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計畫主持人：周玲臺

計畫參與人員：碩士班研究生-兼任助理人員：李奕萱
博士班研究生-兼任助理人員：邱獻良

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中文摘要：沙賓法 404 條要求管理階層耗費心力地製作內部控制評估報告，及會計師對於內部控制加以查核。雖然過去研究指出遵行沙賓法 404 條的成本相當昂貴，但對於沙賓法 404 條是否能提昇內部控制揭露的品質，卻沒有一致的結論。由於施行沙賓法時，關於內部控制揭露及內部控制查核之各項管制採行依時間、依公司規模漸近式實施，藉由分析受不同程度管制的公司，本研究探討不同管制程度是否對於內部控制揭露的品質有不同的影響。研究結果指出受到完整 404 條管制的公司，相對於僅受 404(a) 條或是 302 條管制的公司，能夠發佈較佳品質的內部控制揭露。然而本研究並未發現僅受到 404(a) 條管制的公司能夠比僅受 302 條管制的公司發佈較佳品質的內部控制揭露的證據。本研究的實證證據能作為管制機關在將來制訂內部控制報導之參考。

中文關鍵詞：沙氏法管制、內部控制揭露品質、內部控制查核，重編

英文摘要：Although prior studies indicate that compliance with Section 404 of SOX, which requires both high-effort management disclosure and internal control audit, is costly, no consistent conclusion that Section 404 improves the disclosure quality of internal control over financial reporting (ICFR) can be drawn from prior research. By analyzing incremental and joint implementation of multiple SOX-based ICFR disclosure and internal control audit mandates, we examine the differential effects of alternative ICFR regulations on the quality of ICFR related public disclosure. Our results reveal that companies subject to full Section 404 issue higher-quality internal control reports than those subject to Section 302 or Section 404(a) only. However, we find no supporting evidence that companies subject to Section 404(a) issue better quality internal control reports than those subject to Section 302 only. This study provides evidence for policymakers to assess the effectiveness of internal control reporting regulations in the future.

英文關鍵詞：SOX regulation, quality of internal control disclosure, internal control audit, restatement

ICFR Disclosure Quality under Different SOX Regimes

Hsien-Lian Chiu

Department of Accounting
College of Commerce
National Chengchi University
Phone: +886934272115
E-mail: 96353504@nccu.edu.tw

Ling-Tai Lynette Chou

Department of Accounting
College of Commerce
National Chengchi University
Phone: +886-2-29393091 ext. 81245
E-mail: chou@nccu.edu.tw

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2. The data used in this study is extracted from AuditAnalytics and Compustat whose access is limited to eligible users. To follow the terms of use, we cannot transfer or distribute the data to any other party.

Abstract

Although prior studies indicate that compliance with Section 404 of SOX, which requires both high-effort management disclosure and internal control audit, is costly, no consistent conclusion can be drawn from prior research that Section 404 can improve the disclosure quality of internal control over financial reporting (ICFR). By analyzing incremental and joint implementation of multiple SOX-based ICFR disclosure and internal control audit mandates, we examine the differential effects of alternative ICFR regulations on the quality of ICFR related public disclosure. Our results reveal that companies subject to full Section 404 issue higher-quality internal control reports than those subject to Section 302 or Section 404(a) only. However, we find no supporting evidence that companies subject to Section 404(a) issue better quality internal control reports than those subject to Section 302 only. This study provides evidence for policymakers to assess the effectiveness of internal control reporting regulations in the future.

Keyword: SOX regulation, quality of internal control disclosure, internal control audit, restatement

ICFR Disclosure Quality under Different SOX Regimes

1. INTRODUCTION

This study examines the differential effects of the alternative regulations of internal control over financial reporting (ICFR) on the quality of ICFR related public disclosures. In order to restore investors' confidence after a number of high-profile accounting scandals, the Congress in 2002 passed the *Sarbanes-Oxley Act* (SOX), one of whose main goals is to improve the reliability of financial information quality by strengthening the assessment and reporting process of ICFR. Section 302 of SOX, effective on August 29, 2002 (SEC 2002), requires management to self-evaluate and conclude on the effectiveness of ICFR in periodic reports. Section 404, effective on November 15, 2004, requires that (1) company management report the effectiveness of internal control structure and procedures based on a formal assessment at the end of each fiscal year (Section 404(a)) and (2) their assessment be attested by external auditors (Section 404(b)).

Many executives contended against high compliance costs from Section 404 regulations¹ and a series of hearings were held to address concerns over disproportionately high compliance costs for smaller issuers (Cox 2007). To reduce compliance burden for small companies, Section 404 was implemented incrementally over time and bifurcated by size of public companies. Compliance with Section 404(a) was deferred until December 15, 2007 for non-accelerated filers (companies whose

¹ Collins, Pete, "Senior Executives Divided on Cost of Complying with Sarbanes-Oxley Act," PWC Management Barometer, July 2, 2003,

public float is less than 75 million as of six months before the fiscal year-end) and they were granted extensions of exemption from internal control audit six times. In 2009 and 2010, there were also keen debates as to whether a permanent exemption of Section 404(b) for non-accelerated filers should be included in the *Dodd-Frank Wall Street Reform and Consumer Protection Act*, part of the Obama financial regulatory reform plan of 2009. The final bill passed in the mid of 2010 by the Congress rules that non-accelerated filers do not have to comply with Section 404(b) requirement. The incremental and bifurcated implantation of Section 404 is illustrated in Figure 1. Since compliance with the requirements of Section 404 is costly, especially Section 404(b) (Hartman 2007; Eldridge and Kealey 2005; Kinney and Shepardson 2010), we address a crucial research question in this study: whether the burdensome requirements can improve the quality of public ICFR disclosure.

[Insert Figure 1 here]

One purpose of the internal control disclosure requirements is to provide financial statement users with a warning of potential accounting problems that could result from weak internal controls as well as the likelihood that financial statements are of questionable reliability and may be restated later due to internal control weaknesses. Despite the fact that the ICFR disclosure quality cannot be either observed or directly measured, we argue that high quality internal control disclosures should exhibit two features: (1) offering credibility when associated with clean internal control reports and (2) demonstrating relevance for material weaknesses discovered. As to the first feature, high-quality clean internal control reports should imply actually effective internal control systems and therefore the likelihood of

associated financial statements to be restated is expected to be lower. As to the second feature, disclosed material weaknesses should be relevant and severe enough to remind market participants of higher likelihood of financial restatements.

In some cases, only one of the two features can be achieved. For example, if the management and/or auditors are too conservative, they tend to overstate the severity of internal control problems and unduly conclude the internal control systems as ineffective. Their disclosed material weaknesses are less likely to be followed by subsequent restatements. However, suppose that the said management and/or auditors issue clean internal control reports, investors might become more confident about the quality of financial information. On the other hand, management may intentionally withhold the unfavorable information that there exist internal control problems in order not to decrease their equity-based compensation or damage their job security, or they may not be competent enough to perform adequate and sufficient internal control assessment procedures. In this case, their clean internal control disclosures are not credible while their disclosed material weaknesses can be a strong indicator of potential upcoming restatements. Even though the quality of ICFR public disclosures cannot be observed, we measure the quality in our research design by examining the afore-mentioned two features of public ICFR reports.

We compare the relative disclosure quality of ICFR reports issued by companies under different regulation regimes. Due to the incremental and bifurcated implementation of Section 404, we can identify three non-overlapping groups of U.S. companies which are respectively subject to one of the three levels of SOX regulations of ICFR (in descending order):

- (1) Full Section 404 – “accelerated filers” (companies whose public float is 75 million or more as of six months before the fiscal year-end) after November

15, 2004: Those companies are subject to Section 302, Section 404(a) and Section 404(b). That is, managers of those companies need to make a high effort preparing ICFR reports and ICFR audit is required.

