

Are Companies that Report Material Weaknesses in Internal Control More Likely to Restate their Financial Statements?

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Acknowledgments:

The authors acknowledge valuable and constructive comments received on earlier versions of this manuscript from workshop participants at The University of Mississippi, Bowling Green State University, The University of Texas-Pan American, Northern Arizona University, and the 2007 AAA IS Section Mid-Year Research Symposium.

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Abstract

This study provides empirical evidence on the relationship between reported material weaknesses in internal control and the probability of a company restating its earnings, based on a sample of 518 restating companies and 518 matching companies selected from the period January 1, 2004 through December 31, 2005. First, this study finds a significant relationship between the incidence of material weaknesses reported by the firm and the probability of a firm restating its earnings. Second, the magnitude or frequency of material internal control weaknesses reported by the firm is significantly related to the probability of a firm restating its earnings. The higher the number of material weaknesses reported by a company, the greater the probability that the company will restate. Finally, the type of material internal control weakness is significantly related to the probability of a firm restating its earnings. This study finds that companies reporting material weakness in accounting related areas such as accruals, revenue recognition, period-end closings and accounting policies, and complex areas such as derivative and lease accounting are more likely to restate earnings than those companies reporting material weakness in non-accounting areas such as training, segregation of duties, senior management, and subsidiary specific areas.

Key Words: Internal control, material weaknesses, financial restatement, Sarbanes-Oxley

Data Availability: Data are available upon request to the co-authors.

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I. INTRODUCTION

The purpose of this study is to enhance the understanding of the relationships between material weaknesses in internal control and restatements of financial reports¹. Specifically, we investigate the association between the report of, the number of, and the type of reported internal control weaknesses and earnings restatement. Earnings restatement by publicly traded companies can have multiple adverse consequences including SEC investigation, replacement of top executives, and possibly firm's penalization by investors.

Previous studies show that earnings restatements were increasing in the years prior to the Sarbanes-Oxley (SOX) Act of 2002 (FEI 2001; Moriarty and Livingston 2001; GAO 2005; Weil 2001). Part of the reasoning behind SOX is to increase transparency of financial statements while reducing the number and magnitude of earnings restatements. However, restatements have risen five-fold from 2002 until 2005 (Glass, Lewis & Co. 2006). Companies with U.S. listed securities filed 1,295 financial restatements in 2005, nearly double the previous year, including 182 "stealth" restatements filed without amended filings, 8-K filings, or other public announcements (Glass, Lewis & Co. 2006). Firms audited by non-Big 4 auditors were six times as likely to restate as those audited by Big-Four firms. Perhaps most troubling is that over half of the restating companies filed financial statements claiming effective internal controls prior to the

¹ For purposes of this paper, the terms "restatements of financial reports" and "earnings restatements" are used interchangeably.

restatement (Glass, Lewis & Co. 2006). The economic burden of these reporting errors falls on investors.

Disclosure of material internal control weakness is also increasing, totaling 314 in 2004 and 424 in 2005 (Compliance Week 2006). Of the 424 disclosures in 2005, 87 percent of the firms previously certified controls as effective, with over 40 percent (171 firms) not warning investors of an imminent adverse audit opinion. A possible explanation for the increase in disclosure of material weaknesses in internal control is the reporting requirements of SOX sections 302 and 404².

This issue is important and timely because the quality of financial reporting in general is of increasing concern to investors, managers, regulators, auditors, boards of directors, and academics and the accounting characteristics (antecedents) of earnings restatements have not been fully explored. SOX requires that a material control weakness be reported if there is a remote probability that a material error could result as a consequence of the control weakness (PCAOB 2008). To date, there is no direct evidence linking material internal control weaknesses and the probability of a firm's restating its financial statements due to material errors. There is also no direct evidence regarding the relationship between the types of material control weaknesses and the type of accounts affected by a restatement.

Although a relationship between material weaknesses and restatements has not previously been explored, prior research has explored topics related to internal control weaknesses, non-GAAP reporting³, and the consequences of earnings restatements. Related topics include

² SOX Section 302 establishes the management responsibility to design, maintain, evaluate the effectiveness of the internal control system, and to report on any identified deficiencies or weaknesses. SOX Section 404 relates to the management assessment of the internal control system.

³ Non-GAAP reporting is comprised of computations used to report corporate income and earnings that are not defined by generally accepted accounting principles (GAAP). These measures, including core earnings, free cash flow, pro forma earnings, operating earnings, and earnings before interest, taxes, depreciation, and amortization (EBITDA), provide useful financial information about individual companies. A lack of standardization in these

corporate governance issues, which may create a weak internal control environment (McCarty 1999; Abbott and Parker 2004; Kinney et al. 2004; Agrawal and Chadha 2005; Aier et al. 2005; Krishnan 2005), characteristics of companies that restate earnings (Kinney and McDaniel 1989; Defond and Jiambalvo 1991; Richardson et al. 2002; Ge and McVay 2005), earnings persistence and the type of accounts restated (Cottle et al. 1988; Penman 2001; Bradshaw and Sloan 2002; Palmrose and Scholz 2004). Additionally, the consequences of restatements have been explored in the relationship between restatements and market returns (Kinney and McDaniel 1989; Dechow et al. 1996; Palmrose et al. 2004). Sections 302 and 404 of the Sarbanes-Oxley Act of 2002 (SOX) require management of a company to identify and to report on material weaknesses in internal control over financial reporting in their SEC filings. Issues have emerged regarding reported material weaknesses in internal control that are similar to those involving accounting restatements.

