

THE EFFECT OF FINANCIAL STATEMENT TRANSPARENCY ON THE
LIKELIHOOD OF RESTATEMENT AND THE EFFECT OF RESTATEMENT
ANNOUNCEMENTS ON FUTURE LEVELS OF TRANSPARENCY

by

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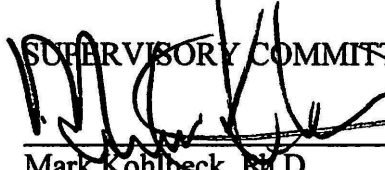
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This dissertation was prepared under the direction of the candidate's dissertation advisor, Dr. Mark Kohlbeck, School of Accounting, and has been approved by the members of her supervisory committee. It was submitted to the faculty of the College of Business and was accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.


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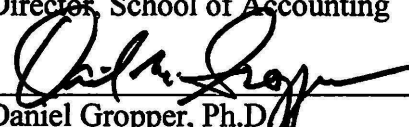

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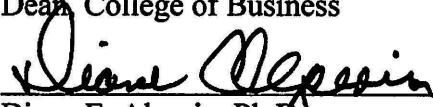

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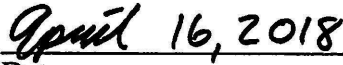

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ABSTRACT

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I explore the impact financial statement transparency has on the probability of restatement and the effect a restatement announcement has on the levels of future financial statement transparency. Information theory suggests that a strong information environment increases accounting quality. Using financial statement transparency as a proxy for the information environment, I find that transparency is associated with a lower probability of financial statement restatement. There are competing theories to predict how restatement announcements affect future levels of transparency. Skinner's (1953) theory of operant conditioning, which states that behavior is modified based on positive or negative conditioning suggests that the level of transparency increases after a restatement announcement. However, expectancy theory suggests that firms engage in certain behaviors in order to derive expected rewards or incentives. Motivation is eliminated if the rewards are deemed unobtainable thereby eliminating managers'

incentive to improve their reporting strategy suggesting that the level of transparency decreases after a restatement announcement. I find that restatement announcement has a negative association with the transparency measure and the magnitude of this effect decreases over time compared to non-restatement firms. These results are magnified if the restatement is due to fraud. However, the changes are not significant. Further, the transparency associations are mitigated if there is a change in CEO after the restatement announcement. In addition, using a sample of firms that made a restatement announcement matched with a sample of firms that did not make a restatement announcement, the difference in the transparency measure before and after the restatement announcement is statistically insignificant.

DEDICATION

To my children Jack and Sloan who inspire me to reach for the stars, to my husband Frank for his love and support, and to my dear departed friend and mentor Floyd “Al” DeCook for believing in me.

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CHAPTER 1: INTRODUCTION

The key objective of financial reporting is to provide decision useful financial information to investors and creditors. Accounting standard setters continuously strive to enhance the decision usefulness of financial reporting by stressing the importance of its predictive value. One way to gauge the predictive value of financial reports is to assess the level of transparency. Financial reporting transparency is defined as “the extent to which financial reports reveal an entity’s underlying economics in a way that is readily understandable by those using the financial reports” (Barth and Schipper 2008).

Accounting standard setters deem transparency to be a desirable characteristic of financial reporting. Higher levels of financial statement transparency should be associated with improved accounting outcomes. I study the perceived benefits and desirability of financial statement transparency by linking it to a lower likelihood of a restatement. Furthermore, by comparing transparency levels between restatement and non-restatement firms, I can ascertain if restatements have positive or negative effects on a restating firm’s reporting practices. Therefore, I investigate the following two research questions. Is financial statement transparency associated with a lower likelihood of a restatement? Are financial statement restatement announcements associated with future transparency levels?

The quality of information is a key factor in the efficiency of resource allocation decisions and growth in an economy (Bushman et al. 2004). Information theory suggests that a strong information environment increases accounting quality because it limits

managers' opportunistic behavior. Restatements are an accounting outcome commonly associated with management opportunism. Following information theory, there should be fewer restatements when the firm has a strong information environment. Using financial statement transparency as a proxy for the information environment, I expect that higher transparency is associated with a lower probability of a financial statement restatement. Restatements generally occur because of accounting errors or fraud. However, the impact of a restatement announcement on future transparency levels is unknown. Skinner (1953) provides the theory of operant conditioning, which states that behavior is modified in response to positive or negative conditioning. Since a restatement has negative consequences, the restating firm is motivated to undertake reparative actions to improve reporting credibility. This approach is consistent with the theory of operant conditioning and suggests that the level of transparency should improve. However, expectancy theory suggests that firms engage in certain behaviors in order to derive expected rewards or incentives. Motivation is eliminated if the rewards are deemed unobtainable. Since investors perceive earnings to be less reliable after a restatement, then theoretically management does not possess the incentive to change its reporting strategy. Moore and Pfeiffer (2004) find that firms that restate their financial statements do not change their reporting tactics after a restatement announcement even when investors know that the tactics resulted in the misstatement.

I use a conditional probit regression framework to explain the likelihood of restatement and a sample of restatement and non-restatement firms (Agrawal and Chadha 2005; Abbott et al. 2004; Beasley 1996). I then use Barth et al. (2013) transparency measure to test if higher financial statement transparency is associated with a lower

likelihood of restatements. My results show a negative coefficient on the transparency variable suggesting that as financial statement transparency increases the likelihood of financial statement restatements decreases.

To test whether transparency changes after a restatement, I again use Barth et al. (2013) transparency measure as the dependent variable. In the univariate analysis, I find that the level of transparency generally increases after a restatement announcement and the magnitude of the increase, increases over time. I then regress this measure of financial transparency on 1) indicator variables if a restatement is announced in either the prior year, two years prior or three years prior, 2) another set of indicator variables if the restatement is caused by an irregularity for announcements in the prior year, two years prior or three years prior and 3) other control variables to determine if transparency changes subsequent to the restatement announcement. Using the regression model, I find that the transparency measure has an increasing negative association with a restatement announcement, consistent with transparency changes. Consequently, the regression results are mitigated if there is a change in CEO. I also use a difference-in-difference model to determine if the change in transparency compares in restatement firms to non-restatement firms. I again find that transparency has a negative association with a restatement announcement and the change is not significant from before the restatement announcement to after the restatement announcement.

This study contributes to the existing body of literature by examining the link between transparency and restatements in three ways. Prior research deems transparency as a desirable characteristic and shows the negative market effects of restatements. This study further supports the appeal of transparency by being the first study to link that a

higher level of financial statement transparency decreases the likelihood of restatement. By supporting this link, this study provides evidence that transparency increases accounting quality and potentially limits managers' opportunistic behaviors.

The second contribution of this study is that it examines the impact a restatement announcement has on a firm's future level of transparency. By showing that a firm's level of transparency does not significantly change after a restatement announcement, it implies that a restatement is not necessarily enough to induce a firm to improve its accounting policies. Additional actions such as change in top management, additional monitoring mechanisms or other changes are warranted.

Third, this study also adds to the existing literature of financial statement transparency. Although the topic of restatements includes many directions, financial transparency is a relatively new and growing realm of research. I provide evidence that supports prior literature that financial statement transparency is a beneficial characteristic of financial reporting.

The remainder of this proposal is organized in the following manner. In Chapter 2, I review the prior literature on transparency and restatements. In Chapter 3, I discuss the underlying theories and develop my hypotheses. Chapter 4 discusses the research design. In Chapter 5, I discuss sample selection and descriptive statistics. Chapter 6 presents empirical results and in Chapter 7, I offer concluding remarks.

CHAPTER 2: LITERATURE REVIEW

In this section, I describe prior literature relevant to my research. First, I discuss the prior transparency literature. I then review research on financial statement restatements including the literature on what causes restatements and how a firm changes after a restatement. I conclude with a summary of the prior literature as it applies to my study.

2.1 Transparency Research

Transparency is a relatively new area of research and consequently does not have an extensive amount of research. Financial statement transparency is defined as “the extent to which financial reports reveal an entity’s underlying economics, in a way that is readily understandable by those using the financial reports” (Barth and Schipper 2008).

Using various proxies for transparency, Jin and Myers (2006) document the relationship between market transparency and asset price crashes by showing that opaque stocks are more likely to deliver large negative returns. They also find that countries that are more opaque to investors incur a higher frequency of crashes (Jin and Myers 2006).

Other research links the level of corporate transparency to a country’s legal/judicial regime and political economy (Bushman et al. 2004). Lang and Maffett (2011) find that “firms with a greater level of transparency experience less liquidity

volatility, fewer extreme illiquidity events and lower correlations between firm-level liquidity and both market liquidity and market returns.” Furthermore, Lang and Maffett (2011) find that the relation between transparency and liquidity is more pronounced during periods of high volatility, with more concentrated ownership, and poor investor protection, disclosure requirements, and media penetration. This research implies that firm-level transparency is of greater importance to investors when uncertainty is greater. Bushman et al. (2004) analyze a range of measures to capture a firm’s information environment, isolating two clear-cut factors. The first factor captures the strength and timeliness of financial disclosures and their interpretation by analysts. The second factor captures the strength of governance disclosures that outside investors use to hold officers and directors accountable. They find that on an international level, differences in governance transparency is predominantly related to the legal or judicial system and financial transparency is more related to the political system.

Finally, Nanda and Wysocki (2013) support a positive association between financial transparency measures and trust, which is amplified by a firm’s need for external financing. Barth et al. (2013) find that firms with a higher level of earnings transparency have a lower cost of capital.

On a broader scope, transparency is one way to assess the effectiveness of accounting information. In addition to transparency, accounting literature includes many different measures and methodologies to gauge the effectiveness of accounting information including accounting quality, governance and reputation. Accounting quality has many definitions and measures in prior literature. Barth et al. (2008) interpret accounting amounts that are more value relevant as being of higher quality. Dechow and Dichev (2002) use accrual quality as a way to assess accounting quality. Although there

is some overlap between accounting quality and transparency, the main difference is accounting quality measures that are linked to accruals quality does not capture investor or analyst perceptions (Barth and Schipper 2008). The concept of transparency not only refers to the quality of financial reports but how well the users can understand financial reports. Larcker et al. (2007) define corporate governance "as the set of mechanisms that influence the decisions made by managers when there is a separation of ownership and control". The disadvantage of using corporate governance is that it lacks construct validity due to the lack of a single indicator, which has mixed results (Larcker et al. 2007). Reputation is similar to corporate governance because both are means to reduce agency problems and relate to a firm's long-term strategy. However, reputation differs from corporate governance in that it does not require formal contracts and external monitoring. Reputation emphasizes the dynamics of repeated interactions with parties (Cao et al. 2012). Cao et al. (2012) find that companies with better reputations produce a higher quality of financial reports and are less likely to misstate their financial statements. The disadvantage of using reputation effect as a measure of accounting effectiveness is that is a subjective measure and is likely to be biased. Transparency is a way to gauge the decision usefulness of accounting data with an emphasis on reliability and relevance.

