0.78	2.19	3.19 ***	0.25	1.28	2.05 ***	0.22	1.25	1.55 *	0.25	1.28	1.73 **			
FIRM SIZE [ln(total assets)]	(+)	0.05	1.05	3.19 ***	0.01	1.01	0.61	0.00	1.00	-0.05	0.09	1.10	3.91 ***	0.01	1.01	0.16	-0.02	0.98	-0.29	-0.09	0.92	-1.20
FIRM LEVERAGE	(-)	-0.10	0.90	-0.95	0.09	1.09	0.47	-0.23	0.80	-0.61	0.03	1.03	0.10	0.05	1.06	0.12	0.09	1.10	0.16	0.69	1.99	0.64
Industry & Year Dummies			No			No			No			No			No			No			Yes	
Cluster Adj. Std. Errors: Industry			Yes			Yes			Yes			Yes			Yes			Yes			Yes	
Model Statistics																						
n				1023			787			133			311			230			214			214
Wald ChiSqd				444.0 ***			26895.9 ***			27077.6 ***			351598.9 ***			8889.2 ***			13704.0 ***			5904.1 ***

Table 8 uses a Cox Partial Likelihood model and provides the resulting hazard ratios representing the influence of internal and external corporate governance on misstatement disclosure timeliness for an accounting error sample. Ties in ***TIMELINESS*** are broken using Breslow (1974) approximation. Continuous variables are winsorized at the top and bottom one percent with the exception of the dependent variable (***TIMELINESS***) to mitigate the influence of outliers.

*, **, *** Significant at the 10%, 5%, and 1% levels respectively, based on a one-tail test if the expectation is given, else a two-tail test.

TIMELINESS measures the number of days between the end of the misstatement period and the misstatement disclosure date; ***IN-THE-MONEY EXERCISABLE*** measures the value of the CEO's in-the-money exercisable stock options at the end of the year preceding the misstatement end date and is calculated by taking the difference between the option strike price and the market price of the underlying stock and multiplying the results by the number of option shares and dividing by CEO total pay (salary + bonus); ***IN-THE-MONEY UN-EXERCISABLE*** measures the value of the CEO's in-the-money un-exercisable stock options at the end of the year preceding the end of the misstatement period and is calculated by taking the difference between the option strike price and the market price of the underlying stock and multiplying the results by the number of option shares and dividing by CEO total pay (salary + bonus); ***BOARD INDEPENDENCE*** is calculated by dividing the number of outside directors by the total number of directors both measured at the end of the year preceding the end of the misstatement period; ***BOARD SIZE*** is the number of directors serving on the board measured at the end of the year preceding the end of the misstatement period; ***CEO TURNOVER*** is an indicator variable that takes the value of 1 if the CEO was replaced in the year prior to the end of the misstatement period and 0 otherwise; ***CFO TURNOVER*** is an indicator variable that takes the value of 1 if the CFO was replaced in the year prior to the end of the misstatement period and 0 otherwise; ***CLASSIFIED BOARD*** is an indicator variable that takes the value of 1 if the board has two or more classes of directors at the end of the year preceding the end of the misstatement period and 0 otherwise; ***INSTITUTIONAL OWNERSHIP*** is calculated by dividing the number of shares held by institutional owners by the number of shares outstanding, both measured at the end of the year preceding the end of the misstatement period; ***AUDIT QUALITY*** is an indicator variable that takes the value of 1 if the firm has a Big X auditor contracted at the end of the misstated period and 0 otherwise; ***LITIGATION RISK*** is an indicator variable that takes the value of 1 if the firm operates in a highly litigious sector (financial, health care, information technology, telecommunication services, or utilities) at the end of the misstatement period and 0 otherwise; ***REVENUE RECOGNITION ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to revenue recognition and 0 otherwise; ***LEASE ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to operating or capital leases and 0 otherwise; ***COST OF GOODS SOLD ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to cost of goods sold and 0 otherwise; ***MERGERS & ACQUISITION ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to a merger or acquisition and 0 otherwise; ***SG&A EXPENSES ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to selling, general, or administrative expenses and 0 otherwise; ***DEFERRED TAXES ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to deferred taxes and 0 otherwise; ***ACCRUALS ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to accruals and 0 otherwise; and ***INTANGIBLE ASSETS ISSUE*** is an indicator variable that takes the value of 1 if the accounting issue involved in the misstatement was related to intangible assets and 0 otherwise; ***MISSTATEMENT DURATION*** is the number of misstated quarters divided by 4; ***MISSTATEMENT IN INCOME*** is measured as the cumulative difference between the corrected net income and the as-first-reported net income over the misstatement duration; ***POST-SOX ANNOUNCEMENT*** is an indicator variable that takes the value of 1 if the misstatement disclosure occurs after August 29, 2002 and 0 otherwise; ***POST-FINAL-RULE 8-K ANNOUNCEMENT*** is an indicator variable that takes the value of 1 if the misstatement disclosure occurs after August 23, 2004 and 0 otherwise; ***FIRM SIZE*** is measured as the natural logarithm of the firm's total assets one year prior to the end of the misstated period; ***FIRM LEVERAGE*** is measured by dividing the firm's long-term debt by the firm's total assets both measured one year prior to the end of the misstated period.

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Curriculum Vitae

Rapheal Hamilton

Education

Jun 2011 (exp.), PhD in Accounting, Syracuse University

Aug 2004, MBA, Syracuse University

Aug 2004, MAPA, Syracuse University

Employment

Oct 1995 – Present, Officer, United States Army

Awards

2007, AICPA Elijah Watt Sells Award

Professional Certifications

2007, Certified Public Accountant

2004, Certified Defense Financial Manager

Professional Membership

American Society of Military Comptrollers