Numerous studies examine the consequences of restatements by exploring the relation between restatements and market returns (Kinney and McDaniel 1989; Dechow et al. 1996; and Palmrose et al. 2004). These studies consistently find a significant negative abnormal return around the announcement date. In contrast, the Glass, Lewis & Co. (2006) study does not find any significant predictive trend in stock price changes for companies disclosing material weakness or significant deficiencies. The question arises whether the incidence of reported material internal control weaknesses affects the probability of a company eventually restating its earnings. Since prior research seems to indicate a market penalty for restatements but not for reported material internal control weaknesses, this study contributes through an estimation of the

calculations, plus the potential for creative accounting, make it difficult to draw relevant comparisons among companies or draw meaningful conclusions from these statistics.

incremental effects of different types of internal control weaknesses on the probability of a company's restating its earnings.

This study examines the effect of type of internal control weakness, certain accounting characteristics of earnings restatements and magnitude (the number of material internal control weaknesses reported) on the probability of a company restating its financial statements.

The following research questions are addressed in this study:

1. Are companies that report material weaknesses in internal control more likely to restate their financial statements?
2. Does the number of material internal control weakness reported by a firm affect the probability of that firm restating its earnings?
3. Does the type of material internal control weakness reported by a firm affect the probability of that firm restating its earnings?

The study proceeds as follows. In the next section, we discuss the background of earnings restatements, SOX and internal control regulation and present the hypotheses. We then present the empirical analyses and models and describe the sample. Results of the analyses are described. The final section presents conclusions and suggestions for future research.

II. HYPOTHESES DEVELOPMENT

Government regulators, the accounting profession, and investors have recognized for many years the need for transparent financial statements and the importance of internal controls in generating those statements. Beginning with the Securities Act of 1933 and the Securities Exchange Act of 1934, companies have been required to correct inaccurate, incomplete, or misleading disclosures. In 1977, Congress amended Section 13(b) of the Securities Exchange Act of 1934 and required firms to have reasonable internal controls sufficient to provide reasonable assurances to investors. During the next two decades, the Treadway Commission

(1987), SEC (1988), Public Accounting Oversight Board (1992), and GAO (2005) all proposed or recommended rules requiring management and/or auditor reporting on the effectiveness of internal controls. In spite of these legislative efforts, earnings restatements by corporations continued to be of significant concern. 919 earnings restatements resulting in \$200 billion of market capital loss by investors were required for period between January 1, 1997 and June 30, 2002 (GAO 2003). This number of restatements is greater than all restatements of the previous three decades. By 2002, a systemic crisis materialized that resulted in legislation requiring publicly traded firms to have adequate controls necessary for complete and accurate financial reporting.

The Public Company Accounting Reform and Investor Protection Act of 2002 (SOX) was enacted in July 2002 largely in response to major corporate and accounting controversies involving many major corporations in the United States. Enron, WorldCom, Tyco, Adelphia, and HealthSouth are a few examples. These scandals exposed serious weaknesses in the system of checks and balances that were intended to protect the interests of shareholders, pension beneficiaries and employees of public companies, and to protect the confidence of the investors in the stability and fairness of the U.S. capital markets. Many investors lost their life savings, employees lost their livelihoods and the faith of many investors in U.S. markets was lost. SOX brought about the most extensive reform that the U.S. capital markets have seen since the passage of the Securities Act of 1933 and the Securities Exchange Act of 1934. Part of the reasoning behind SOX was to increase the transparency of the financial statements and reduce the number of earnings restatements. However, restatements of financial statements by public companies have risen five-fold from 2002 until 2005 (Glass, Lewis & Co. 2006).

Wahlen (2004) points out many factors that affect the economics of non-GAAP versus GAAP reporting. He states that the “firm experiences a set of antecedent circumstances that motivate (and fail to prevent) non-GAAP reporting, setting the stage for the firm to release a non-GAAP financial report”. These factors include weak internal controls, strong manager’s incentives, weak corporate governance, prior and current earnings performance, existing earnings expectations, firm size, growth, and others.

Earnings are restated for various reasons. Prior research has examined the effect of various restatements on the recalculation of estimated cash flows by investors. Kinney and McDaniel (1989) analyze the stock price reaction for 73 firms that restate between 1976 and 1985 and find that stock returns are negative between issuance of erroneous quarterly statements and its corrections. Dechow et al. (1996) report a negative 6 percent return for a subset of SEC enforcement actions with restatements from 1981-1992. Turner et al. (2001) document negative returns of 12 percent (revenue misstatements) and 5 percent (restructuring, impairment, and other misstatements) from 1997-1999. Wu (2002) extends Moriarty and Livingston (2001) and finds estimated negative returns of 11 percent for 255 companies either revising earnings announcements or announcing restatements of financials from 1977 to 2000. He also finds that restatements are regarded as bad news by the stock market and that market reaction is stronger when the restated amount is larger and reports an increase in the frequency of restatements and the recent appearance of in-process R&D restatements. The GAO (2002) finds negative 10 percent for a sample of 689 public companies announcing restatements from 1997 to March 2002. Anderson and Yohn (2002) investigate 161 firms from 1997-1999 and find that investors and dealers react negatively (lower market returns [negative 3.8 percent] and increased bid-ask spreads) to restatements. Palmrose et al. (2004) analyze stock market reaction for a sample of

403 restatements of quarterly and annual financial statements from 1995 to 1999 and find a significant negative abnormal return (negative 9.2 percent) over a 2-day event window. Negative abnormal returns are related to indications of management fraud, more material dollar effects, and restatements that are attributable to auditors. They also find a significant association between the dispersion of earnings forecasts by analysts and restatement announcements. A restatement can trigger an SEC investigation, lead to replacement of top executives, and result in the firm being heavily penalized by investors.