(2) Section 404(a) – non-accelerated filers after December 15, 2007: Those companies are subject to Section 302 and Section 404(a). Only high management effort to prepare ICFR reports is required.

(3) Section 302 – all public companies prior to November 15, 2004 and non-accelerated filers in the period of November 15, 2004–December 15, 2007: Compliance of only Section 302 is required for this group. Neither high effort management ICFR reports nor ICFR audits are mandated.

Our evidence shows that full Section 404 can improve disclosure quality of internal control reports. Given clean ICFR reports, companies subject to full Section 404 are less likely to restate than those of Section 302 and Section 404(a) groups. If the conclusion is ineffective ICFR, companies of the full Section 404 group are more likely to restate than those of Section 302 or Section 404(a) group. Companies under full Section 404 regime are more capable of providing assurance (advance warning) of the reliability of their financial statements if they conclude their ICFR as effective (ineffective). In the additional test, we also find ICFR reports are of better disclosure quality if attested by brand name auditors. On the other hand, we find no supporting evidence that Section 404(a) only can improve the reporting quality of internal control disclosures. Given clean ICFR reports, the likelihood of financial restatements for Section 404 (a) group and that for Section 302 group is not significantly different. Similarly, given disclosed weak controls, the likelihood of restatements between the two groups is not significantly different either. In sum, the results indicate that companies subject to full Section 404 regulation can provide higher-quality internal

control reports than those subject to Section 302 or Section 404(a) regulation. The robustness tests indicate our results are not sensitive to size effect and the choices of measurement timing of financial restatements.

Our study makes several contributions. First, while most studies which investigate disclosure quality focus on financial statements, this paper contributes to the contemporaneous literature of the quality of public ICFR disclosures. By developing a measurement method based on the relation between disclosed ICFR effectiveness and financial restatements, we compare the relative quality of ICFR disclosures under differential ICFR regulation regimes. Second, we provide findings regarding whether auditor attestation can improve the quality of internal control disclosure. Although prior research suggests that financial audit can enhance the credibility of financial reports (Healy and Palepu 2001), there is little research investigating whether auditor attestation also has positive effects on the reporting quality of internal control disclosures. This study provides evidence that external auditor attestation can improve the quality of internal control disclosure. Finally, while non-accelerated filers are not required to comply with Section 404(b) according to the *Dodd-Frank Wall Street Reform and Consumer Protection Act*, the Government Accountability Office is requested to evaluate the effects of the exemption. This study provides useful evidence to policymakers for setting up future internal control auditing and reporting rulings.

The remainder of this paper is organized as follows. The next section presents the related literature and our hypotheses. Section 3 describes our research design and sample selection. Our results are presented in Section 4. Section 5 reports the sensitivity and additional tests. Finally, Section 6 concludes our research.

2. RELATED LITERATURE AND HYPOTHESIS

DEVELOPMENT

2.1 Regulations of Internal Control over Financial Reporting

Prior to the passage of SOX, public companies were required to disclose information about internal controls only when a Form 8-K was filed after an auditor change. Sections 302 and 404 of SOX are the first statutory legislation that requires public companies disclose the effectiveness of internal controls. Section 302, effective on August 29, 2002 (SEC 2002), requires managers of public companies to evaluate and conclude on the effectiveness of their internal control systems in periodic reports. Section 404 which became effective on November 15, 2004 contains two subsections. Under Section 404(a) managers are mandated to prepare reports of their assessments of the effectiveness of company internal control systems in annual reporting. Under Section 404(b) public accounting firms that audit the issuers' financial reports shall also attest to the management internal control assessments. Starting from August 27, 2007 external auditors are required to directly express an opinion on the effectiveness of internal control systems rather than attest to management assessment (SEC 2007b).

Section 404 is the most contentious part of SOX due to its high compliance costs. Some surveys and empirical evidence show that audit fees have increased substantially after Section 404 implementation (Hartman 2007; Eldridge and Kealey 2005). In order to be classified as non-accelerated filers which are exempted from compliance with Section 404, small companies intentionally kept their sizes small while large companies had incentives to become smaller (Gao et al. 2009). Some public companies also chose to go private (Engel et al. 2007) or go dark (Leuz et al. 2008) and foreign companies decided to delist from the U.S. stock markets to

circumvent the compliance of Section 404 (Piotroski and Srinivasan 2008).

Due to concerns over overwhelming burden of compliance with Section 404(b) on small companies, U.S. Securities and Exchange Commission repeatedly extended the deadline of compliance with Section 404(b) for non-accelerated filers. In 2009 and 2010, there were also keen debates as to whether a permanent exemption of Section 404(b) for non-accelerated filers should be granted in the *Dodd-Frank Wall Street Reform and Consumer Protection Act*. The House Financial Services Committee in the mid of 2010 finally approved an amendment to exempt small companies from Section 404(b). Although the dispute over the scope of Section 404 has been settled, understanding of the effects of different levels of regulation regime (i.e., from self-evaluation, formal assessment, to formal assessment plus an independent audit) on ICFR disclosure quality remains limited.

2.2 Related Research

Even though the objective of Section 404 is to provide meaningful disclosures to investors about the effectiveness of internal control systems (SEC 2007a), prior studies do not find consistent evidence about whether the stricter Section 404 regulation can improve the quality of ICFR reports. Some research papers suggest that the reliability of ICFR reports or disclosures may be negatively affected without auditor involvement in testing and reporting the effectiveness of internal controls (Hammersley et al., 2008; Bedard and Graham 2011; Bedard et al., 2009; Hermanson and Ye 2009). On the other hand, a few studies do not find evidence that ICFR audit provides additional benefits to internal control disclosures. Lu et al. (2010) find that public companies in Canada subject to SOX North, which is similar to Section 302, generally make credible internal control disclosures. Kinney and Shepardson (2011)

show that small companies which first implement unaudited internal control reports under Section 404(a) regime experience comparably significant increase in material weakness disclosure rates as first-time accelerated filers for the same year do. However, the increased disclosure rate of material weaknesses under Section 404(a) regime does not necessarily mean better quality of ICFR reports because it is uncertain whether or not the public can receive assurance (noteworthy warning) if they are provided clean (negative) ICFR reports. These studies which just take public ICFR reports at face value do not examine the disclosure quality of internal control reports. In this study, we go one step further to examine and compare the quality of ICFR reports under different regulation regimes in the view of the aforementioned two features.

Based on restating companies subject to Section 404 whose original misstatements are resulted from control weaknesses, Rice and Weber (2012) find that despite being subject to outside audit, only a small proportion of these companies disclose control weaknesses during their misstatement period. Although the purpose of both Rice and Weber (2012) and our study is to examine the disclosure quality of ICFR reports under the SOX regulation, there exist two major differences. First, Rice and Weber (2012) only focus on Section 404 and they do not compare the disclosure quality of ICFR under three levels of regulations. Our study investigates whether, relative to Section 302, stricter regulation such as Section 404(a) or full Section 404, can enhance the quality of public internal control disclosures. Second, since the sample of Rice and Weber (2012) only includes restating companies whose misstatements are linked to control weaknesses, the non-random sample may present a potential self-selection problem. We complement their study by drawing on a sample of restating and non-restating companies under three different regimes.

2.3 ICFR Reports and Restatements

Internal control over financial reporting is the process designed and maintained by management to provide reasonable assurance regarding the reliability of financial statements (PCAOB 2007). Transactions may not be recorded accurately or in accordance with generally accepted accounting principles if one or more internal control problems exist. Therefore, the effectiveness of a company's internal control system is a key determinant of the reliability of financial reporting (PCAOB 2004).