2.2 Restatement Research

Management is required to correct inaccurate, incomplete, or misleading financial statements disclosures in Securities and Exchange Commission (SEC) filings if the statements are "discovered to have been false and misleading from the outset, and the issuer knows or should know that persons are continuing to rely on all or any material portion of the statements" (SEC. Act Rel. 6084, 17 SEC Dock. 1048, 1054 1979).

Eilifsen and Messier (2000) identify four conditions in order for financial statements to be restated. First, a material misstatement occurs as a result of the firm's inherent risk such as management's aggressive accounting practices or misapplication of GAAP. Second, the company's internal controls do not prevent or detect the misstatement. Third, the external auditor does not detect the misstatement and issues an unqualified opinion. Fourth, the misstatement is subsequently discovered and if the amount is considered material, correction, restatement and reissuance of the original financial statements is required (Abbott et al. 2004).

There is a vast amount of research on potential causes and characteristics of restatements. The early literature suggests that restatement firms share certain characteristics. These studies indicate that restatement companies tend to be smaller, less profitable, have less growth opportunities, a higher likelihood of audit reports qualified for uncertainties, higher debt levels, fewer income increasing GAAP alternatives, and more diffuse ownership (Kinney and McDaniel 1989, DeFond and Jiambalvo, 1991, Sennetti and Turner 1999, Palmrose et al. 2004).

Another line of research examines the association of stock-based compensation with accounting quality. Stock-based compensation is a prime mechanism that aligns managers' incentives with those of shareholders (Jenson and Meckling 1976). Accordingly, managers who receive stock-based compensation are more sensitive to short-term stock prices, which can induce managers to fixate on short-term stock prices. CEOs might engage in earnings management to increase the short-term stock price and consequently their personal wealth; this behavior may then lead to restatements (Cheng and Farber 2008). Elfendi et al. (2007) find a positive relation between the likelihood of financial statement restatement and net worth of CEOs' options that are deep in-the-

money. Burns and Kedia (2006) find that the probability of misreporting net income increases as the sensitivity of CEOs' option portfolio to both stock price fluctuations and return volatility. Finally, Harris and Bromily (2007) find that compared to CEOs in firms that restate their financial statements receive a higher percentage stock options than CEOs in non-restatement firms.

There is also research that suggests the cause of restatement matters. Hennes et al. (2008) find that by distinguishing between restatements caused by errors and restatements caused by irregularities, researchers can enhance the power of their tests. Errors are defined as unintentional misapplications of GAAP while irregularities are intentional misreporting as defined by SAS 53 (AICPA 1988). Hennes et al. (2008) classify restatements from the 2002-2005 sample period as irregularities if one of the three criteria are met: either 1) any variation of the words "fraud" or irregularity are used in the restatement in reference to the misstatement; 2) the presence of a related SEC or Department of Justice (DOJ) investigation; or 3) the presence of other types of investigations, such as the Audit Committee engaging a forensic accounting firm.

In addition to the ex-ante stream of restatement research, there is an extensive amount of literature investigating changes in a firm after a restatement occurs. One such stream examines the impact on shareholder wealth after a restatement. Prior research documents that the stock prices of firms that restate fall on average between 6% (Dechow et al. 1996) and 10% (Palmrose et al. 2004) when the restatement is announced to the public. Gleason et al. (2008) document a contagion effect where the restating firm induces a decline in share price in firms in the same industry. Palmrose et al. (2004) examine the market reaction to section 403 restatements from 1995 to 1999. They find evidence that an average abnormal return of approximately -9% over a two-day

announcement window. In addition, Palmrose et al. (2004) find that more negative returns are associated with fraud. Hennes et al. (2008) find that the market reaction to the restatement announcement is significantly more negative for the irregularity sample (-14%) than for the errors sample (-2%). Other research suggests that investors use informed trading activities to interpret and price accounting restatements. Badertscher et al. (2011) find a lower level of negative reactions to accounting restatements when managers purchase stock prior to the restatement and find more negative market reactions when managers are the sellers of stock. Overall, prior research supports restatements' negative impact on stockholder wealth.

Other research examines the information content and environment of a firm after restatement. Earlier research documents a significant drop in the information content of earnings after restatement announcements measured by the earnings response coefficient (ERC) for both the first two quarters after restatement and the first annual earnings announcement after restatement (Wu 2002, Anderson and Yohn 2002). Using a standard earnings-returns framework, Wilson (2008) finds that although the information content of earnings declines after a restatement, the loss is temporary. The effect is not significant after an average of four quarters and is greater for firms that restate earnings to correct revenue recognition errors. Wilson also finds that there is no decline in information content for firms that make changes in their governance structure after restatement.

However, Chen et al. (2014) using a more recent sample, find that material restatement firms undergo a significant decrease in their ERC over a longer period, close to three years after the restatement announcement. They find that firms with a non-material restatement only experience a decline in ERC for only one quarter. They also

find that those firms with credibility concerns that do not take prompt action to improve their reporting credibility experience a longer drop in ERC.

Kravet and Shevlin (2009) find an increase in the value of discretionary information risk after a restatement announcement and that such risk declines over the next three years after restatement. Chakravarthy et al. (2014) use a matched sample design and find that restating firms are more likely to undertake more actions to rebuild their reputation after a major restatement compared to non-restating firms. They document positive abnormal returns surrounding the announcements of reputation-building activities by the restating firm compared to zero or negative abnormal returns for similar actions in the absence of a restatement. They also find improvements to the ERC after repair actions directed at both capital providers and other stakeholders after restatement.

Another branch of research examines how the governance structure changes after restatement. Farber (2005) finds evidence that firms that experience fraud also improve their corporate governance in order to improve financial reporting credibility. He also finds that this process takes up to three years for the fraud firm to achieve the same corporate governance quality as non-fraud firms. Srinivasan (2005) finds that in the first two years after restatement, there is significant director turnover. Hennes et al. (2008) find that turnover rates for restatements due to irregularities are 67% for CEOs, 85% for CFOs, and in 91% of the time, either the CEO or the CFO leaves the firm. Cheng and Farber (2008) find that based on 289 restatements over the period of 1997-2001, the proportion of CEO's stock options declines significantly in the two years following restatement. They further document that this decline is accompanied by lower return volatility and subsequent improvements in operating performance. Hennes et al. (2014)

find that firms with higher switching costs are less likely to dismiss their auditors after restatement. They also find that there is an increased positive market reaction to the dismissal for more severe restatements.

2.3 Literature Review Summary

Although financial statement transparency is a relatively new stream of research, prior studies support that it is a desired financial reporting characteristic. These studies document that transparency is beneficial to both investors and creditors by showing an association of less uncertainty and volatility under certain market conditions. In addition, this stream of research documents that financial statement transparency is associated with a lower cost of capital and less potential for earnings management. This study expands the prior literature by further supporting the desirability of transparency by associating it with a lower likelihood for restatement.

In contrast, there is a vast stream of restatement research. One line of research examines similarities of restating firms such as firm characteristics, amount of audit and non-audit fees, and discretionary accruals. Further research examines the link between stock-based compensation and restatement. Other research compares the effects of restatement due to the misapplication of GAAP as opposed to intentional misreporting. Another line of research examines firm changes after a restatement. This stream includes the stock price effect, contagion effect, and changes in both the information environment and governance structure of the restating firm. This study will enhance the prior restatement literature by documenting whether transparency improves or declines after a restatement.

Overall, prior literature supports that a higher level of transparency is associated with positive characteristics while restatements are associated with negative consequences. The linkage between transparency and restatement has not been considered in the literature. I fill this gap by exploring the effect of transparency on the likelihood of a restatement and the effect of a restatement announcement on the future level of transparency.

CHAPTER 3: HYPOTHESES DEVELOPMENT

I begin this section with an analysis of the relationship between financial statement transparency and the likelihood of a restatement, which leads to my first hypothesis. I then discuss the effect of a restatement announcement on future financial statement transparency, which motivates my second hypothesis.

3.1 Information Perspective

Statement of Financial Accounting Concepts No. 1 states, “Financial reporting should provide information that is useful to present and potential investors and creditors and other users in assessing the amounts, timing, and uncertainty of prospective cash receipts” (FASB 1978, 1). Beaver (1981) contends that financial information can affect the distribution of wealth among investors; the aggregate risk incurred and risk allocation, rate of capital formation within the economy, resource allocation, and the rate of private sector information production. Since the main objective of financial reporting is the conveyance of useful information to capital providers and other interested parties, the quality of information is a crucial factor. This is further confirmed by FASB’s (2010) hierarchy of qualitative characteristics which cites; confirmatory value, completeness, and free from error as key components of qualitative characteristics. Evidence on the market consequences of restatements has allowed researchers to make progress in identifying specific dimensions of quality (Dechow et al. 2010). My focus here is the information perspective of accounting quality.

Information theory states that investors require information on current and future cash flows as well as the market value of assets and liabilities (Watts and Zimmerman 1986). Therefore, there is a demand for high-quality financial information. In addition, information theory contends that a strong information environment increases accounting quality because it limits managers' opportunistic behavior, decreases the likelihood of estimation errors, and decreases information asymmetry. As a result, information quality can be used to assess, the extent to which, if any, financial reports satisfy the FASB's reporting objectives.

Prior literature defines financial reporting transparency as "the extent to which financial reports reveal an entity's underlying economics in a way that is readily understandable by those using the financial reports" (Barth and Schipper 2008). Based on this definition, transparency is a logical way to measure both the quality of financial information and the level of understanding by the users of such information. In addition, firms with higher transparency levels share similar characteristics as firms with low information risk such as lower cost of capital (Barth and Schipper 2008), less liquidity volatility (Lang and Maffett 2011), and lower transaction costs (Lang et al 2011). Consequently, I focus on a firm's level of financial statement transparency to capture information quality.

Based on information theory, a strong information environment (that is, high levels of financial statement transparency) is linked to a higher level of accounting quality by way of limiting managers' opportunistic behavior, lowering the occurrence of estimation errors and decreasing information asymmetry

Managers' opportunistic behavior leads to earnings management. A primary threat to accounting quality is earnings management. "Earnings management occurs

when managers use judgment in financial reporting and in structuring transactions to alter financial reports, either to mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers” (Healy and Wahlen 1999). Prior research also links aggressive accounting practices with both earnings management and restatement. Therefore, a strong information environment limits managers’ opportunistic behavior because concealing this type of behavior is more difficult.

Estimation errors are defined as the difference between the amounts accrued and the amount realized (McNichols 2002). A competent information environment is necessary to aid in predicting future cash flows, which is a critical component of accrual accounting. Information risk originates from imprecision in estimates of the rewards to investors based on current available information (Easley and O'Hara 2004). Prior studies typically study accounting estimation errors in terms of accounting quality measures based using reported earnings and its components and define the construct as “earnings quality” or “accruals quality” (Hribar et al. 2014). Dechow and Dichev (2002) link estimation error to lower earnings quality. Structural factors also cause variation in the precision of accrual estimates (McNichols 2002). This suggests that a strong information environment is associated with a lower occurrence of accounting estimation errors.