Corporate governance issues which may create a weak internal control environment are the subject of previous research. Kinney et al. (2004) investigate the role of auditors and audit committees and find a significant negative association between tax-service fees and restatements, a significant positive association between audit, audit-related and non-audit service fees and restatements. McCarty (1999) and Aier et al. (2005) find a positive association between the financial expertise of CFOs and accounting restatements. Abbott and Parker (2004) study the effect of audit committee characteristics on the probability of financial restatements by companies and find a negative association between restatement and audit committees that have at least one member with financial expertise. Agrawal and Chadha (2005) find that board independence and audit committee independence and the provision of non-audit services by outside auditors are unrelated to the probability of a company restating its earnings. The probability of restatement is lower in companies whose boards or audit committees have an independent director with financial expertise. It is higher in companies in which the CEO belongs to the founding family. The probability of restatement is negatively related to the incidence of independent directors with a background in accounting or finance on the board or audit committee and to the presence of the CFO on the audit committee. Krishnan (2005) studies

the incidence of material internal control weakness in a pre-SOX sample (1994-2000) and finds that the quality of audit committees and the frequency of material weaknesses are negatively associated.

Prior research has established characteristics of companies that restate earnings. Kinney and McDaniel (1989) find that, relative to their industry, restating companies are smaller, less profitable, slower growing, have higher debt, face more serious uncertainties and receive more qualified audit opinions. Defond and Jiambalvo (1991) note that earnings overstatements are negatively correlated with earnings growth and those overstatements are more likely when companies have fewer income-increasing GAAP alternatives available. Richardson et al. (2002) find companies that make restatements have high market expectations for future earnings growth, higher levels of outstanding debt, a string of consecutive positive earnings growth and consecutive positive quarterly earnings surprises. Ge and McVay (2005) investigate the general firm characteristics associated with firms that disclose material weakness. They find that those firms reporting material weaknesses are more complex (as measured by number of operating segments and foreign currency translations), smaller (book value and market cap), less profitable (return on assets and cash from operations) and more inclined to use a large auditor (BDO Seidman, Deloitte & Touche, Ernst & Young, Grant Thornton, KPMG, or PWC). The similarities in characteristics between restating companies and companies reporting material weaknesses lead to the expectation that the probability of companies restating their earnings is positively associated with companies that report material internal control weaknesses.

We test how the occurrence of material internal control weakness affects the likelihood of a company having a misstatement of its earnings. Thus, our first hypothesis (H_1) is:

H_1 : The probability that companies restate their earnings is positively associated with reported material internal control weakness.

Moody's Investor's Service rates the level of risk associated with investors' receiving full and timely payment of principal and interest on a specific debt obligation (Moody's.com 2006). Moody's reaction to internal control deficiencies includes distinguishing between situations that merit negative rating action from those that do not. In most cases involving internal control weaknesses, the control problems cited do not affect the company's credit risk. However, Moody's does reevaluate the credit risk of companies that report pervasive control problems, recurring errors, ineffective remediation of lingering control problems, and delinquent filings that are frequently caused by ongoing and uncertain reporting problems.

Based on Moody's model, we expect that the effect of reported material internal control weaknesses on the probability of an earnings restatement increases with the pervasiveness of the internal control weaknesses. This study measures pervasiveness as the number of material internal control weaknesses reported.

We test how the number of reported material weaknesses affects the likelihood of a company having a misstatement of its earnings. Thus, our second hypothesis (H₂) is:

H₂: The probability that companies restate their earnings is positively associated with the number of material internal control weaknesses reported.

Although Section 404 of the Sarbanes-Oxley Act requires management to identify and to report on material weaknesses in internal control, it does not specify how these weaknesses are to be categorized or how management is to explain the weaknesses in the report. The SEC clarified the definitions of material weakness and significant deficiencies but left the manner of reporting up to the individual companies. In an attempt to clarify the matter, the Chief Accountant of the SEC states, "For those companies who do disclose material weaknesses, it will be important that they do so in a manner that enables investors and other market participants to carefully evaluate

the circumstances underlying the material weakness” (SEC 2003). He further states, “Some material weaknesses may have a greater or lesser impact on the investor’s decision process. In many cases this decision will likely be influenced by the fullness of management’s disclosure, the underlying causes of material weakness, and management’s actions to address the material weakness. This is intended to be an open process whereby investors can evaluate both the weakness as well as management’s actions to improve controls.”

Classification of internal control weaknesses can be done in many ways. The GAO (Report Pursuant to Section 704 of the Sarbanes-Oxley Act of 2002) classifies internal control weaknesses into four broad categories: (1) improper revenue recognition (improper timing, fictitious revenue, and improper valuation), (2) improper expense recognition (improper capitalization/deferral, overstating ending inventory values, improper use of restructuring and other liability reserves, understating reserves for bad debts and loan losses, and failure to record asset impairments), (3) improper accounting in connection with business combinations (improper asset valuation, improper use of merger reserves, and inappropriate application of purchase/pooling methods), and (4) other areas of improper accounting (inadequate disclosures in management discussion, failure to disclose related party transactions, inappropriate accounting for non-monetary and roundtrip transactions, foreign payments in violation of the FCPA, improper use of Non-GAAP Financial Measures, and improper use of Off-Balance Sheet Arrangements).

Moody’s uses two broad categories to classify internal control weaknesses. Weaknesses that relate to controls over specific account balances or transaction-level processes are grouped as Category A and include weaknesses that relate to income tax accounting, account specific accounting, revenue and related receivables, acquisition and consolidation, and technology and

data access controls. Weaknesses that relate to company specific controls are included in Category B and include control weaknesses such as an ineffective control environment, weak overall financial reporting processes, tone at the top, delinquent filers and ineffective personnel. Category B weaknesses also include those companies that report several Category A weaknesses and those companies that have reported material control weaknesses for the second year running. Moody's gives much greater concern to company specific controls. Upon classifying internal control weaknesses as relating to company specific controls, Moody's generally re-evaluates the rating given the firm. The financial consequences of a change in rating can include an increase in a firm's cost of capital. Frank and Cheh (2006) conclude that it is reasonable to assume that if the type of material weakness affects part of a firm's cost of capital, it should also affect investors' perception of the value of a firm reporting control weaknesses.