Prior research finds that a weak internal control system may negatively affect earnings quality through (1) intentionally biased accruals resulted from earnings management or (2) unintentional errors in accrual estimation (Ashbaugh-Skaife et al. 2008; Doyle et al. 2007a). Moreover, when material weaknesses exist in internal control systems, there is a reasonable possibility that a material misstatement of the entity's financial statements will not be timely prevented, or detected and corrected (PCAOB 2007; AICPA 2008). Thus, effective internal control systems can decrease the likelihood of material misstatements which lead to subsequent restatements. When management delivers faithful representation of the ICFR, the market participants should be able to infer more (less) credible financial information from effective (ineffective) ICFR reports.

2.4 The Disclosure Quality of ICFR Reports and Section 404(a)

Conceptually, to conclude internal control systems as ineffective, three conditions must be met: there exist deficiencies; managers discover internal control deficiencies and managers decide to disclose those deficiencies (Ashbaugh-Skaife et

al. 2007). Thus, management detection capability and disclosure incentives are important factors to high-quality ICFR reports. As to detection capability, material weaknesses may not be discovered if managers are not competent enough to apply adequate and sufficient assessment procedures of internal control systems. Section 404(a) requires management documentation which contains a formal assessment of internal controls. The assessment must be made according to publicly recognized internal controls framework, such as Committee of Sponsoring Organizations of the Treadway Commission (COSO) or Control Objectives for Information and related Technology (COBIT) framework. SEC have issued for managers a clear guidance of complying Section 404(a) (SEC 2007c) with the intent of bringing information regarding effectiveness of internal control systems into public view (SEC 2007d). The requirement of Section 404(a) may enhance detection capability of the management and mitigate the problem of incompetence of managers in examining internal control systems. Thus, we expect that internal control disclosures under Section 404(a) regime are of better quality than those under Section 302 regime. Our Hypothesis 1 is stated as follows:

Hypothesis 1: Compared with companies under Section 302 regime, companies under Section 404(a) regime are less (more) likely to restate their financial statements even if both their internal control systems are concluded as effective (ineffective).

2.5 The Disclosure Quality of ICFR Reports and Full Section 404

Some prior studies indicate disclosure incentives of control systems are associated with firm size, corporate governance, ownership structure, and firm growth (Bronson et al. 2006; Deumes and Knechel 2008). Thus, even if internal control

weaknesses are actually discovered, not all managers have equal level of incentives to issue high-quality ICFR reports. Besides, disclosure of internal control weaknesses is unpleasant news to investors which leads to negative stock market reaction (Hammersley et al. 2008; Beneish et al. 2008). Management compensation and turnover is also influenced by types of internal control reports issued (Wang 2011). As a result, managers may have incentives to withhold unfavorable information related to internal control systems in order not to decrease their equity-based compensation or harm their job security.

External auditors have professional knowledge, training and experience in examining internal control systems and they can help management discover internal control problems. Most internal control weaknesses are detected by auditors rather than by management and material weaknesses are more likely to be disclosed at the fourth quarter when auditors are on-site and when auditors have experience with internal control audits (Bedard and Grahma 2008; Hammersley et al. 2008). In addition, auditors are also regarded as an effective monitoring mechanism for corporate governance (Becker et al. 1998). A survey conducted by the U.S. SEC indicates that investors regard auditor attestation of internal control as an important measure given the auditors' expertise and independence in the evaluation of internal control systems (SEC 2009). We argue that managers may feel compelled to truthfully disclose weaknesses of their internal control systems if their disclosures need to be attested by external auditors under full Section 404 regime. Moreover, classic theories indicate that low cost signals are not credible (Spence 1973; Ross 1977; Comment and Jarrel 1991) and compliance cost under Section 404 regime is significantly higher than Section 302 and Section 404(a) regime (Kinney and Shepardson 2010). Thus, we posit that the quality of internal control disclosures will be enhanced if auditor

attestation is required. We state our Hypothesis 2 as:

Hypothesis 2a: Compared with companies under Section 302 regime, companies under full Section 404 regime are less (more) likely to restate their financial statements even if both their internal control systems are concluded as effective (ineffective).

Hypothesis 2b: Compared with companies under Section 404(a) regime, companies under full Section 404 regime are less (more) likely to restate their financial statements even if both their internal control systems are concluded as effective (ineffective).

3. RESEARCH DESIGN

3.1 Sample Selection

Our sample originates from Audit Analytics (Section 302 disclosure, Section 404 reports and restatements) and Compustat (financial information). We begin with 50,608 firm-year observations covered by both Compustat and Audit Analytics for the fiscal year 2002 through 2010. Next, we exclude foreign firms (n=692), firms which are not listed in NYSE, Nasdaq or AMEX (n=6,350), firms operating in financial sector or regulated industries (n=16,233), non-accelerated filers which voluntarily issue Section 404 reports (n=758) and firms with unavailable necessary data (n=1,659). Following the procedure, the final sample is composed of 24,916 firm-year observations.

3.2 Empirical Models and Variable Definition

We first test our hypotheses with the following logistic model:

$$\begin{aligned} \text{Prob}(\text{RESTAT}) = & \beta_0 + \beta_1 \text{EFFECTIVE} + \beta_2 \text{SOX404}(a) + \beta_3 \text{SOX404} + \\ & \beta_4 \text{EFFECTIVE} * \text{SOX404}(a) + \beta_5 \text{EFFECTIVE} * \text{SOX404} + \\ & \beta_6 \text{SIZE} + \beta_7 \text{ROA} + \beta_8 \text{LEV} + \beta_9 \text{PER} + \beta_{10} \text{MBR} + \\ & \beta_{11} \text{BIGN} + \delta \cdot \text{YEAR} + \varepsilon \end{aligned}$$

RESTAT is our dependent variable which equals one if the company restates its financial reports of the same year in which the internal control report is issued and zero otherwise. We exclude technical restatements and only consider financial restatements due to errors or frauds² because they are *de facto* reporting failures which are supposed to be prevented, or detected and corrected beforehand by effective internal control systems. *EFFECTIVE* is coded 1 if a company concludes its internal control system as effective in the 10-K filing and zero otherwise. The effectiveness of internal control systems are supposed to reflect the issuer's financial reporting quality. Therefore, we expect β_1 to be significantly negative.

SOX404(a) is coded one if the firm-year observation is from Section 404(a) group, that is, non-accelerated filers after December 15, 2007 and zero otherwise. *SOX404* is coded one if the firm-year observation is from the full Section 404 group, that is, accelerated filers after November 15, 2004 and zero otherwise. We expect that clean internal control disclosures under Section 404(a) regime are more credible than those under Section 302 regime according to Hypothesis 1. β_4 and $\beta_2 + \beta_4$ are expected to be significantly negative. If Section 404(a) can help provide noteworthy warnings that internal control systems are actually weak when managers claim their control systems as ineffective, we expect β_2 to be significantly positive. Under Hypothesis 2a full Section 404, which includes requirement of management ICFR

2 Besides errors and frauds, restatements can be a result of changes in accounting principles. These mandated restatements are not included in our analysis because they are essentially not reporting failures.

reports and ICFR audit, is posited to better improve the quality of ICFR disclosures than Section 302. β_5 and $\beta_3 + \beta_5$ are expected to be significantly negative and β_3 to be significantly positive. Similarly, under Hypothesis 2b if companies under full Section 404 regime issue better-quality ICFR reports than those under Section 404(a) regime, we expect $\beta_3 - \beta_2$ to be significantly positive and $\beta_3 + \beta_5 - \beta_2 - \beta_4$ to be significantly negative.