Finally, lower levels of accounting quality impair the harmonization between the firm and its capital providers and therefore create an information risk (Francis et al. 2004). Prior research further confirms this by showing a positive relation between information risk and cost of capital. For example, Francis et al. (2005) confirm the positive relation between information risk and cost of capital by measuring the strength of current accruals into cash flows. Botosan (1997) use disclosure scores to proxy for

information risk and Bhattacharya et al (2003) also support the positive relation between information risk and cost of capital by investigating the county-level measure of the average cost of equity and earnings opacity. Kravet and Shevlin (2009) find that restatements reflect errors that cause investors to modify their beliefs about information precision associated with the firm's earnings. As a result, a strong information environment is expected to be linked to lower levels of information asymmetry between a firm's insiders and capital providers.

Combined, a strong information environment leads to higher level of information and accounting quality. Lower levels of accounting quality, specifically estimation error and earnings management, are the main causes of restatements. Therefore, if financial statement transparency captures information and accounting quality, I expect that higher financial statement transparency should lead to fewer restatements. This leads to my first hypothesis stated in the alternative form:

H1: The level of financial statement transparency has an inverse relation to the likelihood of restatement.

3.2 Transparency after a Restatement Announcement

Prior research is mixed regarding the impact of a restatement on firm prospects and shareholders' wealth. In one respect, a restatement signals that a firm's previously issued financial statements were biased or incorrect. Investors likely change their perceptions of the restating firm's content and credibility of their financial statements. Furthermore, a restatement may convey unfavorable information about the restating firm's future prospects (Gleason et al. 2008). Palmrose et al. (2004) finds that investors are more concerned with restatements that carry negative implications for management

integrity than restatements due to technical accounting issues. Prior research documents negative effects in the short term such as a drop in the information content of earnings after the first annual earnings announcement after the restatement announcement (Anderson and Yohn 2002) as well as a significant drop in the earnings response coefficient (ERC) for the first two quarters after restatement announcement (Wu 2002). However, Wilson (2008) finds that the decline in the ERC is limited to three quarters after the restatement announcement even for restatement firms with 1) more negative stock market reactions or 2) minimal corrective actions (for example, replacing the auditor or CEO). Given this disparity in results of prior research, it is unclear how a restatement announcement affects the firm's information environment. In the subsequent paragraphs, I explain competing underlying theories for an improvement in the information environment after a restatement as well as a decline in the information environment after a restatement.

The behavioral science of operant conditioning relies on the assumption that an individual learns by responding to reinforcers or punishers within the environment. Reinforcers can be either positive or negative and increase the probability of a behavior being repeated. On the other hand, punishers decrease the likelihood of repeating the behavior, that is, punishment weakens behavior (Skinner 1953). The dependent variables to operant conditioners are operant responses or behaviors, and the independent variables in operant conditioning are the environmental consequence of an individual's (or firm's) operant behaviors (Jablonsky and DeVries 1972).

Consistent with this theory, Cheng and Farber (2008) find that based on 289 firms that restated over the period of 1997 to 2001, the proportion of CEOs' compensation in

the forms of options declines significantly in the two years after restatement. In this study, the restatement is the environmental consequence whereas the decline in CEO's stock options is the punishment. From another perspective, consider that the restatement itself is the punishment for inadequate accounting practices. Prior literature documents how a restatement damages a firm's reputation for integrity and competence (Chakravarthy et al. 2014, DeChow et al. 1996, Palmrose et al. 2004) which, in essence, is a type of punisher.

Furthermore, prior research supports that a firm is motivated to improve its reputation with capital providers and stockholders after the restatement (Farber 2005, Gertsen et al. 2006, Wilson 2008). For example, firms implement changes to incentive or internal control systems in order to both reduce the likelihood of future restatements and signal the firm's commitment to preventing such future misconduct (Gillespie and Dietz 2009, James and Wooten 2004, and Gertsen et al. 2006). Chakravarthy et al. (2014) find that repair actions directed at both capital providers and other stakeholders are associated with improvements in the ERC of restating firms after restatement, implying that repair actions improve reporting credibility. Based on this stream of research, it appears that firms are motivated to implement changes in their accounting practices after a restatement.

Conversely, the application of expectancy theory dictates a different outcome for a firm's behavior after restatement. Expectancy theory refers to a "set of decision theories of work motivation and performance" (Vroom 1964). The theory proposes that an individual chooses both the behavior to engage in and the level of effort to exert based

on a subjective probability that their effort leads to certain outcomes (Ferris 1977).

Therefore, the motivation is eliminated if the outcome is deemed unobtainable.

Palmrose et al. (2004) find that restatement firms average a loss in equity value of 10 percent. Part of this loss is attributable to an increase in information risk (Kravet and Shevlin 2010). If the restating firm perceives the increase in information risk by capital providers as inevitable, it may take other types of corrective actions in lieu of improving their accounting practices or it may take no action at all. These actions include increasing corporate governance and monitoring mechanisms, changing auditors and stock repurchases. These actions may or may not improve accounting quality.

Wilson (2008) finds that restatement firms that quickly change top management, make governance changes, or dismiss their auditor do not experience a decline in the short-term information content of earnings. Farber (2005) finds evidence to support that firms committing financial reporting fraud benefit from subsequently increasing board independence. Firms are likely to initiate a stock repurchase when they perceive their stock price to be undervalued (Lie 2005). Therefore, when management believes that a firm's credibility is under-valued by capital markets, they may initiate a share repurchase to signal the undervaluation (Chakravarthy et al. 2014). Furthermore Badertscher et al. (2011) find that the market uses the magnitude and direction of prior insider and corporate trades to price the implications of the restatement.

Based on operant conditioning theory and expectancy theory, I develop the following competing hypotheses:

H2a: The level of financial statement transparency increases after a restatement announcement.

H2b: The level of financial statement transparency decreases after a restatement announcement.

CHAPTER 4: RESEARCH DESIGN

In this section, I present the research design for testing my hypotheses and describe the sample selection process. I first explain how I compute my measure for financial statement transparency. Next, I present the empirical models used to test my hypothesis. I conclude with a description of the sample selection.

4.1 Measure of Financial Statement Transparency

I use Barth et al.'s (2013) measure of transparency, which is based on the extent to which earnings and change in earnings covary contemporaneously with stock returns. Therefore, higher (lower) transparency will result in higher (lower) explanatory power. This measure involves taking the sum of two components: an industry component (IND) and a portfolio component (PORT). Each component is estimated by calculating the R^2 from the regression equation as discussed below. The sum of the two R^2 's is the calculated transparency measure.

I use the following equation to determine the two components of the financial transparency measure.

$$RET_{i,j,t} = \alpha_0 + \alpha_1 E_{i,j,t}/P_{i,j,t-1} + \alpha_2 \Delta E_{i,j,t}/P_{i,j,t-1} + \varepsilon_{i,j,t} \quad (1)$$

Where:

$RET_{i,j,t}$ = annual return measured ending three months after the firm's fiscal year end.

E_t/P_{t-1} = earnings before extraordinary items and discontinued operations deflated by the beginning of year price.

ΔE = change in earnings from year $t-1$ to year t deflated by the beginning of year price.

First, I estimate Equation (1) annually for each of 15 industries designated by j provided there are at least 10 observations for that industry-year. This method constrains the coefficients in Equation (1), α_0 , α_1 , and α_2 to be the same for all firms within the same industry and year. The industry component (IND) is the R^2 of each industry-year regression.

To calculate the portfolio component, I estimate Equation (1) over subgroups of the observations included in each industry-year regression. Observations within each industry-year classification are assigned to one of four portfolios based on the magnitude of the observation's associated residual for the annual regression for that industry. I then pool observations by portfolio p , which allows for the industry-neutral component of transparency to vary over time (Barth et al 2013). The portfolio component (PORT) is the R^2 for each of these estimations.

The transparency measure for firm i is the sum of the industry component R^2 , IND, and the industry neutral component R^2 , PORT.

$$TRANS_{i,t} = IND_{j,t} + PORT_{p,t} \quad (2)$$

Where:

$TRANS_{i,t}$ = firm's transparency measure.

$IND_{j,t}$ = annual returns-earnings relations per industry estimated in eq. 1.

$PORT_{p,t}$ = annual returns-earnings relation per portfolio estimated in eq. 1.

4.2 Restatement Model

I use probit regression to examine whether a firm's level of transparency affects the probability of restatement (H1). I start with a restatement model based on Newton et al. (2013) and Kohlbeck and Mayhew (2017) and add the financial transparency variable. The restatement model is as follows:

$$\begin{aligned} \text{Prob (RESTATE=1)} = F (\Phi_0 + \Phi_1 \text{TRANS}_{i,t} + \Phi_2 \text{AU_SIZE}_{i,t} + \Phi_3 \text{NAT_LEADER}_{i,t} + \\ \Phi_4 \text{LNFEES}_{i,t} + \Phi_5 \text{FEERATIO}_{i,t} + \Phi_6 \text{SIZE}_{i,t} + \Phi_7 \text{LEVERAGE}_{i,t} + \Phi_8 \\ \text{GROWTH}_{i,t} \\ + \Phi_9 \text{ROA}_{i,t} + \Phi_{10} \text{LOSS}_{i,t} + \Phi_{11} \text{LIT}_{i,t} + \Phi_{12} \text{ACQ}_{i,t} + \Phi_{13} \text{CHANGE}_{i,t} + \Phi_{14} \\ \text{BIG4}_{i,t} + \\ \Phi_{15} \text{SD_ROA}_{i,t} + \kappa) \end{aligned} \quad (3)$$

Where:

RESTATE = an indicator variable equal to one if current year financial statements are subsequently restated and zero otherwise;

F= the standard normal distribution function.

TRANS= firm's transparency measure as computed in equation 2.

AU_SIZE= the natural log of one plus the auditor's total audit fees in the industry market divided by 1,000.

NAT_LEADER= an indicator variable equal to one if the auditor is the national industry market share leader in audit fees, and zero otherwise.

LNFEES= the natural log of one plus total audit and audit related fees divided by 1,000.

FEERATIO= the ratio of non-audit service fees to total audit and non-audit service fees.

SIZE= is the natural log of year-end total assets.

LEVERAGE= the ratio of total liabilities to total assets at year-end.

GROWTH= the rate in change in assets during the year.

ROA= return on assets computed as the ratio of income before extraordinary items to total assets.

LOSS= an indicator variable equal to one if the company reported a loss in the current year and zero otherwise.

LIT= an indicator variable equal to one if the firm operates in a high-litigation industry and zero otherwise where high litigation industries are those with SIC codes of 2833-2836, 3570-3577, 3600-3674, 5200-5961, and 7370.

ACQ= an indicator variable equal to one if the firm engaged in a merger or acquisition (identified by Compustat AFTNT for revenue) and zero otherwise.

CHANGE= an indicator variable equal to one if the company changed auditors during the year, and zero otherwise.

BIG4= an indicator variable equal to one when a Big 4 firm audits the company, and zero otherwise.

SD_ROA= the standard deviation of annual return on assets over the prior five years.

Fixed effects for year and industry based on two-digit NAICS codes are also included, and standard errors are clustered by firm to address potential cross-sectional correlation.

As stated in my first hypothesis, I expect a greater likelihood of restatement when a firm has a lower transparency score. Therefore, the coefficient on transparency is expected to be negative ($\Phi_1 < 0$). Control variables encompass auditor characteristics and firm characteristics as discussed in the following paragraphs.