Recent interest in earnings management has focused research on income statement accounts. Researchers and practitioners find it particularly useful to differentiate accounts affected by restatements (Cottle et al. 1988; Penman 2001; Bradshaw and Sloan 2002; Palmrose and Scholz 2004). Generally, accounts are divided between 1) core earnings (that is, affect the ongoing operating results of the firm and include revenue, COGS, and SGA expense) and 2) non-core earnings (that is, one-time items like goodwill and research and development). Core earnings are more important to investors than non-core earnings because core earnings affect the persistent earnings of a firm that can be expected to repeat and contribute to a firm's future earnings (Penman 2001).

Ge and McVay (2005) find 493 distinct deficiencies in internal control among 261 firms and report that these disclosures vary widely in terms of details. They group these deficiencies based on the specific material weaknesses disclosed by management and categorize internal

control weaknesses into nine deficiency types: (1) Account-Specific, (2) Training, (3) Period-End Reporting/Accounting Policies, (4) Revenue Recognition, (5) Segregation of Duties, (6) Account Reconciliation, (7) Subsidiary-Specific, (8) Senior Management, and (9) Technology Issues.

Frank and Cheh (2006) use a classification scheme compiled from both sources. The classification is applied based on Moody's dichotomy and cross-classified according to the typology of Ge and McVay (2005).

We use Ge and McVay's (2005) classification of internal control deficiency type and test how the type of material internal control weakness affects the likelihood of a company having a misstatement of its earnings. The Appendix A provides a detailed description and examples of specific weaknesses under each category. Thus, our third hypothesis (H_3) is:

H_3 : The probability that companies restate their earnings is positively associated with the type of material internal control weakness reported by a firm.

III. METHODOLOGY

General Research Design

We investigate financial accounting restatements filed with the Securities and Exchange Commission between December 2003 and March 2006. Restating companies are matched with non-restating companies (firm did not restate its earnings in the 2 years prior to the date of the restatement announced by its matched firm) based on size, industry, and the year in which the restating company publicly announced a restatement. We use logistic regression in the initial analysis to determine if reported material internal control weaknesses are associated with the likelihood that a company will restate its earnings. To explore the relation between accounting restatements and material internal control weaknesses, we estimate a regression that includes

restatement and company characteristics expected to influence a firms' decision to restate its earnings.

Prior studies find that earnings management is likely to increase the probability of a company restating its earnings and have identified incentives to manage earnings in companies that have restated their earnings. Dechow et al. (1996) report that the demand for external financing is an important determinant of earnings management. Also, Richardson et al. (2002) find that the need to meet analyst expectations is an important determinant of earnings management. Dechow uses two measures of external financing, free cash flow (FREEEC) and the actual amount of financing raised (FINRAISED). Richardson et al. (2002) measure leverage (LEV) and report that these variables are incentives for earnings management. Consequently, we include these variables as control variables in the model. The inclusion of these additional variables should improve the explanatory power of the tests. We use the following model to test H₁ examining the association between firm's earnings restatement and the reporting of internal control material weaknesses:

$$REST_{it} = \beta_0 + \beta_1 ICW + \beta_2 FREEEC + \beta_3 FINRAISED + \beta_4 LEV + \varepsilon$$

Where ε is a random error term and for a given company i:

- t = for each restating company and its matching non-restating company, the year in which the restating company publicly announced a restatement;
- REST = a dichotomous variable coded 1 if the firm has restated its earnings, 0 otherwise;
- ICW = dummy variable coded 1 if the firm reported a material internal control weakness, 0 otherwise;
- FREEEC = net cash flows from operating activities (Compustat data item 308) less average capital expenditures (Compustat data item 128) deflated by total assets (Compustat data item 6);
- FINRAISED = sum of new debt and equity issued by the company; Sale of Common and Preferred Stock (Compustat data item 108) plus Long-Term Debt – Issuance (Compustat data item 111) deflated by total assets (Compustat data item 6);
- LEV = total debt (Compustat data item 34 plus data item 9) deflated by total assets (Compustat data item 6).

To explore the relation between accounting restatements and the number of reported material internal control weaknesses, we estimate a regression that includes restatement and company characteristics expected to influence a firms' decision to restate its earnings. We also include control variables in the model that prior research identifies as important determinants of restatements. The inclusion of these additional variables should improve the explanatory power of the tests. The model to test H₂ examining the relation between earnings restatements and the number of reported internal control weaknesses is summarized as follows:

$$REST_{it} = \beta_0 + \beta_1 NUMBER + \beta_2 FREEC + \beta_3 FINRAISED + \beta_4 LEV + \varepsilon$$

Where ε is a random error term and for a given company i:

- t = for each restating company and its matching non-restating company, the year in which the restating company publicly announced a restatement;
- REST = a dichotomous variable coded 1 if the firm has restated its earnings, 0 otherwise;
- NUMBER = number of material internal control weaknesses reported.

Control variables are the same as defined in the first regression model.

To explore the relation between accounting restatements and the type of reported material internal control weaknesses, we estimate a regression that includes restatement and company characteristics expected to influence a firms' decision to restate its earnings. We also include control variables in the model that prior research identifies as important determinants of restatements. The inclusion of these additional variables should improve the explanatory power of the tests. We use the following model to test H₃ examining the association between firm's earnings restatements and the type of internal control weaknesses:

$$REST_{it} = \beta_0 + \beta_1 AS + \beta_2 T + \beta_3 PERAP + \beta_4 RR + \beta_5 SOD + \beta_6 AR + \beta_7 SS + \beta_8 SM + \beta_9 TI + \beta_{10} FREEC + \beta_{11} FINRAISED + \beta_{12} LEV + \varepsilon$$

Where ε is a random error term and for a given company i:

- t = for each restating company and its matching non-restating company, the year which the restating company publicly announce a restatement;
- REST = a dichotomous variable coded 1 if the firm has restated its earnings, 0 otherwise;
- AS = a dummy variable coded 1 if ICW area is Account-Specific, 0 otherwise
- T = a dummy variable coded 1 if ICW area is Training, 0 otherwise;
- PERAP = a dummy variable coded 1 if ICW area is Period-End Reporting/Accounting Policies, 0 otherwise;
- RR = a dummy variable coded 1 if ICW area is Revenue Recognition, 0 otherwise;
- SOD = a dummy variable coded 1 if ICW area is Segregation of Duties, 0 otherwise;
- AR = a dummy variable coded 1 if ICW area is Account Reconciliation, 0 otherwise;
- SS = a dummy variable coded 1 if ICW area is Subsidiary-Specific, 0 otherwise;
- SM = a dummy variable coded 1 if ICW area is Senior Management, 0 otherwise;
- TI = a dummy variable coded 1 if ICW area is Technology Issues, 0 otherwise.