We include SIZE as a control variable, measured by the natural log of total assets whose unit is millions of dollars because prior studies indicate that large companies are more likely to make financial restatements (Baber et al. 2006). Prior studies (Kinney and McDaniel 1989; DeFond and Jiambalvo 1991) find that companies making less profit or having higher leverage are more likely to restate their financial statements. Thus, we include ROA and LEV as control variables. ROA equals net income before extraordinary items divided by total assets and LEV equals total liabilities divided by total assets. We also control firm growth using market to book ratio (MBR) and price to earnings ratio (PER) because Richardson et al. (2002) and Jagadison et al. (2005) show high-growth companies are more likely to restate their financial reports. Finally, Teoh and Wong (1993) and DeFond and Jiambalvo (1993) document that brand name (Big 4) auditors can provide better audit service than non-Big 4 auditors. We include BIGN as a control variable which equals one if the auditor is a brand name auditor and zero otherwise. YEAR is a set of dummy variables representing each of the fiscal years. To mitigate the effect of possible spurious outliers, we winsorize all of the continuous variables at the 0.01 and 0.99 percentiles.

4. RESULTS

4.1 Descriptive Statistics

Panel A of Table 1 provides temporal distribution of financial restatements and reported ineffective internal controls. The frequency of restatements dramatically rose in 2003, 2004 and 2005. It might be because the U.S. legal environment and the capital market became more stringent after the enactment of SOX. In the meantime, the frequency of reported ineffective internal controls also dramatically rose in 2004 and 2005. The possible reason is that the mandated management internal control reports and auditor attestation drive managers to discover and disclose internal control problems.

In Table 1, Panel B and Panel C present the descriptive statistics of variables for the full sample and subsamples subject to each SOX regulation regime respectively. Approximately 93% of the observations in our sample claim their controls are effective. The percentages of effective control systems for companies under Section 302, Section 404(a) and full Section 404 regimes are 95%, 82%, and 93%, respectively. Due to the incremental and bifurcated implementation of Section 404, it is not surprising that companies under full Section 404 regime are on average larger than those under Section 302 and Section 404(a) regimes. We notice that firms of Section 404(a) group make less profit than those of full Section 404 group (ROA of -42.77% versus -0.23%; p-value of 0.00). In addition, companies under Section 404(a) regime use more leverage and their P/E and M/B ratios are lower than those under full Section 404 regime. Finally, accelerated filers are more willing to hire brand name auditors than non-accelerated filers.

[Insert Table 1 here]

Table 2 presents the correlations among the variables of the full sample. Effective internal controls are negatively correlated with the occurrence of financial restatements. Except the coefficient between BIGN and SIZE, other significant coefficients of correlation are relatively small.

[Insert Table 2 here]

We employ chi-square tests to examine the relation between effective internal control systems and the likelihood of financial restatements. Among 1,815 companies which concluded ineffective internal controls in their 10-K filings, 796 (43.86%) companies restated their financial reports. On the other hand, among 23,101 companies which concluded effective internal controls, only 3,046 (13.19%) companies restated their financial statements. It shows that in general there exists a significant negative relation between the effectiveness of internal control systems and the likelihood of financial restatements ($\chi^2 \approx 1200$, $p < 0.000$). Besides, we find that the relation between the effectiveness of internal control systems and restatements under Section 404(a) regime ($\chi^2 = 152.78$, $p < 0.000$) is no more significant than the relation under Section 302 regime ($\chi^2 = 191.07$, $p < 0.000$). It does not support H1 that internal control reports under Section 404(a) regime are of better-quality than those under Section 302 regime.

Finally, we find that the magnitude of the relation between the effectiveness of internal control systems and financial restatements under full Section 404 regime ($\chi^2 \approx 1300$, $p < 0.000$) is stronger than that under both Section 302 and Section 404(a)

regimes. Among companies which disclosed ineffective controls, the percentages of companies which restated financial statements are 51.59%, 26.73% and 48.70% under Section 404, Section 404(a) and Section 302 regime respectively. On the other hand, among companies which disclosed effective controls, the percentages of companies which did not restate financial statements are 89.68%, 92.22% and 80.59% under Section 404, Section 404(a) and Section 302 respectively. In sum, the requirements of full Section 404 can improve the disclosure quality of internal control reports, supporting H2a and H2b.

4.2 Multivariate Empirical Results

Table 3 presents the logistic regression results for the base model and our main model in column 1 and 2 respectively. The Hosmer-Lemeshow tests show that both of the models have an appropriate fit ($p=0.342$ and $p=0.400$, respectively). For the base model, the significantly negative coefficient on EFFECTIVE demonstrates that public management ICFR reports are generally credible. Disclosed ICFR effectiveness suggests lower likelihood of financial restatements. *Ceteris paribus*, occurrences of effective controls decrease odds of financial restatements by 83.56%. Our result is consistent with Doyle et al. (2007a) who conclude that weak internal control environment may allow for potential unintentional clerical errors or intentional earnings management both of which result in poor earnings quality.

For our main model, the significantly negative coefficient on EFFECTIVE means that internal control disclosures under Section 302 regime are generally credible. Although the signs of the coefficients on SOX404(a) and EFFECTIVE*SOX404(a) are not consistent with our expectation, the coefficients are not significant. The joint

test shows that the negative sum of coefficients $\beta_2 + \beta_4$ conforms to our expectation but it is insignificant, either. Companies under Section 404(a) regime cannot provide more assurance (noteworthy warnings) if their conclusion as to internal controls is effective (ineffective). Thus, based on the above results we do not find supporting evidence that relative to Section 302, the requirement of Section 404(a) alone helps enhance the disclosure quality of ICFR reports.

The significantly positive coefficient on SOX 404 shows that given disclosure of ineffective internal control systems, the likelihood of restatements is higher for companies subject to full Section 404 than for companies subject to Section 302. The odds of financial restatements increase by 36.98% if the disclosures of ineffective controls are issued by companies subject to full Section 404 rather than Section 302. Users of financial reports can receive more noteworthy advance warnings of potential restatements resulted from weak controls under Section 404 regime. In addition, both β_5 and $\beta_3 + \beta_5$ are significantly negative, indicating given disclosures of effective controls, the likelihood of restatements is lower for companies subject to full Section 404 than for companies subject to Section 302. The odds of financial restatements decrease by 45.73% if the disclosures of effective controls are issued by companies subject to Section 404 rather than Section 302. In sum, we provide evidence that internal control reports are of better quality if they are issued by companies subject to full Section 404 than by companies subject to Section 302, supporting our H2a.

Finally, $\beta_3 + \beta_5 - \beta_2 - \beta_4$ is significantly negative, indicating that compared with Section 404(a), full Section 404 which additionally requires ICFR audit can achieve higher-level credibility for disclosures of effective internal controls. The odds of financial restatements decline by 21.42% if disclosures of effective controls are issued by companies under full Section 404 regime than those under Section 404(a) regime.

We also find $\beta_3 - \beta_2$ is significantly positive. Compared with Section 404(a) regime, the materiality of disclosures of ineffective controls under full Section 404 regime is stronger. The odds of financial restatements increase by 53.57% if the disclosures of ineffective controls are issued by companies subject to full Section 404. We provide supporting evidence for H2b that the disclosure quality of internal control reports becomes better if the reports need to be audited.

As to control variables for firm innate characteristics, the coefficient of SIZE is significantly positive, consistent with the finding of Baber et al. (2006). Besides, the significant positive coefficient of LEV indicates that as we expected companies having higher leverage are more likely to restate their financial statements. The coefficient of MBR is significant but the sign of the coefficient is negative. Other control variables are not significantly associated with the likelihood of financial restatements.

[Insert Table 3 here]

4.3 Comparison with the Results of Prior Studies

Based on our sample, the disclosure rates of material weaknesses among Section 302, Section 404(a) and Section 404 groups are 4.64%, 18.27% and 6.6%, respectively. Consistent with Kinney and Shepardson (2011), it is shown that the implementation of Section 404(a) for non-accelerated filers can significantly increase the disclosure rate of material weaknesses. In the further analysis, however, we find that the percentages of restatement companies in those disclosing material weaknesses are 49.74%, 26.83%, 51.60% for Section 302, Section 404(a) and Section 404 groups,

respectively. On the other hand, the percentages of restatement companies in those disclosing no material weaknesses are 19.35%, 7.77%, 10.33% for Section 302, Section 404(a) and Section 404 groups, respectively. It is noticed that managers of non-accelerated filers in the initial years of implementation of Section 404(a) seem to overstate internal control problems. Although initial implementation of Section 404(a) can drive management to disclose internal control problems, based on our results, it cannot improve ICFR disclosure quality as much as Section 404.

