

**An Analysis of the Costs and Benefits of Auditor Attestation of Internal Control over
Financial Reporting**

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Abstract: We study the costs and benefits of Section 404(b) of the 2002 Sarbanes-Oxley Act. Section 404(b) requires a company's auditor to audit management's assessment of internal control over financial reporting (ICFR) for complying filers. Using a sample of U.S. firms during 2007-2013, we analyze the effects of Section 404(b) on compliance benefits (proxied by cost of debt), compliance costs (proxied by audit fees), and the net compliance benefit (proxied by Tobin's q) using firm fixed effects regressions. Our results suggest that Section 404(b) decreases complying filers' cost of debt while increasing compliance costs modestly. Importantly, there is an economically significant net compliance benefit since our results indicate an average increase in valuation premiums of 18.53% for filers complying with Section 404(b) relative to filers not complying with Section 404(b). Our findings suggest that Dodd-Frank Act may be premature in exempting non-accelerated filers from Section 404(b).

Keywords: Section 404(b); auditor attestation of internal control over financial reporting; internal control audit.

Data Availability: Data used in this study are available from the sources identified in the study.

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1. Introduction

The Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) took effect on July 21, 2010, permanently exempting non-accelerated filers (issuers whose public float is under \$75million) from Section 404(b) of the Sarbanes-Oxley Act of 2002 (hereafter, SOX), which requires a company's external auditor to attest to, and report on management's assessment of internal control over the financial report (hereafter, ICFR).¹ From the implementation of the original provision to the exemption for non-accelerated filers, Section 404(b) has engendered controversy and debate. Ball (2009) observes that we are still not clear today about the value of the 1933-1934 Securities Acts. We are certainly far from understanding the effects of Section 404(b).

We analyze the effects of Section 404(b) on compliance benefits (proxied by cost of debt), compliance costs (proxied by audit fees), and the net compliance benefit (proxied by Tobin's q) using firm fixed effects regressions.² Our purpose is to determine whether there is a net compliance benefit, after examining the benefits and costs of Section 404(b), and thus to provide evidence on whether the Dodd-Frank exemption is justifiable.

Section 404(a) requires management to assess the effectiveness of a company's ICFR and report any deficiencies (management reports). On the other hand, Section 404(b) requires the company's auditor to audit management's assessment of ICFR (internal control audits or Section 404(b) audits). Section 404(a) and Section 404(b) became effective on November 15,

¹ We use SOX to stand for the Sarbanes-Oxley Act of 2002 and Section 302 to stand for Section 302 of SOX. Section 404(a), Section 404(b), and Section 404(c) are similarly termed.

² The appendix in the Daske et al. (2008) provides a detailed discussion regarding the theoretical concept and measurement of Tobin's q .

2004 for accelerated filers (issuers whose public float is \$75million or more). For non-accelerated filers (issuers whose public float is under \$75million), Section 404(a) became effective on December 15, 2007 after repeated delays and Section 404(b) became exempt on July 21, 2010 by the Dodd-Frank Act after even more delays. The biggest reason behind multiple delays and eventual exemption of Section 404(b) for non-accelerated filers is the compliance cost, which is high and especially for small companies.

A company's filing status is determined by its public float, which is the "aggregate market value of voting and non-voting common equity held by non-affiliates of the issuer" (SEC release 33-8644). Public float is measured on the "last business day of the issuer's most recently completed second fiscal quarter" (SEC release 33-8644). Non-accelerated filers whose public float breaks the \$75 million threshold automatically change their status and are required to comply with Section 404(b) during that fiscal year. In contrast, accelerated filers can become non-accelerated when their public float falls below \$50 million during their fiscal year (SEC release 33-8644).

Section 404(b) generated much controversy. Proponents argue that Section 404(b) improves financial reporting quality and enhances investor confidence in the capital markets. Opponents, on the other hand, contend that Section 404(b) is burdensome, costly, especially for small companies, and without commensurate benefits (Alexander et al. 2013).