Auditor characteristics include size, market share, and fees. Both size and market share variables, AU_SIZE and NAT_LEADER, are expected to have an inverse effect on the likelihood of restatement (Kohlbeck and Mayhew 2017). Fee variables, LNFEES and FEERATIO represent the economic bonding as in larger audit clients possess more leverage in negotiating with auditors (Newton et al. 2013) and are expected to be positively related to the likelihood of a restatement. In addition to these variables, the variable CHANGE is expected to increase the probability of a restatement while BIG4 is expected to decrease the probability of restatement.

Firm characteristics include variables that capture size, performance and industry. Size (SIZE) is expected to decrease the likelihood of restatement because larger clients have better developed control systems (Newton et al. 2013). Performance variables include LEVERAGE, GROWTH, ROA and LOSS. I expect an inverse relationship between each variable of GROWTH, and ROA and a positive relationship between LEVERAGE and LOSS variables with the likelihood of restatement because prior research supports that these variables have the same relationship with audit quality. Industry variables include industry litigation risk (LIT) and involvement in mergers and acquisitions (ACQ). Both of which are expected to have a greater likelihood of restatement.

4.3 Transparency after Restatement Model

This section describes the model I use to test if future levels of transparency are associated with restatement announcements in prior years. I adopt an accounting quality model based on the model used in Demerjian et al. (2013) with financial transparency as

the dependent variable.¹ I then use a sample that includes both restatement and non-restatement firms to mitigate any omitted variable bias concerns. To facilitate this approach, I use three restatement indicator variables to capture whether a restatement announcement is made in either the year before, two years before or three years before the year transparency is measured as well as three type of restatement variables to indicate if the restatement is caused by an accounting irregularity. By lagging the variables, I capture the time effect of the restatement announcement on the level of transparency. The regression model is as follows:

$$\begin{aligned} \text{TRANS}_{i,t} = & \sigma_0 + \sigma_1 \text{ANNOUNCE}_{i,t-1} + \sigma_2 \text{ANNOUNCE}_{i,t-2} + \sigma_3 \text{ANNOUNCE}_{i,t-3} + \\ & \sigma_4 \text{TYPE}_{i,t-1} + \sigma_5 \text{TYPE}_{i,t-2} + \sigma_6 \text{TYPE}_{i,t-3} + \sigma_7 \text{SIZE}_{i,t} + \sigma_8 \text{SALESVOL}_{i,t} + \sigma_9 \text{CFVOL}_{i,t} \\ & + \sigma_{10} \text{OC}_{i,t} + \sigma_{11} \text{LOSS\%}_{i,t} + \sigma_{12} \text{BIG4}_{i,t} + \varepsilon_t \end{aligned} \quad (4)$$

Where:

TRANS = firm's transparency measure as computed in equation 2.

ANNOUNCE = an indicator variable equal to one if a restatement announcement is made for the financial statements and zero otherwise.²

¹ Prior literature supports that accounting quality and transparency possess similar characteristics and outcomes, such as lower occurrences of earnings management and lower cost of capital. Because of these similarities, I substitute transparency instead of accounting quality in the Demerjian et al. (2013) regression model.

² Due to the nature of the variables, there is a potential simultaneity problem between transparency and restatement.

I mitigate this concern by measuring transparency in the one to three years after the restatement announcement.

TYPE= an indicator variable equal to one if the restatement pertains to an accounting irregularity(s) for a restatement announcement and zero otherwise.

SIZE= the natural log of the firm's assets (AT) reported at end of year t.

SALESVOL= sales volatility computed as the standard deviation of sales [total sales (SALE)/average assets (AT)] over the last 5 years.

CFVOL= cash flow volatility calculated as the standard deviation of cash from operations [(OANCF)/ average assets (AT)] over the last 5 years.

OC= the natural log of the length of the firm's operating cycle, defined as sales turnover plus days in inventory [(average RECT)/ (SALE/360) + (average INVT)/ (COGS/360)] and is averaged over the last 5 years.

LOSS%= the percentage of years reporting losses in net income over the last 5 years.

BIG4= an indicator variable equal to one when a Big 4 firm audits the company, and zero otherwise.

With respect to H2a and H2b, the variable of interest is ANNOUNCE for which I do not predict the sign. The variable ANNOUNCE is used for the year before, two years before and three years before the year that transparency is measured to capture any lagged effects of the restatement announcement. Chen et al. (2014) find that firms that announce a material restatement experience a significant decrease in their ERC over three years after the restatement announcement therefore, it seems appropriate to apply the same timeframe to the measure of transparency. If the coefficients for ANNOUNCE are positive and increasing ($0 < \sigma_1 < \sigma_2 < \sigma_3$), a restatement announcement has a positive impact on transparency. If the coefficients on ANNOUNCE are negative and increasing

($0 > \sigma_1 > \sigma_2 > \sigma_3$), the individual restatement announcement is associated with decreased transparency.

The variable TYPE is included to determine if the restatement's effect on transparency is different for restatements caused by irregularities as opposed to restatements caused by accounting errors. Errors are defined as unintentional misapplications of GAAP while irregularities are intentional misreporting as defined by SAS 53 (AICPA 1988). Hennes et al. (2008) find that by distinguishing between restatements caused by errors and restatements caused by irregularities, researchers can enhance the power of their tests. By including TYPE in the model, the results for ANNOUNCE represent the effect of restatements caused by accounting errors and significant coefficients for TYPE captures incremental differences for restatements caused by accounting irregularities.

Control variables such as firm size, proportion of losses, sales volatility, cash flow volatility, and operating cycle are based on the firm-specific determinants of earnings quality (Dechow and Dichev 2002). I also control for whether the auditor is a big four firm which is associated with earnings quality (Becker et al, 1998). I expect size and big four to have a positive relationship with transparency and proportion of losses, sales volatility, cash flow volatility and operating cycle to have a negative association with transparency.

In addition, I use a difference-in-difference model that includes a matched sample of restatement and non-restatement firms. The sample of restatement firms are matched one to one to a sample of non-restatement firms based on the propensity scores of fiscal year, industry, total assets and net income. I use an indicator variable to capture whether the observation belongs to the treatment group (i.e., a restatement firm) and another

indicator variable to indicate if the transparency is measured pre or post restatement. So even though the control group does not have a restatement announcement it is still measured pre and post based on the announcement of its match in the treatment group by using the same indicator variable. I use a final indicator variable which is an interaction variable between the first two indicator variables. The difference-in-difference regression model is as follows:

$$\text{TRANS}_i = \sigma_0 + \sigma_1 \text{POST}_i + \sigma_2 \text{ANNOUNCE}_{i,t-1} + \sigma_3 \text{POST} * \text{ANNOUNCE}_{i,t-1} + \sigma_4 \text{SIZE}_{i,t} + \sigma_5 \text{SALESVOL}_{i,t} + \sigma_6 \text{CFVOL}_{i,t} + \sigma_7 \text{OC}_{i,t} + \sigma_8 \text{LOSS\%}_{i,t} + \sigma_9 \text{BIG4}_{i,t} + \varepsilon_t \quad (5)$$

Where:

TRANS = firm's transparency measure as computed in equation 2.

POST = an indicator variable applied to the matched sample of both restatement firms and non-restatement firms, equal to one if transparency is measured after the restatement announcement.

ANNOUNCE = an indicator variable equal to one if a restatement announcement is made for the financial statements and zero otherwise.³

SIZE = the natural log of the firm's assets (AT) reported at end of year t.

SALESVOL = sales volatility computed as the standard deviation of sales [total sales (SALE)/average assets (AT)] over the last 5 years.

³ Due to the nature of the variables, there is a potential simultaneity problem between transparency and restatement. I mitigate this concern by measuring transparency in the one to three years after the restatement announcement.

CFVOL= cash flow volatility calculated as the standard deviation of cash from operations $[(OANCF)/ \text{average assets (AT)}]$ over the last 5 years.

OC= the natural log of the length of the firm's operating cycle, defined as sales turnover plus days in inventory $[(\text{average RECT})/ (\text{SALE}/360) + (\text{average INVT})/ (\text{COGS}/360)]$ and is averaged over the last 5 years.

LOSS%= the percentage of years reporting losses in net income over the last 5 years.

BIG4= an indicator variable equal to one when a Big 4 firm audits the company, and zero otherwise.

CHAPTER 5: SAMPLE SELECTION AND DESCRIPTIVE STATISTICS

This chapter describes the process utilized to determine the final sample used to test both hypotheses. I then present the descriptive statistics and correlations of the variables used in the regression models.

5.1 Sample Selection

The sample used to test both H1 and H2 consists of all firm observations from 2000 to 2014 and is presented in Panel A of Table 1. I use this timeframe because restatement data is not available until 2000. Restatement data and auditor data are obtained from Audit Analytics database, the financial statement data are taken from Compustat North America Fundamentals Database, and return data are taken from CRSP Monthly Stock File Database for the same corresponding timespan. Twelve-month buy-and-hold returns are computed to end three months after the fiscal year-end to exclude market response to the prior year's earnings (Givoly and Palmon 1982; Easton and Harris 1991). My initial sample includes 89,403 observations of which 13,403 observations are missing auditor data from Audit Analytics, 13,358 observations are missing financial statement data from Compustat, and 583 observations are missing return data from CRSP resulting in a final sample of 64,026 observations as reported in Panel A of Table 1. Panel B of Table 1 includes a breakdown of the sample by year.

The industry distributions of the 64,026 firm year observations are presented in Panel C of Table 1. Consistent with the calculation of the industry component of the

transparency measure, the sample is divided into 15 industries. Of the 15 industries, the largest industry segment is durable manufacturers representing 20% of the total observations and the smallest industry segment is the food industry representing 2% of the total observations.

[Insert Table 1]

5.2 Descriptive Statistics and Correlation Coefficients

Table 2 presents descriptive statistics for the variables used in both the probit and the regression models. Continuous variables are winsorized at the 1% and 99% levels to minimize the effects of outliers. The main variable of interest TRANS has a mean value of 0.054 and a median value of 0.043 with a standard deviation of 0.042 indicating that it is top-heavy. In their study, Barth et al (2013) reported that their TRANS variable has a mean of 0.420 and a median of 0.410 with a standard deviation of 0.180 during the sample period of 1974-2000. The differences in descriptive statistics are attributed to the time range of the sample. The overall decrease in the TRANS variable in my sample is likely attributable to the shifting of the main role of financial statements from an emphasis on timeliness to an emphasis of confirmatory value. Over time, information content of earnings announcement declines as earnings predictions become more complex and accurate. However, this may result because investors are so interested that they use complex and more accurate approaches to predict earnings or that managers issue more timely information so investors can improve their predictions (Francis and Schipper 1999). In addition, as the rate of information increases, competing sources of financial news such as press releases and interim financial statements could distort the timing of such information on annual returns.

Of the 64,026 observations, 5,081 firms have made a restatement announcement in the current year and 58,945 firms have not made a restatement announcement in the current year. Approximately 7.9% of the firm observations have a restatement.