Rice and Weber (2011) indicate that under Section 404 regime, only a small group of restatement firms disclose material weaknesses during their restatements periods and argue that Section 404 is ineffective. Consistent with Rice and Weber (2011) we also find only 26.11% of restatement firms disclose material weaknesses during the restatement periods for Section 404 group. However, this percentage for Section 302 group is 11.12%, which is even lower than Section 404 group ($\chi^2 \approx 129$, $p < 0.000$). The percentage for Section 404(a) group is 43.57%, the highest among the three groups. It may be because management inclines to overstate material weaknesses during the initial implementation years of Section 404(a). Based on aforementioned two disclosure features, our evidence shows that compared with Section 302, Section 404 which requires management ICFR report and ICFR audit, does provide incremental benefits in improving ICFR disclosure quality.

5. SENSITIVITY AND ADDITIONAL TESTS

5.1 Periods of Financial Restatements

Some may argue that internal control problems discovered in the end of a year

cannot be corrected in a short time and might lead to financial restatements of following fiscal years. Others may argue internal control problems generally have existed a long time prior to their disclosures. Thus, we alter the definition of *RESTAT* and code *RESTAT_PS* one if a company restates its current year or prior year financial reports, and zero otherwise. We also code *RESTAT_SF* one if a company restates its current year or next year financial reports, and zero otherwise. The results with the alternative dependent variables are presented in Table 4 and are quite similar with our main results. Our results are not sensitive to choices of the period of restatements.

[Insert Table 4 here]

5.2 Size Effects

Due to the incremental and bifurcated implementation of Section 404, SOX 404(a) and SOX 404 variables are also proxies for market values of companies. The first, second and third quartile of the market value variable in our sample is around 99.62, 373.90 and 1382.01 million, respectively, showing that our sample contains quite a few companies subject to full Section 404 that are much larger than non-accelerated filers. It is our concern that some innate characteristics of these extreme large companies are very different from those of smaller companies and these characteristics may affect the quality of ICFR disclosure. Although we have controlled for some firm characteristics in our test, it is still possible that our results are attributed to the effects of other firm characteristics that cannot be directly observed or measured.

To address the concern, we use a subsample including companies from the period 2002-2003 in which all companies are subject to Section 302. To examine if

the innate characteristics associated with size jointly have an effect on the ICFR disclosure quality, we control the regulation effect and interact *SIZE* with *EFFECTIVE* or *INEFFECTIVE* (equal 1 if a firm concludes its internal controls as ineffective) to estimate the regression models below:

$$\text{Prob}(\text{RESTAT}) = \beta_0 + \beta_1 \text{EFFECTIVE} + \beta_2 \text{EFFECTIVE} * \text{SIZE} + \beta_3 \text{SIZE} + \beta_4 \text{ROA} + \beta_5 \text{LEV} + \beta_6 \text{PER} + \beta_7 \text{MBR} + \beta_8 \text{BIGN} + \delta \cdot \text{YEAR} + \varepsilon$$

$$\text{Prob}(\text{RESTAT}) = \beta_0 + \beta_1 \text{INEFFECTIVE} + \beta_2 \text{INEFFECTIVE} * \text{SIZE} + \beta_3 \text{SIZE} + \beta_4 \text{ROA} + \beta_5 \text{LEV} + \beta_6 \text{PER} + \beta_7 \text{MBR} + \beta_8 \text{BIGN} + \delta \cdot \text{YEAR} + \varepsilon$$

The result (not tabulated) shows that both coefficients on *EFFECTIVE*SIZE* and *INEFFECTIVE*SIZE* are not significant and we do not find any evidence that the quality of ICFR disclosures differs with firm size.

5.3 Impact of 2008 Financial Crisis

Section 404 (a) became effective for non-accelerated filers starting December 15, 2007 during the period of 2007–2008 financial crisis. The crisis reduced consumer wealth, increased unemployment rates and slowed down economic activities. In addition to financial institutions, the majority companies of other industries also performed quite poorly during the crisis. High proportion of our sample period for Section 404(a) non-accelerated filers overlaps the time span of the crisis. Since Doyle et al. (2007b) document that financially weaker companies are more likely to report internal control weaknesses, it may explain why we find companies under Section 404(a) regime inclined to overstate material weaknesses. Besides, it remains unknown whether companies under Section 404 regime also exhibit the same tendency during the crisis.

We control the effect of time periods by drawing a sample covering observations in 2007, 2008 and 2009 to compare the ICFR disclosure quality between Section 404(a) group and Section 404 group. The model below is estimated and we find β_2 is significantly positive, meaning that even in the period of financial crisis, companies under Section 404 regime do not tend to overstate material weaknesses because those accelerated filers reporting ineffective internal controls still show higher likelihood of restatements than their non-accelerated counterparts. So we can find that the difference in regulation regimes plays an important role in ICFR disclosure quality even during economic downturn.

$$\text{Prob}(\text{RESTAT}) = \beta_0 + \beta_1 \text{EFFECTIVE} + \beta_2 \text{SOX404} + \beta_3 \text{EFFECTIVE} * \text{SOX404} + \beta_4 \text{SIZE} + \beta_5 \text{ROA} + \beta_6 \text{LEV} + \beta_7 \text{PER} + \beta_8 \text{MBR} + \beta_9 \text{BIGN} + \delta \cdot \text{YEAR} + \varepsilon$$

5.4 Auditor Attribute

Numerous studies following the theoretical foundation of DeAngelo (1981) and Dopuch and Simunic(1980) indicate that brand name auditors enhance financial reporting quality (Palmrose 1988; Becker et al. 1998; Khurana and Raman 2004; Behn et al. 2008). However, no extant research investigates the association between the quality of ICFR reports and brand name auditors. Brand name auditors may provide better-quality ICFR audits because they have more clients subject to full Section 404 and accumulate more experience in ICFR audits. Brand name auditors also have higher incentives to protect and invest in reputation (Dopuch and Simunic 1980). To address this question, we eliminate firms subject to Section 302 and Section 404(a) from our sample and keep only firms subject to full Section 404. We interact

BIGN with EFFECTIVE and estimate the regression model below:

$$\text{Prob}(\text{RESTAT}) = \beta_0 + \beta_1 \text{BIGN} + \beta_2 \text{EFFECTIVE} + \beta_3 \text{EFFECTIVE} * \text{BIGN} + \beta_4 \text{SIZE} + \beta_5 \text{ROA} + \beta_6 \text{LEV} + \beta_7 \text{PER} + \beta_8 \text{MBR} + \delta \cdot \text{YEAR} + \varepsilon$$

The results are presented in Table 5. The significantly positive coefficient of BIGN and the significantly negative coefficient of EFFECTIVE*BIGN show that the quality of ICFR reports can be enhanced through ICFR audit by brand name auditors.

[Insert Table 5 here]

5.5 Remediation Effect

Concluding the ICFR as ineffective may drive managers to remediate discovered internal control problems. Small companies whose organizations are less complex may be able to remediate control weaknesses more easily and quickly. Instead of blaming non-accelerated filers for overstating material weaknesses, it may be that companies under Section 404(a) regime remediate their control weaknesses more quickly and hence do not need to restate financial statement afterwards. Thus, ineffective ICFR systems disclosed by companies under Section 404(a) may not necessarily lead to subsequent restatements. To resolve the concern, we employ chi-square tests to see if there is a relation between regulation regimes and remediation of weaknesses. We find companies under Section 404 regime are more likely than companies under Section 404(a) regime to remediate weaknesses within one year ($\chi^2 \approx 91.61$, $p < 0.000$). As a result, we do not find evidence to support the concern that companies under Section 404(a) regime more quickly remediate their control weaknesses and reduce the likelihood of restatements.