Section 404 has spawned much research. One line of research examines the economic benefits of Section 404 or Section 404(b) alone. For example, some studies examine the relation between ICFR quality and earnings quality (Doyle et al. 2007; Ashbaugh-Skaife et al. 2008) and find that earnings quality of companies with Section 404(b) deficiencies are lower than earnings quality of companies without Section 404(b) deficiencies. Some other studies provide evidence

that an ineffective internal control system—meaning the existence of one or more material weakness—is associated with a higher cost of equity (Beneish et al. 2008; Ashbaugh-Skaife et al. 2009) and a higher cost of private and public debt (Dhaliwal et al. 2011; Costello and Wittenberg-Moerman 2011; Kim et al. 2011). Feng et al. (2009) links effective ICFR with more accurate management forecasts. Goh et al. 2011 provide evidence of an association between effective ICFR and conditional conservatism. This line of research is limited to accelerated filers, and focuses on the *outcome* of Section 404(b) audits: comparing accelerated filers with Section 404(b) deficiencies versus accelerated filers without Section 404(b) deficiencies. As such, these studies do not document the benefits of Section 404(b) audits for *all* complying companies, regardless of whether such ICFR audits reveal deficiencies or no deficiencies in internal control. We fill this void in the literature and examine the effect of switching from non-accelerated filers (accelerated filers) to accelerated filers (non-accelerated filers) on the cost of debt, our proxy for the benefit of Section 404(b) audits.

Since the biggest obstacle for implementation of Section 404(b) is the cost. Not surprisingly, many prior studies examine the compliance costs of Section 404. The most consistent conclusion is that Section 404(b) is costly, and the cost is disproportionately high for small companies (Raghunandan and Rama 2006; Zhang 2007; Hogan and Wilkins 2008; Hoitash et al. 2008; SEC survey (SEC [2009]); Iliev 2010; Kinney and Shepardson 2011). However, many of these studies examine the cost of Section 404 in years immediately follow the implementation of Sections 404(a) and (b) for accelerated filers in December 2004. As Alexander et al. (2013) show using survey evidence that compliance costs tend to decrease with the increase of compliance experience. Moreover, some studies examine the cost of Sections (a) and (b) combined, not the cost of Section 404(b) alone. One exception is Kinney and

Shepardson (2011). Their comparison in audit fees between 2007 and 2008 isolate the cost of complying Section 404(b) alone. However, their identification of accelerated filers versus non-accelerated filers is based on estimation, which may result in misidentification. Their finding of significant increase in audit fees from non-accelerated filers in 2007 to accelerated filers in 2008 could be contaminated by potential misidentification of accelerated versus non-accelerated filers. We study the cost of Section 404(b) using data in 2007-2010 and Audit Analytics reported filer status. We thus can provide clean evidence on the cost of Section 404(b) audits and remediate a shortcoming in prior findings.

Finally, we examine the net compliance benefit of Section 404(b) using Tobin's q as a proxy for the net compliance benefit in the spirit of Daske et al. (2008). There is limited evidence in the literature on the net benefit of Section 404(b). Krishnan and Yu (2012) examine the effect of Section 404(b) audits on revenue quality. Using a sample of large non-accelerated firms and small accelerated firms, they find a positive association between revenue quality and auditor attestation of ICFR. Krishnan and Yu (2012) also examine the effect of Section 404(b) audits on the market valuation of a company's book value of equity and earnings. They find that market valuation weight on book value of equity is higher for accelerated filers than non-accelerated filers. However, their model specification, which expresses stock price as a linear function of book value of equity per share, earnings per share, and sales growth, is problematic because the coefficient on book value of equity can increase or decrease due to differences in firm characteristics, not necessarily due to with or without Section 404(b) audits. Indeed, while we can replicate their findings, replacing their Section 404(b) variable with a dummy variable for large book value of equity produce identical results as they document using the Section 404(b) variable (see later sections for more details). Krishnan and Yu (2012), thus, do *not*

provide unambiguous evidence that the market valuation weight on book value of equity is higher for firms with Section 404(b) audits than firms without Section 404(b) audits. We overcome this flaw in Krishnan and Yu (2012) by examining the relation between Tobin's q and Section 404(b) after controlling for many firm characteristics that also affect Tobin's q .³ Moreover, we use firm fixed effects regressions, which mitigate the concerns about omitted variables and endogeneity (Lang et al. 2012).

Using a sample of U.S. companies during 2007-2013, we find that the cost of debt decreases (increases) if a company switches from non-accelerated (accelerated) filer to accelerated (non-accelerated) filer. Since Section 404(a) is required for both accelerated filer and non-accelerated filer after December 2007. The switching between accelerated and non-accelerated filer affects only Section 404(b). Our findings thus provide clean and clear evidence on the benefit of having a Section 404(b) audit. To the best of our knowledge, we are the first to document such evidence. In addition, we find that audit fees increases (decrease) by an average of 5.13% if a company switches from non-accelerated (accelerated) filer to accelerated (non-accelerated) filer during 2007-2013 after the 2007 reform. Although this finding is similar to what Kinney and Shepardson (2011) document, our finding is clean whereas theirs is potentially contaminated. However, audit fees increases (decrease) by an average of 59.52% if a company switches from non-accelerated (accelerated) filer to accelerated (non-accelerated) filer during 2002-2006 before the 2007 reform. Thus, the cost of Section 404(b) audits has decreased dramatically after 2007. Finally, we document a net compliance benefit since our results indicate an average increase in Tobin's q of 18.53% for filers complying with Section 404(b). We argue that we are the first to provide unequivocal evidence of a net benefit or valuation