Control variables are the same as defined in the first regression model.

Sample Selection

The sample of companies announcing restatement of financial statements for the period January 1, 2004 through December 31, 2005 is obtained from the Lexis-Nexis News Library using keyword searches for restatements. These include “restate”, “restated”, “revise”, “revised”, “adjust”, “adjusted”, and “error”. Also, certain companies are added that were obtained from a listing of firms that announced restatements and is compiled by Compliance Week. Compliance Week compiles its list from data taken from disclosures within the Russell 3000 Index and represents approximately 98% of the U. S. market (Compliance Week, 2005). The sample includes only misstatements of earnings rather than misstatements for technical reasons. Technical restatements are not caused by improper accounting methods and arise from routine actions including FASB emerging-issues task force rulings and discontinued operations. Prior research typically ignores technical restatements (Raghunandan et al. 2003; Palmrose and Scholz 2004). Following Agrawal and Chadha (2005), we exclude retroactive restatements required by GAAP for accounting changes (e.g. change from FIFO to LIFO) and subsequent events (e.g.

stock splits, mergers, and divestitures), preliminary earnings restatements that do not get reflected in published financial statements and cases where a potential restatement was announced but did not actually occur.

As shown in Table 1, keyword sources generated 712 restatements between January 1, 2004 and December 31, 2005. Comparing this list to the Compliance Week database added 43 other firms, for an initial sample of 755 restating companies. Each company's reason for restatement is determined by reading through each announcement fully. Companies that restate for technical reasons (138) are dropped from the sample, as well as those whose financial data is not reported on the Compustat database (57), leaving 560 observations. For each restating firm, following Dechow et al. (1996) and Aier et al. (2005), a control firm is identified. The Compustat database is used to generate a matching (control) sample based on (1) similar size (total assets at the end of the year before the year of announcement of the restatement), (2) industry (4-digit SIC code), (3) year (using the year of accounting misstatement), and (4) firm did not restate its earnings in the 2 years prior to the date of the restatement announced by its matched firm. Of the 560 restating companies remaining in the sample, a matching control firm for 42 could not be identified. The final sample consists of 518 restating firms matched with 518 control firms for a total of 1,036 observations.

[Insert Table 1 here]

Compliance Week is used to identify firms that reported material control weaknesses during the period January 2004 through December 2005. A total of 842 companies reported material internal control weaknesses during the period. Each of the disclosures is read to

determine if the identified disclosure pertains to an identified material internal control weakness. Finally, those companies in both the restating and control groups that reported internal control weaknesses are identified. This sample group totals 214 firms. Each of these disclosures is read to determine the number of material weaknesses identified. Using Ge and McVay (2005)'s classification of internal control deficiency type, each weakness is then categorized into one or more of nine categories (see Appendix A).

IV. RESULTS

Table 2 presents descriptive statistics of the 518 restating companies and 518 control companies. The average restating company is 19.69 percent larger than the companies in the control sample (\$7.808 billion versus \$6.524 billion total assets). However, restating companies have, on average, lower net income (14.70 percent), lower market values (11.30 percent), and lower market/book ratios (20.10 percent) suggesting that restating companies do not perform as well as companies in the control group. Restating companies also have a significantly lower price-to-earnings ratio (47.15 percent) than the control group, suggesting from the literature review that the market penalizes companies that restate earnings. The differences between the restating and control groups in total assets, net income, market values, and market/book ratios are not statistically significant suggesting the matching is appropriate.

[Insert Table 2 here]

Aier et al. (2005) find similar non-statistical results on many of the same variables to check for differences between restating and non-restating firms. Aier et al. (2005) find that total

assets, net income, market values, market/book ratios and price-to-earnings ratio are not significantly different from zero. This paper's and Aier et al. (2005) result's are in contrast to that of Richardson et al. (2002). Richardson et al. (2002) report that price-to-earnings ratio, book-to-market ratio, and net income are all statistically significantly lower for restating companies.⁴ Finally, the measures used to determine earnings management, free cash, financing raised and leverage, are not significantly different between the restatement and control groups.

A description of the sample by industry is reported in Table 3. Manufacturing and Service companies represent over half of the sample with a total of 29.92 percent and 21.81 percent respectively. Transportation & public utilities companies represent 14.67 percent of the sample, the retail trade industry accounts for 13.13 percent, and finance, insurance and real estate firms make-up 11.20 percent of the sample. Mining (5.41 percent), wholesale trade (3.09 percent), construction (0.58 percent), and agriculture, forestry, and fishing (0.19 percent) constitute the remainder of the sample. The public administration and non-classifiable establishments industries are not represented in the sample. We are confident that the sample is reasonably representative of the economy.

[Insert Table 3 here]

Table 4 summarizes the logistical regression analysis of whether financial restatements are associated with the presence of material internal control weaknesses. The ICW (p-value < 0.001) variable is significantly associated with restatements. Therefore, it appears that the incidence of a reported material internal control weakness is more likely for a company that

⁴ An explanation for the difference in samples could be that this study and Aier et al. (2005) matched control companies based on asset size, year restated, and industry, while Richardson et al. (2002) used all non-restating companies on the Compustat database as a control group.

restates its earnings than for a company that does not. Thus, we reject the null hypothesis (supporting H₁).