The descriptive statistics for the control variables are consistent with expectations. Auditor characteristics include size, market share, and fees and indicator variables if the auditor is a Big Four firm or if the firms has changed auditors during the year. Market share and fee ratio variables have a mean value greater than the median value indicating they are top heavy. Because the majority of public companies use a Big Four audit firm, the BIG4 variable has a mean of 0.767 and a median value of 1.000.

Firm characteristics include variables that capture size, performance and industry. Size variable SIZE has a mean of 6.443 and a median of 6.383 with a standard deviation of 2.200. Performance variables include LEVERAGE, GROWTH, ROA and LOSS, SALESVOL, CFVOL, OC and LOSS%. LEVERAGE has a mean of 0.542 and a median of 0.533 and a standard deviation of 0.270. GROWTH has a mean of 0.203 and a median of 0.042 and a standard deviation of 0.979. ROA has a mean of -0.025 with a median of 0.021 and a standard deviation of 0.214. LOSS has a mean of 0.304 and a median of 0.000 and a standard deviation of 0.460. SALESVOL has a mean of -0.011 and a median of -0.004 and a standard deviation of 0.282. CFVOL has a mean of 0.000 and a median of 0.001 and a standard deviation of 0.103. OC has a mean of 5.055 and a median of 4.812 and a standard deviation of 1.335. LOSS% has a mean of 0.293, a median of 0.200 and a standard deviation of 0.335. Industry variables include industry litigation risk (LIT) and involvement in mergers and acquisitions (ACQ) are both indicator variables and have means of 0.192 and 0.161 respectively.

[Insert Table 2]

Table 3 presents the Pearson and Spearman correlation coefficients for the variables used in both the probit restatement model and the transparency after restatement announcement model. The transparency measure TRANS has the highest negative correlation (Pearson correlation coefficient = -0.115 and Spearman correlation coefficient = -0.089) with the operating cycle variable OC indicating that firms with a longer operating cycle have a lower correlation with the transparency measure. An explanation for this finding is the use of an annual return in the transparency measure. Firms with operating cycles greater than one year may face challenges in promulgating transparency in the form of annual financial statements. The companies with the higher value of the variable OC are concentrated in the oil, agriculture, movie and financial industries. The variable TRANS is also highly correlated with the change in auditors variable CHANGE (Pearson correlation coefficient= -0.091 and Spearman correlation coefficient= -0.115).. All of the other variables have less than a 6% correlation to the transparency measure. The majority of the correlation scores were less than 60% indicating that multi-collinearity is not a concern. The only correlation that exceeded 60% is LNFEES (natural log of one plus total audit and audit related fees) to the size variable which is 0.749 Pearson and 0.744 Spearman. This result is foreseeable because larger firms incur larger audit fees. The correlation coefficient should not compromise interpretation of the model results. In addition, AU_SIZE has a 0.767 Pearson Correlation and a 0.679 Spearman Correlation with BIG4. In addition ROA (return on assets) has -0.599 Pearson Correlation and a -0.779 Spearman Correlation with LOSS and LOSS has a 0.701 Pearson Correlation and a 0.692 Spearman Correlation Coefficient with LOSS%. This

result is also foreseeable because of the nature of the variable calculations and therefore, should not compromise the interpretation of the model results.

[Insert Table 3]

CHAPTER 6: EMPIRICAL RESULTS

In this chapter, I discuss the empirical results relating to my hypotheses. First, I discuss the results investigating whether the level of financial statement transparency has an inverse relation to the likelihood of restatement. Next, I discuss and analyze the results of whether financial statement transparency either increase or decrease after restatement.

6.1 Likelihood of Restatement

Table 4 documents the association between transparency and the likelihood of restatement. A one-tail probit regression model is utilized to estimate the restatement model. Fixed effects for year and industry based on two-digit NAICS codes are also included. The pseudo R-squared for the model is 3.04% and the model is 61.90% concordant which is consistent with prior research (Kohlbeck and Mayhew 2017; Newton et al 2013).

[Insert Table 4]

The main variable of interest is the transparency measure, TRANS, which has an estimated coefficient of -1.032 ($p < 0.001$). This indicates that the transparency measure has an inverse relationship with the likelihood of restatement in support of H1.

With respect to auditor variables, restatements are more likely as fees (LNFEES) and change in auditor (CHANGE) increases, and as Auditor size (AU_SIZE), national

industry leader (NAT_LEADER), Big Four auditor (BIG4) decreases. Fee ratio (FEERATIO) is not significant. The direction of the coefficients of the significant auditor variables are consistent with prior research with the exception of AU_SIZE and NAT_LEADER. The insignificance of FEERATIO is consistent with prior research.

Firm variables are also generally consistent with expectations. The likelihood of restatement increases as leverage (LEVERAGE), current year loss (LOSS), merger (ACQ) increases. The likelihood of restatement decreases as size (SIZE) increases. High litigation industry (LIT) is insignificant. All of the aforementioned variables with the exception of LIT are consistent with prior literature. Growth (GROWTH), return on assets (ROA), and SD_ROA are also insignificant.

6.2 Results for Hypothesis 2a and Hypothesis 2b

In this section, I examine whether the level of financial statement transparency changes in the first, second and third year after the restatement announcement. Table 5 reports the univariate analysis of change in transparency when restatement is announced in the prior year, two years prior and three years prior. Table 6 reports the regression results for Equation (4), the association between a firm's financial statement transparency measure and the occurrence of a restatement announcement, the type of restatement announcement (irregularity or error) and other control variables. Table 7 reports the results for Equation (5), the difference-in-difference model, and table 8 reports the regression results for Equation (4) including a variable to capture CEO turnover.

In the univariate analysis, I examine whether transparency increases or decreases in the year following the restatement announcement, two years following the restatement announcement and three years following the restatement announcement. I create three

subsamples of firms. In the first sample, I include only firms that had a restatement announcement in the prior year. In the second sample, I include only firms that had a restatement announcement two years prior, and in the third sample, I include only firms that had a restatement announcement three years prior. In the first sample, where transparency is calculated in the year following a restatement announcement, the level of transparency increases on average by .047 with a median of 0.000. In the second sample, where transparency is calculated two years after the restatement announcement, the level of transparency increases on average by .343 with a median of 0.640. In the third sample, where transparency is calculated three years following a restatement announcement, the level of transparency increases on average by .701 with a median of 0.430. These results indicate that transparency, in general, increases after a restatement announcement and the magnitude of the difference increases over time, but the differences are not significant. The findings also suggest that a restatement announcement creates a momentum affect with transparency for at least three years. The results of the univariate analysis support H2a, which predicts that the level of financial statement transparency increases after a restatement announcement. However, univariate results do not consider other determinants of transparency.

[Insert Table 5]

In the OLS regression model, I include transparency as the dependent variable. I then use a sample that includes both restatement and non-restatement firms and include indicator variables to capture whether a restatement announcement is made in either the prior year, two years before or three years before the year in which the transparency is

measured. In addition, I use an indicator variable for each of the three years to specify if the restatement is caused by an accounting irregularity as opposed to an error. The adjusted R^2 estimated by OLS for the regression model is 1.68%.

The main variable of interest is the restatement announcement variable (ANNOUNCE) which is lagged by one, two and three years to capture the effect of the restatement over time. Of the three lagged ANNOUNCE variables, all three ANNOUNCE variables are significant with an estimated coefficient of -2.430 ($p=0.0002$) for $ANNOUNCE_{t-1}$, an estimated coefficient of -2.660 ($p<0.0001$) for $ANNOUNCE_{t-2}$, and an estimated coefficient of -3.300 ($p>0.0001$) for $ANNOUNCE_{t-3}$. The results also indicate that the magnitude of the decrease is more pronounced over time, but the change over time is not significant. This result is consistent with the findings of Chen et al. (2014) who found that the effects of material restatements on information content of earnings last up to ten quarters. In contrast to the univariate analysis, this result provides limited support for H2b, which predicts that the level of financial statement transparency decreases after a restatement announcement.

The second variable of interest is the variable TYPE, which indicates if the restatement pertains to an irregularity or error. As with the ANNOUNCE variable, TYPE is also lagged by one, two and three years. Of the three lagged TYPE variables, the type in both the year following the restatement announcement and two years following the restatement announcement are negative and significant with an estimated coefficient of -14.600 ($p=0.005$) and -8.480 ($p=0.041$) respectively. This result suggests that restatement announcements pertaining to irregularities magnify the negative effect on financial statement transparency in the first and second year following the

announcement. These findings are consistent with the findings of Hennes et al. (2008) who document the importance of distinguishing the effect of errors from irregularities in restatement research.

[Insert Table 6]

In addition to the regression analysis, I use a difference-in-difference model that includes a matched sample of restatement and non-restatement firms resulting in 19,476 observations. The sample of restatement firms are matched one to one on a sample of non-restatement firms based on the propensity scores of fiscal year, industry, total assets and net income before extraordinary items. The adjusted R^2 estimated by the difference-in-difference model is 1.44%.

Like the previous regression model, $ANNOUNCE_{t-1}$ is significant with an estimated coefficient of -3.560 ($p < 0.001$). The treatment variable POST and the interaction variable $POST * ANNOUNCE_{t-1}$ are both insignificant. The results of this model support that restatement firms have lower transparency scores than non-restatement firms. However the model does not indicate a significant effect of either the POST variable or the $POST * ANNOUNCE$ on transparency. This indicates that the change in transparency after a restatement announcement is not significant and does not support either H2a or H2b. In addition, I compare transparency before and after the restatement announcement for both samples. The mean difference in TRANS before and after restatement announcement for the $ANNOUNCE=1$ group is 0.393 and the mean difference in TRANS for the $ANNOUNCE=0$ matched in the same time frame is -0.880. This indicates that the mean of the transparency measure of firms with a restatement

announcement increased by 0.393 after the announcement and the mean of the transparency measure of the non-restatement matched group decreased by 0.880. The difference between the two is also significant at the 10% level (t-statistic of -1.68, $p=0.092$) which is consistent with the results of the univariate analysis.

[Insert Tables 7 and 8]

Because of the conflicting results between the univariate analysis and the regression analysis with respect to H2, I add a governance variable in the regression model. I obtain CEO turnover information from Execucomp database from 2000 and 2014. After merging the CEO turnover data with my existing sample, the resulting sample includes 17,268 observations with 1,356 (7.853%) observations from firms that made a restatement announcement. I add the variable CEOCHANGE which is an indicator variable equal to one if the company changed CEOs during the year, and zero otherwise. In addition to including the change in CEO in the current year, I also lag CEOCHANGE by one, two and three years to capture the effect of the change in CEO over time.

The adjusted R^2 estimated by OLS for the regression model that includes CEO turnover is 1.54%. All three ANNOUNCE variables are again negative and significant with an estimated coefficient of -3.060 ($p=0.017$) for $ANNOUNCE_{t-1}$, an estimated coefficient of -3.930 ($p=0.002$) for $ANNOUNCE_{t-2}$, and an estimated coefficient of -4.260 ($p=0.001$) for $ANNOUNCE_{t-3}$. However, unlike the original regression model, TYPE is not significant in any of the three lagged periods.