³ Equation (3) in Krishnan and Yu (2012) allows the coefficient on book value of equity to vary between firms with and without Section 404(b) audits but does not allow the coefficient to vary between, say, large and small firms. Our model specification allows Tobin's q to vary with many firm characteristics.

premium (an increase in Tobin's q) for a firm to have a Section 404(b) audit relative to not have a Section 404(b) audit.

We contribute to the literature by providing long-term evidence on the benefit, cost, and net benefit of auditor attestation of ICFR (Section 404(b) audits). Our 7-year evidence after the 2007 reform shows that there are a clear benefit (in the form of reduced cost of debt), a small cost (in the form of increased audit fees), and a significant benefit (in the form of increased valuation premiums) for firms to have a Section 404(b) audit. These findings suggest that Dodd-Frank Act may be premature to exempt non-accelerated filers from Section 404(b). Compared to earlier studies, our study arguably examines the pure effect of SOX 404(b) by isolating this subsection from other regulations, in particularly Section 404(a). More importantly, we use firm fixed effects regressions, which examine the effect of switching from non-accelerated filers (accelerated filers) to accelerated filers (non-accelerated filers) on the cost of debt, audit fees, and Tobin's q , holding Section 404(a) constant. According to Wooldridge (2002, 315), using fixed effects is “often superior to pooled OLS or random effects for applications where participation in a program is determined by preprogram attributes that also affect y_{it} ,” where y_{it} is the dependent variable.

2. Institution background

Congress passed SOX on July 25, 2002 in response to a series of high-profile financial reporting scandals. The legislation was intended to improve the accuracy and reliability of corporate financial reporting and to restore investors' confidence in capital markets. Two separate sections of SOX—Section 302 and Section 404—are related to ICFR (internal control over financial reporting). Section 302 requires management, in each 10-K and 10-Q report, to certify the accuracy of reported financial statements, to acknowledge its responsibility of

establishing and maintaining internal controls, and to disclose to the company's auditor and the audit committee all significant deficiencies in the design or operation of internal control.

Section 404(a), thus, mandates management's assessment of the effectiveness of the company's ICFR (management reports). In contrast, Section 404(b) requires the company's auditor to attest to, and report on, management's assessment of ICFR (Section 404(b) audits).

Section 404(a) and Section 404(b) became effective on November 15, 2004 for accelerated filers. For non-accelerated filers, Section 404(a) became effective on December 15, 2007 after multiple postponements and Section 404(b), after even more postponements, was permanently exempted by the Dodd-Frank Act on July 21, 2010.⁴ On September 15, 2010, the SEC added Section 404(c) to SOX, as mandated by Section 989G of the Dodd-Frank Act. Section 404(c) exempts non-accelerated filers from complying with Section 404(b).

In a summary, the compliance date of Section 404(a) and Section 404(b) for the accelerated filers is November 15, 2004. The compliance date of Section 404(a) for the non-accelerated filers is December 15, 2007. Since July 21, 2010, non-accelerated filers are permanently exempted from complying with Section 404(b).

3. Literature and hypothesis development

⁴ Specifically, the initial date for both accelerated filers and non-accelerated filers to comply with Section 404(a) and Section 404(b) was June 15, 2004 (SEC release 33-8238). Then, on February 24, 2004, the SEC extended the compliance date for accelerated filers to November 15, 2004. Meanwhile, the SEC extended the same requirement for non-accelerated filers to July 15, 2005 (SEC release 33-8392). While accelerated filers were held to the November 2004 deadline, the SEC gave another extension on March 2, 2005 for non-accelerated filers to comply with both Section 404(a) and Section 404(b) on July 15, 2006 (SEC release 33-8545). Since then, the SEC separated the compliance with Section (a) from with Section (b). After several additional extensions for non-accelerated filers to comply with the two sections, the SEC set the effective date on December 15, 2007 for non-accelerated filers to comply with Section 404(a) (SEC release 33-8760). However, the effective date for non-accelerated filers to comply with Section 404(b) would be postponed repeatedly again. The SEC initially set the date on December 15, 2008. On June 26, 2008, the SEC released the amendments to its prior release and postponed the date to December 15, 2009 (SEC Release 33-8934). On October 13, 2009, the SEC further postponed the compliance date to June 15, 2010 (SEC release 33-9072). On July 21, 2010, the Dodd-Frank Act became effective and it permanently exempts non-accelerated filers from complying with Section 404(b).