Tests of the control variables reported in Table 4 indicate that none of the variables are significantly different from zero. Prior research shows conflicting results. For example, Richardson et al. (2002) and others, find significance in the control variables, while Aier et al. (2005) do not. This finding may be attributed to the matching procedure used to generate the control sample. Richardson et al. (2002) use all companies in the Compustat database as the control sample, while Aier et al. (2005) and this study match each restating company based on size, industry, and year of the restatement.

[Insert Table 4 here]

Table 5 summarizes the logistical regression analysis of whether the restatements of financial statements are associated with the number of reported material internal control weaknesses. The NUMBER variable is marginally significant in relation to restatements (p-value<0.10). It appears that as the number of reported material control weaknesses rises, so does the probability of a firm restating its earnings. Companies with fewer reported material internal control weaknesses are less likely to restate their earnings. Thus, we reject the null hypothesis (supporting H₂).

[Insert Table 5 here]

Table 6 summarizes the logistical regression analysis of whether financial restatements are associated with the type of reported material internal control weaknesses. The AS (p-value < 0.001) variable, PERAP (p-value < 0.005) variable, and the RR (p-value < 0.023) variable are significant and positively associated with the probability of restatement. Therefore, it appears that those material internal control weaknesses more closely associated with account-specific, revenue recognition, period end reporting and accounting policy deficiencies are more likely to increase the probability of a company restating its earnings. None of the other variables are statistically significant. Material internal control weaknesses classified as training, segregation of duties, account reconciliation, subsidiary specific, senior management and/or technological issues do not appear to significantly increase the likelihood of a restatement. Thus, we reject the null hypothesis (supporting H₃).

[Insert Table 6 here]

V. CONCLUSIONS

This paper provides empirical evidence on the association between reported material internal control weakness and the probability of a company restating its earnings based on a sample of 518 restating companies and 518 matching companies selected from the period January 1, 2004 through December 31, 2005. After analyzing and interpreting the results, we have concluded that all three tests failed to reject the null hypotheses. First, this study finds a significant relationship between the presence of material internal weaknesses reported by the firm and the probability of a firm restating its financial statements. Results indicate that the presence of a reportable weakness increases the probability that a company will restate its

earnings. This finding makes intuitive sense in light of the PCAOB Auditing Standard No.2 that defines a material weakness as a significant deficiency or a combination of significant deficiencies, resulting in more than a remote likelihood that a material misstatement of the annual or interim financial statements will not be prevented or detected on a timely basis. Firms that have identified and reported a material weakness in internal control would be expected to experience a higher probability of restatement due to the internal control weakness.

Second, the number of material internal control weaknesses reported by the firm is significantly related to the probability of a firm restating its earnings. The higher the number of material weaknesses reported by a company, the greater the probability that the company will restate its earnings. These results make sense intuitively as the greater the number of material weaknesses existing in internal control, the greater the probability that a company would not find errors that eventually lead to restatements.

Finally, the type of material internal control weakness is significantly related to the probability of a firm restating its earnings. This study finds that companies that report material weakness in accounting related areas such as accruals, revenue recognition, period-end closings and accounting policies, and complex areas such as derivative and lease accounting, are more likely to restate earnings than those companies reporting material weakness in non-accounting areas such as training, segregation of duties, senior management, and subsidiary specific areas. These findings lend support to the research that emphasizes the importance of income statement accounts, e.g. Penman (2001). This research finds that those accounts that affect the ongoing operating results of the firm and include revenue, COGS, and SGA expense are more important to investors than one-time items like goodwill and research and development. This research gives evidence that accounting specific and accounting related material weaknesses are an important

determinant in non-GAAP reporting. These findings are important because they help us to develop a more complete understanding of the determinants of non-GAAP accounting.

This study has limitations due to the sample composition. Smaller companies that restate earnings are not included in this study because they do not appear in the Lexis-Nexis database. This study identified 712 restatements through keyword searches over the period 2004 to 2005. In comparison, Glass-Lewis & Co. identified 1,295 restatements in 2005 alone, consisting of many smaller public companies and small-business, or “SB” filers. This study also classifies material internal control weaknesses according to one technique. There are numerous other schemas available to classify material weakness. Other classification could result in different findings. Another limitation is based on the measurement of the number of material weaknesses. This measure does not capture the true pervasiveness of the weaknesses. Pervasiveness could include the frequency of occurrence and the length of time an internal control weakness persists.

Prior research finds that the market reacts more strongly to surprises in persistent or on-going operating income than to one-time items that affect income only on special occasions and do not persist into future periods (Elliot and Hanna 1996). Future research might investigate the relationship between the types of material weakness reported and the types of account affected by a restatement.

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TABLE 1
Sample Selection

<u>Selection Criteria</u>	<u>Number of Observations</u>
Keyword searches	712
Other sources	<u>43</u>
Initial Sample	755
Reasons for deletions:	
Technical restatements	138
Compustat data not found	57
Matching company not found	<u>42</u>
Number deleted	237
Subtotal for restatement sample	518
Add: Control sample matched on size, industry and year using the Compustat database	<u>518</u>
Total observations	1036

TABLE 2
Financial Statistics for Companies Examined

Variable	Restatement Sample (n = 518)		Control Sample (n = 518)		Mean Diff.^a
	Mean	Std. Dev.	Mean	Std. Dev.	
<i>Total Assets</i>	7,808.524	59,622.320	6,524.047	46,899.882	1,284.477
<i>Net Income</i>	112.590	836.117	131.995	722.536	-19.405
<i>Market Value</i>	2,798.407	12,276.037	3,154.770	11,056.853	-356.363
<i>Market/Book</i>	3.081	11.976	3.856	13.679	-0.775
<i>Price/Earnings</i>	9.104	74.102	17.234	72.098	8.130*
<i>FreeC</i>	-0.050	0.440	-0.012	0.271	-0.038
<i>FinRaised</i>	0.218	0.385	0.186	0.325	0.032
<i>LEV</i>	0.274	0.329	0.290	0.536	-0.016

a** Signifies statistically significant (p-value is less than 0.05) and * signifies marginally significant (p-value is less than 0.10) using a t-test.