The CEOCHANGE variable is also lagged by one, two and three years to capture the effect of CEO turnover over time on the level of transparency. Of the three lagged CEOCHANGE variables, only firms with CEO change in the prior year or two years prior have a significant and positive coefficient. The estimated coefficient for CEOCHANGE_{t-1} is 3.200 (p=0.004) and the estimated coefficient for CEOCHANGE_{t-2} is 7.770 (p<0.001). This positive coefficient for CEOCHANGE is of a greater magnitude the negative coefficient for the three lagged announced variables. This indicates that the change in CEO has a positive association with transparency that outweighs the negative association of a restatement announcement. Both Srinivasan (20005) and Hennes et al. (2008) find that there is significant CEO turnover following a restatement announcement.

[Insert Table 9]

The results overall for my tests of H2a and H2b have interesting implications on how transparency is impacted by a restatement announcement. In the univariate analysis, the level of transparency generally increases after a restatement announcement and the magnitude of the increase, increases over time. The regression model suggests that a restatement announcement has a negative association with the transparency measure. Consequently, the regression results are mitigated if there is a change in CEO. Although, the difference-in-difference model found that restatement firms have lower transparency than non-restatement firms, there is no significant difference before and after restatement.

6.3 Sensitivity Analysis

In this section, I perform the sensitivity analysis for my findings. First, I substitute a measure of stock volatility as a proxy for financial statement transparency as

a measure of predicting the likelihood of restatement. Opaque firms have a tendency to hide bad news. Managers are able to hide bad news from investors for extended periods when there is a lack of transparency (Jin and Meyers 2006, Hutton et al. 2009). As a result, when the accumulated bad news hits a tripping point all of the bad news is released to the market at once resulting in a decline in stock prices. Kim and Zhang (2014) document that the steepness of volatility smirk increases with financial reporting opacity or lack of transparency. Volatility is computed as the standard deviation of the twelve-monthly returns lagged by one year. The coefficient on volatility is 0.072 and significant ($p=0.001$) indicating a higher level of stock return volatility is associated with a higher likelihood of restatement.

[Insert Table 10]

Second, I re-estimate the regression model used to test H2 without the variable TYPE, which groups restatements due to error and restatements due to irregularities as one group. Consistent with the results of the original regression model, I find that all three of the three lagged ANNOUNCE variables are significant with estimated coefficients of -2.550 ($p<0.0001$) for $ANNOUNCE_{t-1}$, -2.73 ($p<0.0001$) for $ANNOUNCE_{t-2}$ and -3.330 ($p<0.0001$) for $ANNOUNCE_{t-3}$. This result of increasing negative magnitudes suggests that a restatement announcement affects financial statement transparency in the three years after the announcement.

[Insert Table 11]

Third, I re-estimate the regression model used to test H2 without the variable ANNOUNCE, which in effect only includes restatements due to irregularities in the model and does not include restatements due to error. Unlike the results of the original regression model, I find that of the three lagged TYPE variables, only the announcement in the first two years following the restatement announcement is significant with estimated coefficients of -15.070 ($p=0.002$) for $Type_{t-1}$ and -9.580 ($p=0.021$). This result suggests that a restatement announcement due to fraud has a much greater negative associations in the first year after the restatement announcement.

[Insert Table 12]

CHAPTER 7: CONCLUSION

This paper explores the impact financial statement transparency has on the probability of restatement and the effect restatement announcements have on the level of subsequent financial statement transparency. Following information theory, a strong information environment increases accounting quality because it limits managers' opportunistic behavior and decreases the likelihood of estimation errors. Restatements are commonly associated with management opportunism. Therefore, using financial statement transparency as a proxy for a strong information environment, I find that transparency is associated with a lower probability of financial statement restatement. Therefore, this study links transparency to accounting quality.

Consequently, restatements generally occur because of accounting error, management's opportunistic behavior or fraud. The theory of operant conditioning states that behavior is modified based on positive or negative condition suggestion that the firm's level of transparency should increase after a restatement announcement. Expectancy theory suggests that firms engage in certain behaviors in order to derive expected rewards or incentives. Motivation is eliminated if the rewards are deemed unobtainable. Therefore, since investors perceive earnings to be less reliable after a restatement, then theoretically management does not possess the incentive to change its reporting strategy, transparency should decrease after a restatement announcement.

Based on univariate analysis, transparency generally increases after a restatement announcement and the magnitude of the increase rises for at least three years, however the change in transparency is not significant. In the regression analysis, the results suggest that restatement announcement have a negative association with the transparency measure and the magnitude of this effect decreases over time. These results are magnified if the restatement is due to fraud. The negative association is counter-acted if there is a CEO change. In addition to the regression analysis, I use a difference-in-difference model that includes a matched sample of restatement and non-restatement firms. The results of the difference-in-difference model support that restatement firms have lower transparency scores than non-restatement firms. However, the model indicates that the change in transparency after a restatement announcement is not significant. I perform a TTEST on the difference of the means of transparency before the restatement announcement and after the restatement announcement for the matched sample. I find transparency improves after a restatement announcement compared to a matched sample of non-restatement firms at the 10% significance level. Overall, I find that firms that make a restatement announcement tend to have lower transparency both pre- and post-announcement than a matched sample of firms that do not have a restatement announcement. The results for the change in transparency after a restatement announcement are insignificant. Perhaps future research could isolate the cause of the potential endogeneity.

The results of this study provide interesting implications for the concept of transparency and its effects on financial statement restatements. Based on my findings, a firm's level of transparency seems to have a greater impact before the occurrence of a

restatement. Because a higher level of transparency is associated with a lower likelihood of restatement, a higher transparency level is deemed as a preventative measure to restatement. A lower level of transparency could indicate an early warning of future restatements. Transparency after restatement is lower than that of a non-restatement firm and based on the difference-in-difference design, transparency does not seem to significantly improve after a restatement announcement. This finding suggests that a restatement in itself is not a sufficient factor in motivating restatement firms to improve their information environments. These findings help the users of financial statements gain a better understanding of the relationship between transparency and restatement, and underscore the potential need for a change in governance to improve accounting quality.

APPENDICES

Appendix A: Variable Definitions

ANNOUNCE	= an indicator variable equal to one if a restatement announcement is made for the financial statements and zero otherwise.
ACQ	= an indicator variable equal to one if the firm engaged in a merger or acquisition (identified by Compustat AFTNT for revenue) and zero otherwise.
AU_SIZE	= the natural log of one plus the auditor's total audit fees in the industry market divided by 1,000.
BIG4	= an indicator variable equal to one when a Big 4 firm audits the company, and zero otherwise.
CEOCHANGE	= an indicator variable equal to one if the company changed CEO during the year, and zero otherwise.

CFVOL	= cash flow volatility calculated as the standard deviation of cash from operations [(OANCF)/ average assets (AT)] over the last 5 years.
CHANGE	= an indicator variable equal to one if the company changed auditors during the year, and zero otherwise.
DIF	=difference between current year transparency and transparency in the year of restatement announcement
E/P	= earnings before extraordinary items and discontinued operations deflated by the beginning of year price.
F	= the standard normal distribution function.
FEERATIO	= the ratio of non-audit service fees to total audit and non-audit service fees.
GROWTH	= the rate in change in assets during the year.
IND	= annual returns-earnings relations per industry estimated in eq. 1.
LEVERAGE	= the ratio of total liabilities to total assets at year-end.

LIT	= an indicator variable equal to one if the firm operates in a high-litigation industry and zero otherwise where high litigation industries are those with SIC codes of 2833-2836, 3570-3577, 3600-3674, 5200-5961, and 7370.
LNFEES	= the natural log of one plus total audit and audit related fees divided by 1,000.
LOSS	= an indicator variable equal to one if the company reported a loss in the current year and zero otherwise.
LOSS%	= the percentage of years reporting losses in net income over the last 5 years.
NAT_LEADER	= an indicator variable equal to one if the auditor is the national industry market share leader in audit fees, and zero otherwise.
OC	= the natural log of the length of the firm's operating cycle, defined as sales turnover plus days in inventory $[(\text{average RECT}) / (\text{SALE}/360) + (\text{average INVT}) / (\text{COGS}/360)]$ and is averaged over the last 5 years.

PORT	= annual returns-earnings relation per portfolio estimated in eq. 1.
POST	= an indicator variable applied to the matched sample of both restatement firms and non-restatement firms, equal to one if transparency is measured after the restatement announcement.
RESTATE	= an indicator variable equal to one if current year financial statements are subsequently restated and zero otherwise;
RET	= annual return measured ending three months after the firm's fiscal year end.
ROA	= return on assets computed as the ratio of income before extraordinary items to total assets.
SALESVOL	= sales volatility computed as the standard deviation of sales [total sales (SALE)/average assets (AT)] over the last 5 years.

SD_ROA	= the standard deviation of annual return on assets over the prior five years.
SIZE	= the natural log of the firm's assets (AT) reported at end of year t.
TRANS	= firm's transparency measure calculated by the sum of IND and PORT. (computed in equation 2)
TYPE	= an indicator variable equal to one if the restatement pertains to an accounting irregularity(s) for a restatement announcement and zero otherwise.
VOL	=the standard deviation of the firm's twelve monthly returns lagged by one year.

Appendix B: Tables

Table 1 – Sample

Panel A: Sample Determination

Cross-section of <i>AuditAnalytics</i> , <i>Compustat</i> and <i>CRSP</i> databases for 2000 to 2014	89,403
Less missing observations:	
Missing auditor data from <i>AuditAnalytics</i>	(13,403)
Missing financial statement data from <i>Compustat</i>	(13,358)
Missing return data from <i>CRSP</i>	(583)
Final sample	64,026

Panel B: Sample by Year

The final sample is distributed by year as follows:

2000	3,401
2001	4,051
2002	4,624
2003	4,432
2004	4,848
2005	4,805
2006	4,693
2007	4,493
2008	4,390
2009	4,217
2010	4,088
2011	4,021
2012	3,963
2013	3,921
2014	4,079
Total	64,026

Table 1 - Sample (continued)

Panel C: Industry Representation

Industry	Number of Observations
Durable manufacturers	12,901
Financial institutions	9,958
Services	6,824
Retail	5,611
Computers	5,523
Insurance, real estate	3,896
Pharmaceuticals	3,892
Transportation	3,759
Extractive industries	2,520
Textiles, printing, publishing	2,282
Utilities	2,103
Mining, construction	1,851
Chemicals	1,496
Food	1,410
Total	64,026

Table 2 – Descriptive Statistics

Variable ¹ (N=64,026)	Mean	Std. Dev.	Q1	Median	Q3
TRANS	0.054	0.042	0.025	0.043	0.073
AU_SIZE	0.017	0.002	0.016	0.174	0.018
NAT_LEADER	0.219	0.414	0.000	0.000	0.000
LNFEES	0.013	0.001	0.012	0.013	0.014
FEERATIO	0.229	0.211	0.061	0.175	0.337
LEVERAGE	0.542	0.270	0.330	0.533	0.738
GROWTH	0.203	0.979	-0.036	0.042	0.162
ROA	-0.025	0.214	-0.016	0.021	0.063
LOSS	0.304	0.460	0.000	0.000	1.000
LIT	0.192	0.394	0.000	0.000	0.000
ACQ	0.161	0.367	0.000	0.000	0.000
CHANGE	0.228	0.419	0.000	0.000	0.000
BIG4	0.767	0.423	1.000	1.000	1.000
SD_ROA	0.089	0.162	0.010	0.031	0.087
ANNOUNCE 1	0.076	0.265	0.000	0.000	0.000
TYPE 1	0.002	0.042	0.000	0.000	0.000
SIZE	6.443	2.200	4.865	6.383	7.870
SALESVOL	-0.011	0.282	-0.089	-0.004	-0.072
CFVOL	0.000	0.103	-0.028	0.001	0.029
OC	5.055	1.335	4.283	4.812	5.423
LOSS%	0.293	0.335	0.000	0.200	0.600