5.6 Voluntary Regime Shift

Our sample covers firm-year observations between fiscal year 2002 and 2010 and there are two mandatory regime shifts in the sample period, i.e. implementation of Section 404 for accelerated filers in 2004 and implementation of Section 404(a) for non-accelerated filers in 2007. Except the mandatory regime shifts, some companies increase (decrease) its market float and transformed themselves into accelerated files (non-accelerated filers). The regime change may due to capital need for growth, circumvention of burdensome Section 404 and so on. There is a concern that incentives beyond the mandatory regime shift may have implications for our findings. To address the concern, we drop companies which shifted regimes voluntarily from the sample and re-estimate our model. The results (not tabulated) are quite similar to those in Table 3.

6. CONCLUSION

We examine the differential effects of alternative regulations of internal control over financial reporting (ICFR) on the quality of ICFR disclosures. We document that companies under full Section 404 regime provide better-quality internal control reports than those subject to Section 302 regime or Section 404(a) regime. However, we find no supporting evidence that companies under Section 404(a), relative to Section 302 regime, show better quality of ICFR reports. Section 404(a) has been effective for only a few years and therefore it restricts our sample size of companies subject to Section 404(a). Future research to re-examine the effect of Section 404 (a) on the quality of ICFR disclosures may be worthwhile.

By developing measurements based on the relation between ICFR disclosure quality and financial restatements, this study concludes that external auditor attestation can improve the quality of internal control disclosure. We also find the quality of ICFR reports further enhanced by brand name auditors. While non-accelerators do not have to comply with SOX 404(b) according to the *Dodd-Frank Wall Street Reform and Consumer Protection Act*, the Government Accountability Office are requested to evaluate the effects of the exemption. This study has direct implications for legislators and regulators in setting up related rulings in the future.

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FIGURE 1
The Incremental and Bifurcated Implantation of Section 404

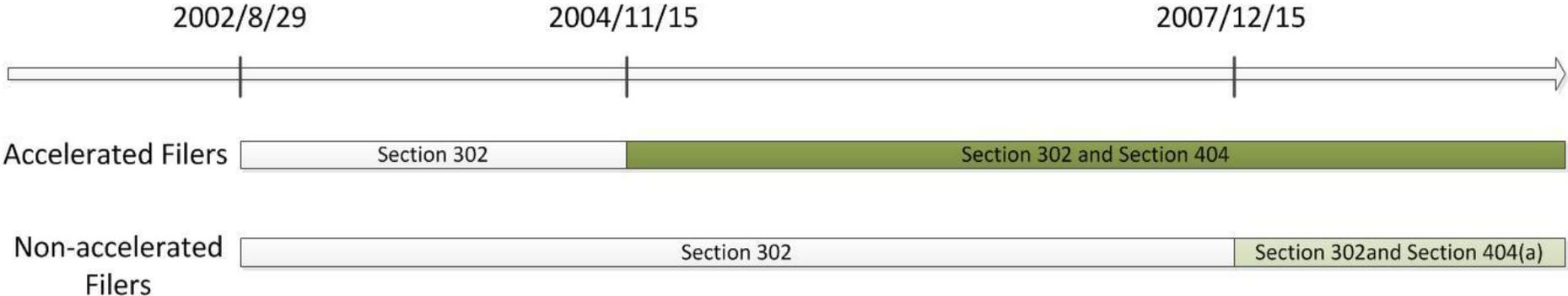


TABLE 1
Descriptive Statistics

Panel A: Temporal distribution of restatements and ineffective controls

Year	Restating Firms		Ineffective Control Firms	
	Number	Freq. (%)	Number	Freq. (%)
2002	384	9.99	12	0.66
2003	643	16.74	45	2.48
2004	696	18.12	270	14.88
2005	595	15.49	342	18.84
2006	429	11.17	268	14.77
2007	329	8.56	240	13.22
2008	304	7.91	210	11.57
2009	269	7.00	218	12.01
2010	193	5.02	210	11.57
Total	3842	100.00	1815	100.00

Panel B: Descriptive Statistics of Regression Variables

Variable ^a	Mean	Median	Std. Dev.	Min	Max
EFFECTIVE	0.93	1.00	0.26	0.00	1.00
SIZE	5.78	5.78	2.04	0.42	10.57
ROA(%)	-7.80	3.37	41.88	-297.95	30.02
LEV	0.50	0.45	0.35	0.05	2.56
PER	11.80	13.44	49.86	-221.20	254.25
MBR	2.88	2.05	4.73	-15.55	30.03
BIGN	0.75	1.00	0.43	0.00	1.00

Panel C: Descriptive Statistics for Firms Subject to Different ICFR Regulations

Variable	Section 302 only (n=8320)			Section 404(a) only (n=2835)			Full Section 404 (n=13761)			F-test of Mean Difference ^b	
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	F Statistic	P-value

EFFECTIVE	0.95	1.00	0.21	0.82	1.00	0.39	0.93	1.00	0.25	312.62***	0.00
SIZE	5.21	5.02	1.90	3.22	3.36	1.43	6.65	6.55	1.63	5496.81***	0.00
ROA(%)	-8.42	2.42	38.45	-42.77	-6.76	85.03	-0.23	4.53	21.97	1345.05***	0.00
LEV	0.48	0.44	0.34	0.62	0.43	0.63	0.48	0.46	0.27	208.92***	0.00
PER	10.72	12.47	51.84	2.12	-1.04	35.37	14.44	15.76	50.92	75.15***	0.00
MBR	2.86	1.97	4.71	2.11	1.17	5.99	3.06	2.23	4.43	48.37***	0.00
BIGN	0.77	1.00	0.42	0.20	0.00	0.40	0.86	1.00	0.35	3527.90***	0.00

^a Variable Definitions:

RESTATE = financial restatement; 1 if a company restated its financial statements of the same year in which the internal control report is issued, and 0 otherwise;

EFFECTIVE = effective controls; 1 if a company concludes its internal control system as effective in the 10-K filings and 0 otherwise;

SIZE = firm size; the natural log of a company's total assets (unit of total assets: millions of dollars)

ROA = return on assets (net income before extraordinary items divided by total assets);

LEV = leverage; total liabilities divided by total assets;

PER = price earnings ratios; year-end closing price divided by earnings per share;

MBR = market to book ratios; market value divided by book value;

BIGN = audit firm type; 1 if a company is audited by a Big-N auditor, and 0 otherwise

^b ***, **, * significant at a p-value no larger than 0.01, 0.05, or 0.1, respectively

TABLE 2
Pearson / Spearman Correlation Matrix^{abc}

	RESTATE	EFFEC TIVE	SIZE	ROA	LEV	PER	MBR	BIGN	SOX 404(a)	SOX 404
RESTATE		-0.221	0.003	-0.049	0.036	0.005	-0.026	0.014	-0.041	-0.073
EFFECTIVE	-0.221		0.125	0.113	-0.044	0.067	0.048	0.146	-0.153	0.028
SIZE	-0.001	0.138		0.333	0.280	0.269	0.048	0.518	-0.433	0.485
ROA	-0.007	0.146	0.453		-0.132	0.515	0.252	0.142	-0.193	0.198
LEV	0.033	-0.108	-0.011	-0.444		-0.082	-0.044	0.081	0.003	0.028
PER	0.006	0.027	0.104	0.128	-0.059		0.173	0.149	-0.180	0.144
MBR	-0.020	0.027	-0.031	0.015	-0.139	0.015		0.110	-0.170	0.139
BIGN	0.014	0.146	0.519	0.229	-0.055	0.052	0.022		-0.462	0.263
SOX 404(a)	-0.041	-0.153	-0.449	-0.299	0.128	-0.070	-0.059	-0.462		-0.398
SOX 404	-0.073	0.028	0.475	0.201	-0.053	0.059	0.042	0.263	-0.398	

^a Pearson correlation are presented below the diagonal and Spearman correlation are presented above.