- Total Assets* = total dollar value of the company's assets in millions (Compustat data item 6);
- Net Income* = total dollar value of the company's bottom-line net income in millions (Compustat data item 172);
- Market Value* = total market value in millions of dollars calculated as the year-end closing share price multiplied by the year-end number of shares outstanding (Compustat data item 24 multiplied by Compustat data item 25);
- Market / Book* = the ratio of the company's market value divided by the company's book value of net assets (market value from above/Compustat data item 216);
- Price / Earnings* = measured as the company's year-end closing price divided by earnings per common share-excluding extraordinary items (Compustat data item 24 / Compustat data item); 58
- FreeC* = net cash flows from operating activities (Compustat data item 308) less average capital expenditures (Compustat data item 128) deflated by total assets. (Compustat data item 6);
- FinRaised* = sum of new debt and equity issued by the company (Compustat data item 108 plus data item 111) deflated by total assets (Compustat data item 6);
- LEV* = total debt (Compustat data item 34 plus data item 9) deflated by total assets (Compustat data item 6);

TABLE 3

Description of Sample by Industry (SIC Code)

<u>Industry (SIC)</u>	<u>Number of Companies</u>	<u>Percentage of Sample</u>
Agriculture, forestry, and fishing (01-09)	2	0.19%
Mining (10-14)	56	5.41%
Construction (15-17)	6	0.58%
Manufacturing (20-39)	310	29.92%
Transportation and public utilities (40-49)	152	14.67%
Wholesale trade (50-51)	32	3.09%
Retail trade (52-59)	136	13.13%
Finance, insurance, and real estate (60-67)	116	11.20%
Services (70-89)	226	21.81%
Public administration (91-97)	0	0.00%
Nonclassifiable establishments (99)	<u>0</u>	<u>0.00%</u>
Total	1,036	100.00%

TABLE 4
**Ability of Reported Material Internal Control Weakness to Explain
the Likelihood of Making an Earnings Restatement**

$$REST_{it} = \beta_0 + \beta_1 ICW + \beta_2 FREEC + \beta_3 FINRAISED + \beta_4 LEV + \varepsilon$$

	<u>Coefficient</u>	<u>Standard Error</u>	<u>Significance</u>
Intercept	-0.347	0.092	0.000***
<i>ICW</i>	1.796	0.190	0.000***
<i>FREEC</i>	-0.217	0.254	0.392
<i>FINRAISED</i>	0.260	0.239	0.278
<i>LEV</i>	-0.108	0.154	0.481

*, **, *** Significant at p = 0.10, p = 0.05, and p = 0.01 level, respectively, in a one-sided hypothesis test

n = 1036

Pseudo R² = 0.141

REST = a dichotomous variable coded 1 if the firm has restated its earnings, 0 otherwise;

ICW = dummy variable coded 1 if the firm reported a material internal control weakness, 0 otherwise;

FREEC = net cash flows from operating activities (Compustat data item 308) less average capital expenditures (Compustat data item 128) deflated by total assets. (Compustat data item 6);

FINRAISED = sum of new debt and equity issued by the company (Compustat data item 108 plus data item 111) deflated by total assets (Compustat data item 6);

LEV = total debt (Compustat data item 34 plus data item 9) deflated by total assets (Compustat data item 6);

TABLE 5
Ability of the Number of Reported Material Internal Control Weakness
to Explain the Likelihood of Making an Earnings Restatement

$$REST_{it} = \beta_0 + \beta_1 NUMBER + \beta_2 FREEC + \beta_3 FINRAISED + \beta_4 LEV + \varepsilon$$

	<u>Coefficient</u>	<u>Standard Error</u>	<u>Significance</u>
Intercept	-1.052	.345	0.002***
<i>MAGNITUDE</i>	.276	.161	0.085*
<i>FREEC</i>	.633	.773	0.413
<i>FINRAISED</i>	-.361	.710	0.611
<i>LEV</i>	.271	.645	0.675

*, **, *** Significant at p = 0.10, p = 0.05, and p = 0.01 level, respectively, in a one-sided hypothesis test

n = 214

Pseudo R² = 0.042

REST = a dichotomous variable coded 1 if the firm has restated its earnings, 0 otherwise;

NUMBER = number of material internal control weaknesses reported

FREEC = net cash flows from operating activities (Compustat data item 308) less average capital expenditures (Compustat data item 128) deflated by total assets. (Compustat data item 6);

FINRAISED = sum of new debt and equity issued by the company (Compustat data item 108 plus data item 111) deflated by total assets (Compustat data item 6);

LEV = total debt (Compustat data item 34 plus data item 9) deflated by total assets (Compustat data item 6);

TABLE 6
Ability of Type of Reported Material Internal Control Weakness to
Explain the Likelihood of Making an Earnings Restatement

$$\begin{aligned}
 REST_{it} = & \beta_0 + \beta_1 AS + \beta_2 T + \beta_3 PERAP + \beta_4 RR + \beta_5 SOD + \beta_6 AR + \beta_7 SS \\
 & + \beta_8 SM + \beta_9 TI + \beta_{10} FREEC + \beta_{11} FINRAISED + \beta_{12} EPSGROWTH \\
 & + \beta_{13} LEV + \varepsilon
 \end{aligned}$$