¹ See Appendix for variable definitions

Table 3 - Pearson (above the diagonal) and Spearman (below the diagonal) Correlation Coefficients

Variable 1 (N=65,230)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1 TRANS		-0.013*	0.013*	0.048*	-0.063*	-0.016*	-0.030*	0.008*	0.035	-0.022*	-0.020*	-0.091*	0.008*	-0.006	-0.013*	-0.012*	0.024*	0.003	0.020*	-0.115*	-0.002
2 AU_SIZE	-0.013*		0.333	0.522*	-0.041*	0.101*	0.035*	0.089*	-0.104*	0.040*	0.069*	-0.234*	0.768*	-0.082*	0.009*	0.004	0.459*	-0.016*	0.026*	-0.063*	-0.103*
3 NAT_LEADER	0.005	0.354*		0.200*	-0.035*	0.026*	0.012*	0.038*	-0.043*	-0.003	0.022*	-0.070*	0.292*	-0.027*	0.021*	0.005	0.176*	-0.009*	0.005	-0.052*	-0.051*
4 LNFEES	0.056*	0.501*	0.199*		-0.195*	0.213*	0.044*	0.205*	-0.200*	-0.063*	0.144*	-0.303*	0.403*	-0.185*	0.016*	0.004	0.750*	0.012*	0.036*	-0.127*	-0.233*
5 FEERATIO	-0.070*	-0.049*	0.047*	-0.114*		0.007	0.038*	0.014*	-0.018*	-0.003	0.073*	0.168*	0.141*	-0.009*	-0.014*	0.007	0.061*	0.047*	-0.006	0.008*	-0.055*
6 LEVERAGE	-0.012	0.109*	0.031*	0.224*	0.035*		-0.015*	-0.049*	-0.033*	-0.179*	-0.041*	-0.049*	0.001	-0.097*	-0.005	-0.011*	0.386*	0.085*	-0.020*	0.279*	-0.068*
7 GROWTH	-0.068	0.067*	0.020*	0.099*	0.052*	-0.019*		0.081*	-0.046*	-0.003	0.129*	0.153*	0.025*	0.081*	-0.004	0.003	0.065*	-0.164*	0.184*	-0.013*	0.058*
8 ROA	-0.008*	0.060*	0.050*	0.211*	0.030*	-0.176*	0.344*		-0.596*	-0.206*	0.045*	-0.093*	0.079*	-0.551*	0.001	-0.003	0.352*	0.018*	0.394*	-0.051*	-0.528*
9 LOSS	0.036*	-0.099*	-0.043*	-0.207*	-0.038*	-0.053*	-0.337*	-0.783*		0.171*	-0.043*	0.097*	-0.082*	0.322*	0.000	0.006	-0.355*	-0.007	-0.180*	-0.023*	0.703*
10 LIT	-0.021*	0.037*	-0.00347	-0.070*	-0.012*	-0.196*	-0.035*	-0.093*	0.171*		-0.006	0.016*	0.029*	0.173*	0.005	0.004	-0.180*	0.018*	-0.048*	-0.123*	0.207*
11 ACQ	-0.016*	0.053*	0.022*	0.152*	0.074*	-0.036*	0.230*	0.055*	-0.043*	-0.006		0.011*	0.077*	-0.013*	0.009*	0.006	0.089*	-0.086*	0.004	-0.078*	-0.051*
12 CHANGE	-0.115*	-0.239*	-0.070*	-0.295*	0.094*	-0.052*	-0.050*	-0.087*	0.097*	0.016*	0.011*		-0.129*	0.109*	-0.008*	0.002	-0.186*	-0.031*	-0.023*	0.025*	0.101*
13 BIG4	-0.011*	0.680*	0.292*	0.429*	0.156*	0.006	0.046*	0.126*	-0.082*	0.029*	0.077*	-0.129*		-0.054*	0.006	0.005	0.364*	-0.003	0.018*	-0.225*	-0.094*
14 SD_ROA	0.030*	-0.095*	-0.021*	-0.184*	-0.040*	-0.300*	-0.120*	-0.223*	0.416*	0.212*	0.018*	0.115*	-0.019*		-0.001	0.002	-0.358*	0.011*	-0.008	-0.072*	0.411*
15 ANNOUNCE 1	-0.015*	0.013*	-0.021*	0.019*	-0.014*	-0.005	0.002	0.006	0.000	0.005	0.009*	-0.008*	0.006	0.007		0.050*	0.001	0.005	-0.001	-0.034*	0.011*
16 TYPE 1	-0.014*	0.002	0.005	0.005	0.005	-0.011*	0.002	0.002	0.006	0.004	0.006	0.002	0.005	0.007	0.050		-0.005	0.003	-0.003	-0.004	0.005
17 SIZE	0.028*	0.418*	0.173*	0.745*	0.088*	0.430*	0.176*	0.242*	-0.363*	-0.189*	0.091*	-0.193*	0.364*	-0.444*	0.001	-0.006		-0.054*	0.065*	0.099*	-0.438*
18 SALESVOL	-0.001	-0.009*	-0.007	0.014*	-0.053*	0.066*	-0.212*	0.033	0.005	0.012*	-0.101*	-0.020*	0.005	-0.023*	0.008*	0.006	-0.058*		0.183*	0.001	0.063*
19 CFVOL	0.002	0.018*	0.004	0.009*	-0.002	-0.014*	0.121*	0.227*	-0.169*	-0.021*	-0.029*	-0.007	0.013*	-0.001	0.001*	0.000	0.018*	0.239*		-0.010*	0.027*
20 OC	-0.089*	-0.082*	-0.040*	-0.145*	0.030*	0.128*	-0.022*	-0.174*	0.030*	-0.053*	-0.058*	0.054*	-0.186*	-0.127*	-0.032*	0.000	-0.011*	-0.025*	0.011*		-0.074*
21 LOSS%	-0.002	-0.095*	-0.053*	-0.226*	-0.068*	-0.094*	-0.212*	-0.590*	0.694*	0.186*	-0.045*	0.105*	-0.092*	0.517*	0.011*	0.007	-0.438*	0.090*	0.049*	0.000	

¹ See Appendix A for variable definitions.

* Indicates significance at the 5% level.

Table 4 – Effect of Transparency Measure on the Likelihood of Restatement

$$\text{Prob}(\text{RESTATE}=1) = F(\Phi_0 + \Phi_1 \text{TRANS} + \Phi_2 \text{AU_SIZE} + \Phi_3 \text{NAT_LEADER} + \Phi_4 \text{LNFEES} + \Phi_5 \text{FEERATIO} + \Phi_6 \text{SIZE} + \Phi_7 \text{LEVERAGE} + \Phi_8 \text{GROWTH} + \Phi_9 \text{ROA} + \Phi_{10} \text{LOSS} + \Phi_{11} \text{LIT} + \Phi_{12} \text{ACQ} + \Phi_{13} \text{CHANGE} + \Phi_{14} \text{BIG4} + \Phi_{15} \text{SD_ROA} + \kappa)$$

Variable ¹	Pred.	Estimated Coefficient	χ^2 -statistic	P-value
Intercept		- 3.038***	521.18	<0.001
TRANS	H1: -	-1.032***	29.75	<0.001
AU_SIZE	-	0.017**	5.13	0.024
NAT_LEADER	-	0.081***	19.77	<0.001
LNFEES	+	0.130***	149.92	<0.001
FEERATIO	+	-0.024	0.35	0.555
SIZE	-	-0.081***	117.56	<0.001
LEVERAGE	+	0.355***	113.96	<0.001
GROWTH	-	0.008	1.27	0.260
ROA	-	0.069	1.93	0.165
LOSS	+	0.175***	79.28	<0.001
LIT	+	-0.023	0.47	0.494
ACQ	+	0.058**	8.22	0.004
CHANGE	+	0.056***	8.66	0.003
BIG4	-	-0.086**	5.97	0.015
SD_ROA	-	-0.067	1.39	0.239
Likelihood Ratio			833.028	<0.001
Industry fixed effects		Yes		
Pseudo R^2 (%)		3.04		
Percent concordant		61.90		
N		64,026		

*/**/*** indicate significance at the 0.10, 0.05, 0.01 levels using two-tailed tests (one-tail for predicted directions).

The restatement model is estimated assuming a standard normal distribution function (Probit) including industry (based on two-digit NAICA codes) fixed effects.

¹ Variables are defined in Appendix . All of the independent continuous variables are winsorized at 1 and 99 percent to mitigate the effect of outliers.

Table 5 – Univariate Analysis of Change in Transparency after Restatement Announcement

Panel A: Restatement Announcement Made in Prior Year

Variable ¹ (N=4,320)	Mean	Std. Dev.	Q1	Median	Q3
TRANS	5.388	4.451	2.550	4.300	7.130
TRANS _(T-1)	5.342	4.536	2.520	4.110	7.210
DIF1	0.047	5.903	-2.110	0.000	2.870

Panel B: Restatement Announcement Made in Two Years Prior

Variable ¹ (N=3,931)	Mean	Std. Dev.	Q1	Median	Q3
TRANS	5.748	4.571	2.770	4.640	7.500
TRANS _(T-2)	5.424	4.620	2.530	4.200	7.260
DIF2	0.343	6.407	-2.670	0.640	0.321

Panel C: Restatement Announcement Made in Three Years Prior

Variable ¹ (N=3,620)	Mean	Std. Dev.	Q1	Median	Q3
TRANS	5.987	4.675	2.880	4.710	7.990
TRANS _(T-3)	5.331	4.639	2.510	4.090	7.210
DIF3	0.701	6.690	-2.740	0.430	0.438

¹ See Appendix for variable definitions

² All variables are multiplied by 100

Table 6 – Effect of Restatement Announcement on Transparency Measure

$$\text{TRANS}_{i,t} = \sigma_0 + \sigma_1 \text{ANNOUNCE}_{i,t-1} + \sigma_2 \text{ANNOUNCE}_{i,t-2} + \sigma_3 \text{ANNOUNCE}_{i,t-3} + \sigma_4 \text{TYPE}_{i,t-1} + \sigma_5 \text{TYPE}_{i,t-2} + \sigma_6 \text{TYPE}_{i,t-3} + \sigma_7 \text{SIZE}_{i,t} + \sigma_8 \text{SALESVOL}_{i,t} + \sigma_9 \text{CFVOL}_{i,t} + \sigma_{10} \text{OC}_{i,t} + \sigma_{11} \text{LOSS\%}_{i,t} + \sigma_{12} \text{BIG4}_{i,t} + \varepsilon_t$$

Variable ¹ N=64,026	Pred.	Estimated Coefficient ²	t – statistic
Intercept		69.550***	72.33
ANNOUNCE t-1	H2: +/-	-2.430***	-3.79
ANNOUNCE t-2	H2: +/-	-2.660***	-4.13
ANNOUNCE t-3	H2: +/-	-3.300 ***	-5.14
TYPE t-1	+/-	-14.600***	-3.46
TYPE t-2	+/-	-8.480**	-2.04
TYPE t-3	+/-	-3.262	-0.91
SIZE	+	1.210***	12.83
SALESVOL	-	0.331	0.53
CFVOL	-	8.140***	4.51
OC	-	-3.910***	-28.86
LOSS%	-	-0.511	0.89
BIG4	+	-4.080***	-9.06
Adjusted R ²		1.68%	

*/**/** indicate significance at the 0.10, 0.05, 0.01 levels

¹ Variables are defined in Appendix. All of the independent continuous variables are winsorized at 1 and 99 percent to mitigate the effect of outliers.