^b Correlations significant at the two-tailed 0.05 level are in bold fonts.

^c Variable Definitions:

RESTATE = financial restatement; 1 if a company restated its financial statements of the same year in which the internal control report is issued, and 0 otherwise;

EFFECTIVE = effective controls; 1 if a company concludes its internal control system as effective in the 10-K filings and 0 otherwise;

SIZE = firm size; the natural log of the company's total assets (unit of total assets: millions of dollars)

ROA = return on assets (net income before extraordinary items divided by total assets);

LEV = leverage; total liabilities divided by total assets;

PER = price earnings ratios; year-end closing price divided by earnings per share;

MBR = market to book ratios; market value divided by book value;

BIGN = audit firm type; 1 if a company is audited by a Big-N auditor, and 0 otherwise

TABLE 3
Logistic Regression of Restatements on Disclosed Effectiveness and Internal Control Regulations

$$\text{Prob}(\text{RESTAT}) = \beta_0 + \beta_1 \text{EFFECTIVE} + \beta_2 \text{SOX404}(a) + \beta_3 \text{SOX404} + \beta_4 \text{EFFECTIVE} * \text{SOX404}(a) + \beta_5 \text{EFFECTIVE} * \text{SOX404} + \beta_6 \text{SIZE} + \beta_7 \text{ROA} + \beta_8 \text{LEV} + \beta_9 \text{PER} + \beta_{10} \text{MBR} + \beta_{11} \text{BIGN} + \delta \cdot \text{YEAR} + \varepsilon$$

Variable ^a	Sign Predictions	Base Model		Main Model	
		Coeff. Estimate	p-value	Coeff. Estimate	p-value
EFFECTIVE	—	-1.805	0.000	-1.479	0.000
SOX404(a)	+			-0.114	0.464
SOX404	+			0.315	0.013
EFFECTIVE *SOX404(a)	—			0.059	0.728
EFFECTIVE *SOX404	—			-0.611	0.000
SIZE	+	0.040	0.001	0.054	0.000
ROA(%)	—	0.001	0.365	0.000	0.696
LEV	+	0.204	0.001	0.215	0.000
PER	+	0.000	0.361	0.000	0.314
MBR	+	-0.010	0.013	-0.009	0.020
BIGN	—	-0.046	0.387	-0.022	0.684
Intercept	?	-1.403	0.000	-1.581	0.000
YEAR	?	(omitted)		(omitted)	
Joint Test					
$\beta_2 + \beta_4$	—			-0.055	0.607
$\beta_3 + \beta_5$	—			-0.296	0.000
$\beta_3 - \beta_2$	+			0.429	0.002
$\beta_3 + \beta_5 - \beta_2 - \beta_4$	—			-0.241	0.014
Pseudo R2		0.083		0.085	
Hosmer-Lemeshow p-value ^b		0.342		0.400	
# of observations		24916		24916	

^a Variable Definitions:

RESTATE = financial restatement; 1 if a company restated its financial statements of the same year in which the internal control report is issued, and 0 otherwise;

Effective = effective controls; 1 if a company concludes its internal control system as effective in the 10-K filings and 0 otherwise;
SIZE = firm size; the natural log of the company's total assets (unit of total assets: millions of dollars)
ROA = return on assets (net income before extraordinary items divided by total assets);
LEV = leverage; total liabilities divided by total assets;
PER = price earnings ratios; year-end closing price divided by earnings per share;
MBR = market to book ratios; market value divided by book value;
BIGN = audit firm type; 1 if a company is audited by a Big-N auditor, and 0 otherwise

^bThe Hosmer-Lemeshow test is to measure the goodness of fit of the logistic regression model by comparing the expected and observed frequencies across intervals that are determined by the probability estimates derived from the model. The null hypothesis is stated as the model has an appropriate fit.

TABLE 4
Logistic Regression of Restatements on Disclosed Effectiveness and Internal Control Regulations

$$\text{Prob}(\text{RESTAT}) = \beta_0 + \beta_1 \text{EFFECTIVE} + \beta_2 \text{SOX404}(a) + \beta_3 \text{SOX404} + \beta_4 \text{EFFECTIVE} * \text{SOX404}(a) + \beta_5 \text{EFFECTIVE} * \text{SOX404} + \beta_6 \text{SIZE} + \beta_7 \text{ROA} + \beta_8 \text{LEV} + \beta_9 \text{PER} + \beta_{10} \text{MBR} + \beta_{11} \text{BIGN} + \delta \cdot \text{YEAR} + \varepsilon$$

Variable ^a	Sign Predictions	RESTATE_PS ^b		RESTATE_SF ^c	
		Coeff. Estimate	p-value	Coeff. Estimate	p-value
EFFECTIVE	—	-1.565	0.000	-1.469	0.000
SOX404(a)	+	-0.300	0.043	-0.164	0.278
SOX404	+	0.301	0.019	0.242	0.056
EFFECTIVE *SOX404(a)	—	0.284	0.070	0.202	0.211
EFFECTIVE *SOX404	—	-0.516	0.000	-0.478	0.000
SIZE	—	0.026	0.019	0.022	0.064
ROA(%)	—	0.001	0.150	0.000	0.378
LEV	+	0.293	0.000	0.268	0.000
PER	+	-0.000	0.220	-0.000	0.799
MBR	+	-0.012	0.001	-0.008	0.024
BIGN	—	-0.083	0.079	-0.077	0.123
Intercept	?	-0.672	0.000	-1.319	0.000
YEAR	?	(omitted)		(omitted)	
Joint Test					
$\beta_2 + \beta_4$	—	-0.016	0.852	0.037	0.693
$\beta_3 + \beta_5$	—	-0.215	0.000	-0.237	0.000
$\beta_3 - \beta_2$	+	0.601	0.000	0.406	0.002
$\beta_3 + \beta_5 - \beta_2 - \beta_4$	—	-0.199	0.011	-0.274	0.002
Pseudo R2		0.070		0.082	
Hosmer-Lemeshow p-value ^d		0.483		0.496	
# of observations		24916		24916	

^{abc} Variable Definitions:

RESTATE_PS = financial restatement; 1 if a company restated its financial statements of the same year in which the internal control report is issued or prior year, and 0 otherwise;

RESTATE_SF = financial restatement; 1 if a company restated its financial statements of the same year in which the internal control report is issued or next year, and 0 otherwise;
EFFECTIVE = effective controls; 1 if a company concludes its internal control system as effective in the 10-K filings and 0 otherwise;
SIZE = firm size; the natural log of the company's total assets (unit of total assets: millions of dollars)
ROA = return on assets (net income before extraordinary items divided by total assets);
LEV = leverage; total liabilities divided by total assets;
PER = price earnings ratios; year-end closing price divided by earnings per share;
MBR = market to book ratios; market value divided by book value;
BIGN = audit firm type; 1 if a company is audited by a Big-N auditor, and 0 otherwise

^d The Hosmer-Lemeshow test is to measure the goodness of fit of the logistic regression model by comparing the expected and observed frequencies across intervals that are determined by the probability estimates derived from the model. The null hypothesis is stated as the model has an appropriate fit.