	<u>Coefficient</u>	<u>Standard Error</u>	<u>Significance</u>
Intercept	-.297	.090	0.001***
AS	1.786	.298	0.000***
T	-.748	.493	0.129
PERAP	1.041	.372	0.005***
RR	1.848	.813	0.023***
SOD	.236	.867	0.786
AR	1.319	1.144	0.249
SS	20.742	13127.009	0.999
SM	.576	.898	0.521
TI	.250	.745	0.737
FREEC	-.235	0.256	0.359
FINRAISED	.283	0.241	0.241
LEV	-.131	0.154	0.396

*, **, *** Significant at p = 0.10, p = 0.05, and p = 0.01 level, respectively, in a one-sided hypothesis test

n = 1036

Pseudo R² = 0.148

REST = a dichotomous variable coded 1 if the firm has restated its earnings, 0 otherwise;

AS = a dummy variable coded 1 if ICW area is Account-Specific, 0 otherwise

T = a dummy variable coded 1 if ICW area is Training, 0 otherwise;

PERAP = a dummy variable coded 1 if ICW area is Period-End Reporting/Accounting Policies, 0 otherwise;

RR = a dummy variable coded 1 if ICW area is Revenue Recognition, 0 otherwise;

SOD = a dummy variable coded 1 if ICW area is Segregation of Duties, 0 otherwise;

AR = a dummy variable coded 1 if ICW area is Account Reconciliation, 0 otherwise;

SS = a dummy variable coded 1 if ICW area is Subsidiary-Specific, 0 otherwise;

SM = a dummy variable coded 1 if ICW area is Senior Management, 0 otherwise;

TI = a dummy variable coded 1 if ICW area is Technology Issues, 0 otherwise;

FREEC = net cash flows from operating activities (Compustat data item 308) less average capital expenditures (Compustat data item 128) deflated by total assets. (Compustat data item 6);

FINRAISED = sum of new debt and equity issued by the company (Compustat data item 108 plus data item 111) deflated by total assets (Compustat data item 6);

LEV = total debt (Compustat data item 34 plus data item 9) deflated by total assets (Compustat data item 6);

APPENDIX A

Material Weakness Classification and Examples

Account-Specific

- Internal control matters with respect to inventory transactions
- Inadequate internal controls for accounting for loss contingencies, including bad debts
- Improper accounting for accruals such as prepaid expenses and accrued expenses
- Improper accounting for income taxes
- Internal control deficiencies related to the reconciliation of service advances
- Problems, such as a lack of effective documentation, with options and other compensatory equity grants
- Improper accounting for derivatives
- Failure to record patents or trademarks in a timely fashion, or to analyze timely the patents and trademarks for usefulness and possible impairment
- Weaknesses in the process to gather information in order to complete the annual impairment testing of recorded goodwill and indefinite lived intangible assets
- Inadequate procedures to reconcile intercompany accounts and transactions
- Inadequate implementation of uniform controls over certain acquired entities and operations
- Improper accounting procedures for capitalized software development
- Improper accounting for an equity method investment
- Weak procedures for applying SFAS No. 131, such as segment determination
- Inadequate control over classification of certain fixed asset balances
- Deficiencies in the documentation of a receivables securitization program
- Improper accounting for convertible debentures with warrants and related measurement and recognition of beneficial conversion and warrant discounts and issuance costs
- Improper accounting for pension liability
- Weaknesses in the process to record liabilities related to large deductible insurance programs
- Lack of compliance with established procedures for appropriately applying SFAS No. 5, *Accounting for Contingencies*

Training

- Inadequate qualified staffing and resources leading to the untimely identification and resolution of certain accounting and disclosure matters and failure to perform timely and effective reviews
- The need to increase the training of the financial staff

Period-End Reporting/Accounting Policies

- Deficiencies in the period-end reporting process (closing process)
- No adequate internal controls over the application of new accounting principles or the application of existing accounting principles to new transactions
- The absence of ineffectiveness of a rule compliance checking procedure for SEC filings
- A lack of effective record keeping and compliance assistance for reports required under Section 16(a) of the Exchange Act
- Inadequate internal controls relating to the authorization, recognition, capture, and review of transactions, facts, circumstances, and events that could have a material impact on the company's financial reporting process
- Deficiencies related to the design of policies and execution of processes related to accounting for transactions
- Weaknesses related to the establishment of standards for review of journal entries and related file documentation
- Deficiencies related to the accounting and financial reporting infrastructure for collecting, analyzing, and consolidating information to prepare the consolidated financial statements
- Inadequate procedures for appropriately assessing and applying certain SEC disclosures and requirements
- Inconsistent application of accounting policies

Revenue Recognition

- Weak internal controls related to the design and review of revenue-recognition policies
- Weak internal controls related to contracting practices
- Weaknesses over certain internal controls related to the detection of side letters and the process of investigating customer assertions regarding terms not specified in the agreements

Segregation of Duties

- Weak internal controls and procedures relating to separation of duties (e.g., lack of separation of certain duties between payroll and other accounting personnel)
- Inappropriate segregation of duties to ensure that accurate information is contained in certain types of internal and external corporate communications, including press releases

Account Reconciliation

- Problems with certain accounting reconciliations and review procedures
- Lack of compliance with established procedures for monitoring and adjusting balances relating to certain accruals and provisions, including restructuring charges

Subsidiary-Specific

- Deficiencies related to the timely completion of statutory filings in foreign countries
- Deficiencies related to the timely and complete revelation of material contracts entered into by subsidiaries of the company
- Employees overseas engaged in improper transactions and unauthorized trading
- Internal accounting control that could have permitted employees at certain company locations to circumvent federal and state laws relating to the reporting of certain cash payments

Senior Management

- Override by senior management
- Ineffective control environment
- No full-time CFO who has SEC and reinsurance experience to focus on the financial affairs of the company

Technology Issues

- The security of systems used for the entry and maintenance of accounting records requires additional documentation and scrutiny to ensure that access to such systems and the data contained therein is restricted to only those employees whose job duties require such access
- Information technology has a number of areas where formal, documented policies and procedures have not been developed