² All estimated coefficients are multiplied by 1,000.

Table 7 – Effect of Restatement Announcement on Transparency Measure-Difference in Difference Model

$$TRANS_i = \sigma_0 + \sigma_1 POST_i + \sigma_2 ANNOUNCE_{i,t-1} + \sigma_3 POST*ANNOUNCE_{i,t-1} + \sigma_4 SIZE_{i,t} + \sigma_5 SALESVOL_{i,t} + \sigma_6 CFVOL_{i,t} + \sigma_7 OC_{i,t} + \sigma_8 LOSS\%_{i,t} + \sigma_9 BIG4_{i,t} + \varepsilon_t$$

Variable ¹ N=19,047	Pred.	Estimated Coefficient ²	t – statistic
Intercept		68.910***	38.67
POST	H2: +/-	-0.677	-0.79
ANNOUNCE t-1	H2: +/-	-3.560***	-4.14
POST*ANNOUNCE	H2: +/-	0.923	0.76
SIZE	+	1.170***	6.95
SALESVOL	-	2.650**	2.34
CFVOL	-	5.760	1.76
OC	-	-3.660***	-14.65
LOSS%	-	0.380	0.37
BIG4	+	-4.590***	-5.64
Adjusted R ²		1.44%	

*/**/***/ indicate significance at the 0.10, 0.05, 0.01 levels

¹ Variables are defined in Appendix. All of the independent continuous variables are winsorized at 1 and 99 percent to mitigate the effect of outliers.

² All estimated coefficients are multiplied by 1,000.

Table 8 – Difference in Means of Transparency Measure Before and After Restatement Announcements in Restatement Firms matched with Non-Restatement Firms

Variable ¹	N	TRANS Mean (POST=1) ²	TRANS Mean (POST=0) ²	Difference (POST=1)- (POST=0)	t – statis tic	Pr>[t]
ANNOUNCE=1	4869	5.220	5.180	0.393		
ANNOUNCE=0	4869	5.400	5.490	-0 .880		
Difference (Satterwaite method)				1.280	-1.68	.0924

¹ Variables are defined in Appendix A. All of the independent continuous variables are winsorized at 1 and 99 percent to mitigate the effect of outliers.

² All estimated coefficients are multiplied by 1,000.

Table 9 – Effect of Restatement Announcement and Change in CEO on Transparency Measure

$$\text{TRANS}_{i,t} = \sigma_0 + \sigma_1 \text{ANNOUNCE}_{i,t-1} + \sigma_2 \text{ANNOUNCE}_{i,t-2} + \sigma_3 \text{ANNOUNCE}_{i,t-3} + \sigma_4 \text{CEOCHANGE}_{i,t} + \sigma_5 \text{CEOCHANGE}_{i,t-1} + \sigma_6 \text{CEOCHANGE}_{i,t-2} + \sigma_7 \text{CEOCHANGE}_{i,t-3} + \sigma_8 \text{TYPE}_{i,t-2} + \sigma_9 \text{TYPE}_{i,t-3} + \sigma_{10} \text{SIZE}_{i,t} + \sigma_{11} \text{SALESVOL}_{i,t} + \sigma_{12} \text{CFVOL}_{i,t} + \sigma_{13} \text{OC}_{i,t} + \sigma_{14} \text{LOSS\%}_{i,t} + \sigma_{15} \text{BIG4}_{i,t} + \varepsilon_t$$

Variable ¹ N=17,268	Pred.	Estimated Coefficient ²	t – statistic
Intercept		71.470***	32.39
ANNOUNCE t-1	H2: +/-	-3.060***	-2.38
ANNOUNCE t-2	H2: +/-	-3.930***	-3.04
ANNOUNCE t-3	H2: +/-	-4.260 ***	-3.33
CEOCHANGE _{CEY}	+	-0.110	-0.10
CEOCHANGE t-1	+	3.200 ***	2.87
CEOCHANGE t-2	+	7.770 ***	7.16
CEOCHANGE t-3	+	1.550	1.47
TYPE t-1	+/-	- 1.960	-0.23
TYPE t-2	+/-	-6.440	-0.74
TYPE t-3	+/-	12.040	1.38
SIZE	+	0.777***	3.57
SALESVOL	-	-4.770***	2.64
CFVOL	-	21.760***	3.36
OC	-	-3.690***	-12.70
LOSS%	-	1.400	1.00
BIG4	+	-4.080***	-9.06
Adjusted R ²		1.68%	

*/**/** indicate significance at the 0.10, 0.05, 0.01 levels

¹ Variables are defined in Appendix. All of the independent continuous variables are winsorized at 1 and 99 percent to mitigate the effect of outliers.

² All estimated coefficients are multiplied by 1,000.

Table 10 – Effect of Volatility Measure on the Likelihood of Restatement

$$\text{Prob}(\text{RESTATE}=1) = F(\Phi_0 + \Phi_1 \text{VOL} + \Phi_2 \text{AU_SIZE} + \Phi_3 \text{NAT_LEADER} + \Phi_4 \text{LNFEES} + \Phi_5 \text{FEERATIO} + \Phi_6 \text{SIZE} + \Phi_7 \text{LEVERAGE} + \Phi_8 \text{GROWTH} + \Phi_9 \text{ROA} + \Phi_{10} \text{LOSS} + \Phi_{11} \text{LIT} + \Phi_{12} \text{ACQ} + \Phi_{13} \text{CHANGE} + \Phi_{14} \text{BIG4} + \Phi_{15} \text{SD_ROA} + \kappa)$$

Variable ¹	Pred.	Estimated Coefficient	χ^2 -statistic	P-value
Intercept		- 3.170***	539.10	<0.001
VOL	H1:+	0.072***	10.58	0.001
AU_SIZE	-	0.020**	6.26	0.012
NAT_LEADER	-	0.081***	18.63	<0.001
LNFEES	+	0.132***	146.13	<0.001
FEERATIO	+	-0.022	0.26	0.607
SIZE	-	-0.083***	118.78	<0.001
LEVERAGE	+	0.355***	113.71	<0.001
GROWTH	-	0.009	1.57	0.290
ROA	-	0.070	1.97	0.160
LOSS	+	0.166***	71.05	<0.001
LIT	+	-0.024	0.54	0.463
ACQ	+	0.060***	8.86	0.003
CHANGE	+	0.062***	10.69	0.001
BIG4	-	-0.086**	5.92	0.015
SD_ROA	-	-0.082	2.04	0.153
Likelihood Ratio			882.321	<0.001
Industry fixed effects		Yes		
Pseudo R^2 (%)		2.97		
Percent concordant		61.80		
N		64,026		

*/**/***/ indicate significance at the 0.10, 0.05, 0.01 levels using two-tailed tests (one-tail for predicted directions).

The restatement model is estimated assuming a standard normal distribution function (Probit) including industry (based on two-digit NAICA codes) fixed effects.

¹ Variables are defined in Appendix. All of the independent continuous variables are winsorized at 1 and 99 percent to mitigate the effect of outliers.

Table 11 – Effect of Restatement Announcement on Transparency Measure without Restatement Type

$$\text{TRANS}_{i,t} = \sigma_0 + \sigma_1 \text{ANNOUNCE}_{i,t-1} + \sigma_2 \text{ANNOUNCE}_{i,t-2} + \sigma_3 \text{ANNOUNCE}_{i,t-3} + \sigma_4 \text{SIZE}_{i,t} + \sigma_5 \text{SALESVOL}_{i,t} + \sigma_6 \text{CFVOL}_{i,t} + \sigma_7 \text{OC}_{i,t} + \sigma_8 \text{LOSS\%}_{i,t} + \sigma_9 \text{BIG4}_{i,t} + \varepsilon_t$$

Variable ¹ N=64,026	Pred.	Estimated Coefficient ²	t Value
Intercept		69.053***	72.30
ANNOUNCE t-1	H2: +/-	-2.550***	-3.97
ANNOUNCE t-2	H2: +/-	-2.730***	-4.24
ANNOUNCE t-3	H2: +/-	-3.330***	-5.19
SIZE	+	1.210***	12.85
SALESVOL	-	0.327	0.52
CFVOL	-	8.150***	4.52
OC	-	-3.910***	-28.85
LOSS%	-	0.496	0.87
BIG4	+	-4.10***	-9.10
Adjusted R ²		1.65%	

*/**/*** indicate significance at the 0.10, 0.05, 0.01 levels

¹ Variables are defined in Appendix. All of the independent continuous variables are winsorized at 1 and 99 percent to mitigate the effect of outliers.

² All estimated coefficients are multiplied by 1,000.

Table 12 – Effect of Restatement Announcement Due to Irregularity on Transparency Measure

$$\text{TRANS}_{i,t} = \sigma_0 + \sigma_1 \text{TYPE}_{i,t-1} + \sigma_2 \text{TYPE}_{i,t-2} + \sigma_3 \text{TYPE}_{i,t-3} + \sigma_4 \text{SIZE}_{i,t} + \sigma_5 \text{SALESVOL}_{i,t} + \sigma_6 \text{CFVOL}_{i,t} + \sigma_7 \text{OC}_{i,t} + \sigma_8 \text{LOSS\%}_{i,t} + \sigma_9 \text{BIG4}_{i,t} + \varepsilon_t$$

Variable ¹ N=64,026	Pred.	Estimated Coefficient ²	t Value
Intercept		68.680***	71.83
TYPE t-1	+/-	-15.070***	-3.69
TYPE t-2	+/-	- 9.580**	-2.31
TYPE t-3	+/-	-4.840	-1.22
SIZE	+	1.200***	12.74
SALESVOL	-	0.300	0.48
CFVOL	-	8.140***	4.50
OC	-	-3.860***	-28.47
LOSS%	-	0.471	0.82
BIG4	+	-4.070***	-9.03
Adjusted R ²		1.57%	

*/**/*** indicate significance at the 0.10, 0.05, 0.01 levels

¹ Variables are defined in Appendix. All of the independent continuous variables are winsorized at 1 and 99 percent to mitigate the effect of outliers.

² All estimated coefficients are multiplied by 1,000.

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