TABLE 5
Logistic Regression of Restatements on Disclosed Effectiveness and Brand Name Auditors

$$\text{Prob}(\text{RESTAT}) = \beta_0 + \beta_1 \text{BIGN} + \beta_2 \text{EFFECTIVE} + \beta_3 \text{EFFECTIVE} * \text{BIGN} + \beta_4 \text{SIZE} + \beta_5 \text{ROA} + \beta_6 \text{LEV} + \beta_7 \text{PER} + \beta_8 \text{MBR} + \delta \cdot \text{YEAR} + \varepsilon$$

<u>Variable^a</u>	<u>Sign Predictions</u>	<u>Coeff. Estimate</u>	<u>p-value</u>
BIGN	+	0.509	0.002
EFFECTIVE	-	-1.578	0.000
EFFECTIVE * BIGN	-	-0.573	0.001
SIZE	+	-0.046	0.024
ROA(%)	-	-0.001	0.314
LEV	+	0.241	0.021
PER	+	0.001	0.025
MBR	+	-0.013	0.031
Intercept	?	-1.052	0.000
YEAR	?	(omitted)	
 <u>Joint Test</u>			
$\beta_1 + \beta_3$	-	-0.064	0.479
 Pseudo R2			
		0.108	
 Hosmer-Lemeshow			
p-value ^b		0.795	
# of observations		13761	

^a Variable Definitions:

RESTATE = financial restatement; 1 if a company restated its financial statements of the same year in which the internal control report is issued, and 0 otherwise;

Effective = effective controls; 1 if a company concludes its internal control system as effective in the 10-K filings and 0 otherwise;

SIZE = firm size; the natural log of the company's total assets (unit of total assets: millions of dollars)

ROA = return on assets (net income before extraordinary items divided by total assets);

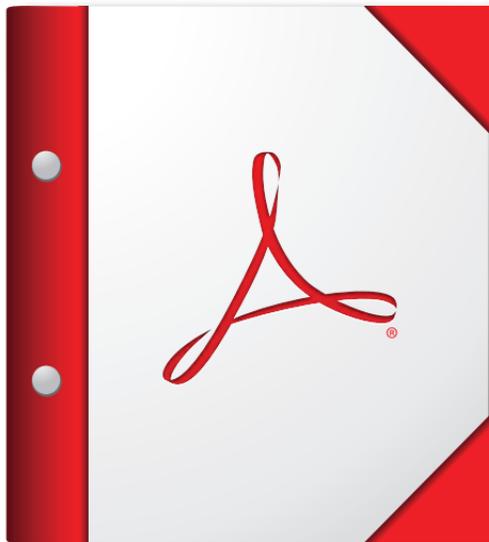
LEV = leverage; total liabilities divided by total assets;

PER = price earnings ratios; year-end closing price divided by earnings per share;

MBR = market to book ratios; market value divided by book value;

BIGN = audit firm type; 1 if a company is audited by a Big-N auditor, and 0 otherwise

^b The Hosmer-Lemeshow test is to measure the goodness of fit of the logistic regression model by comparing the expected and observed frequencies across intervals that are determined by the probability estimates derived from the model. The null hypothesis is stated as the model has an appropriate fit.



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國科會補助計畫衍生研發成果推廣資料表

日期:2012/08/04

國科會補助計畫	計畫名稱: 內控缺失查核與內控缺失揭露可信度之研究
	計畫主持人: 周玲臺
	計畫編號: 100-2410-H-004-047- 學門領域: 會計
無研發成果推廣資料	

100 年度專題研究計畫研究成果彙整表

計畫主持人：周玲臺		計畫編號：100-2410-H-004-047-				計畫名稱：內控缺失查核與內控缺失揭露可信度之研究	
成果項目		量化			單位	備註（質化說明：如數個計畫共同成果、成果列為該期刊之封面故事...等）	
		實際已達成數（被接受或已發表）	預期總達成數（含實際已達成數）	本計畫實際貢獻百分比			
國內	論文著作	期刊論文	0	0	100%	篇	國科會結案報告
		研究報告/技術報告	1	1	100%		
		研討會論文	0	0	100%		
		專書	0	0	100%		
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力（本國籍）	碩士生	2	2	100%	人次	二位碩士學生（其中之一未領取本計畫之工讀金）皆參與每週固定的研究團隊會議，共同學習討論並協助計畫進行
		博士生	2	2	100%		
		博士後研究員	0	0	100%		
		專任助理	0	0	100%		
國外	論文著作	期刊論文	0	1	100%	篇	根據參加國際會議發表後得到的寶貴意見，對論文持續進行改善，目前告一段落，已投稿至 Accounting Horizons（國科會國際期刊評比 A 級）
		研究報告/技術報告	0	0	100%		
		研討會論文	3	3	100%		

						Meeting, AAA NE Region Meeting 及 2013 AAA Audit Section Meeting 接受發表
		專書	0	0	100%	章/本
	專利	申請中件數	0	0	100%	件
		已獲得件數	0	0	100%	
	技術移轉	件數	0	0	100%	件
		權利金	0	0	100%	千元
	參與計畫人力 (外國籍)	碩士生	0	0	100%	人次
		博士生	0	0	100%	
		博士後研究員	0	0	100%	
		專任助理	0	0	100%	

其他成果 (無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。)	本計畫博士生研究助理之一已被接受獲邀參加 2013 AAA Auditing Section Doctoral Consortium, 預期亦可對本論文的送審與發表有所助益。					
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	成果項目	量化	名稱或內容性質簡述
科教處計畫加填項目	測驗工具(含質性與量性)	0	
	課程/模組	0	
	電腦及網路系統或工具	0	
	教材	0	
	舉辦之活動/競賽	0	
	研討會/工作坊	0	
	電子報、網站	0	
	計畫成果推廣之參與(閱聽)人數	0	

國科會補助專題研究計畫成果報告自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現或其他有關價值等，作一綜合評估。

1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估

達成目標

未達成目標（請說明，以 100 字為限）

實驗失敗

因故實驗中斷

其他原因

說明：

2. 研究成果在學術期刊發表或申請專利等情形：

論文： 已發表 未發表之文稿 撰寫中 無

專利： 已獲得 申請中 無

技轉： 已技轉 洽談中 無

其他：（以 100 字為限）

本研究報告之學術論文除在 2012 AAA Annual Meeting 與 2013 AAA Auditing Section Meeting 中被接受發表外，並已被接受在 AAA Northeast Region Meeting 之 CURRENT SESSIONS 中進行口頭報告。目前完成進一步的修訂，已送往 Accounting Horizons（國科會國際期刊評比 A 級）期刊投稿中。

3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）（以 500 字為限）

美國國會於 2002 年通過沙氏法(Sarbanes-Oxley Act)以加強對公司治理及會計師之管制，其中 302 及 404 條為首度明文規定企業必須定期於財務報告中公開揭露與財務有關之內部控制之資訊。由於 404(a)條文要求管理階層必須對內部控制出具完整的評估報告，而 404(b)條文規定會計師必須對內部控制有效性進行查核並出具意見，對於企業而言，特別是規模較小的公司，遵行 404 條規定會耗用許多成本，因而引發了許多爭議，故美國證管會延後了小型公司 404(a)條適用時間，並於 2012 年免除小型公司內控查核的要求，因此整體 404 條實施時程可以辨別出三種不同程度的管制。

儘管 404 條規定存有成本過高疑慮，然如此高成本之管制是否能增進內部控制揭露品質仍不清楚，過去研究或僅討論缺失揭露與否，或僅討論大型公司發行人適用 404 條之效果。本研究提出內部控制揭露品質衡量方法，並比較在三種不同程度管制下內部控制揭露品質是否有差異。本研究發現遵行完整 404 條規定(包含管理階層內控評估報告及內控查核)之公司相較於僅需出具管理階層評估報告或不受 404(b)條管制的公司，遵行完整 404 條規定的公司提供了較高品質的內部控制揭露。本研究發現內控揭露資訊查核價值的證據，不僅在學術或是政策制定方面，皆能提供相當的貢獻。

本研究目前業已於 2012 美國會計學會年會、美國會計學會東北區域會議發表，並將

於 2013 年一月舉行之美國會計學會審計學門會議中發表。目前已投稿至國際知名期刊 Accounting Horizons。