Regulators have repeatedly postponed the compliance dates for both accelerated and non-accelerated filers. Concerns over compliance costs, especially for non-accelerated filers, were the primary reasons for each extension. Prior research documents controversial behaviors regarding how non-accelerated filers respond to Section 404(b). Engel, Hayes, and Wang (2007) and Leuz, Triantis, and Wang (2008) provide evidence that some firms go dark or private to avoid compliance. Moreover, some studies (Gao et al. 2009; Iliev 2010; Nondorf et al. 2012) indicate that non-accelerated filers near the public float threshold of \$75 million might manipulate their public float to retain their non-accelerated filer status. In contrast, Cassell, Myers and Zhou (2013) document that a small percentage of non-accelerated filers voluntarily comply with Section 404(b) and these voluntary adopters enjoy a lower cost of capital. The above apparently contradictory findings highlight the controversy about the benefit, cost, and net benefit of Section 404(b) audits.

The benefits of Section 404(b)

Jensen and Meckling (1976) and Fama and Jensen (1983) illustrate how separation between ownership and control creates agency problems that may raise a barrier to the flow of capital. Shareholders largely rely on information disclosed by management. Prior studies (Jensen and Meckling 1976; Antle 1982, 1984; Datar 1985; Baiman, Evans, and Noel 1987) have modeled the role of auditing as a mechanistic monitor. From theory, cost of capital is negatively associated with auditors' monitoring.

Prior studies document a positive relation between cost of capital and information risk. Analytically, Easley and O'Hara (2004) and Lambert et al. (2007) develop models to show that information risk affects the cost of capital. Empirically, Yu (2005) tests the theory that the quality of a firm's information disclosure can affect the term structure of its corporate bond

yield spreads. Consistent with the theory, he finds that firms with higher accounting transparency enjoy lower credit spreads. Moreover, this transparency spread is especially large among short-term bonds. Francis et al. (2004) examine the relation between the cost of equity capital and seven earnings attributes that capture information risk. They find that firms with the least favorable values of each attribute, considered individually, are associated with higher costs of equity capital. Francis et al. (2005) find that poorer accruals quality, a proxy for higher information risk, is associated with higher costs of debt and equity. Their findings are consistent with the view that accruals quality is a priced risk factor. Chen et al. (2010) find that the cost of equity capital declines in the post- Reg FD (Regulation Fair Disclosure) period relative to the pre-Reg FD period, consistent with the belief of the Securities and Exchange Commission (SEC) that Reg FD could reduce the cost of capital by curtailing selective disclosure and leveling the information playing field.

It is well documented in the literature that auditing adds value by reducing information risk (Kim et al. 2011; Minnis 2011; Lennox and Pitman 2011). However, the value of auditing depends on audit quality. A most fundamental objective of Section 404 is to enhance the reliability of financial reporting and audit quality. The effects of Section 404 on financial reporting have attracted much research. Extant research suggests that auditor attestation of ICFR and managerial self-assessment of ICFR improve financial reporting quality. For example, Altamuro and Beatty (2010) examine the financial reporting effects of the Federal Depository Insurance Corporation Improvement Act of 1991 (FDICIA) internal control provisions. The FDICIA internal control provisions are very similar to Sox 302 and Sox 404. The FDICIA exempts banks with assets under \$500 million and non-US banks from the internal control provisions, which provides two unaffected control samples. Using a difference-in-difference

design, they find that the FDICIA-mandated internal control provisions improve financial reporting quality of affected banks relative to unaffected banks. As a second example, Singer and You (2011) examine the effect of Sox 404 on earnings quality. They employ a control sample of Canadian companies which are either cross-listed or only listed on U.S. exchanges because these companies are exempted from Section 404 in the first 2 years of the implementation of Section 404. Using a difference-in-difference design, Singer and You (2011) find the quality of financial reporting has improved for firms that are required to comply with Section 404 than control firms that are not required to comply. As a third example, Krishnan and Yu (2012) examine the relation between Section 404(b) audits and revenue quality for a sample of non-accelerated filers and small accelerated filers. They find that revenue quality is higher for accelerated filers (subject to Section 404(b) audits) relative to non-accelerated filers (not subject to Section 404(b) audits). This finding holds even among firms whose management has certified their ICFR to be effective. Overall, they conclude that Section 404(b) audits benefit small accelerated filers via improved revenue quality.

The effects of Section 404 on the cost of capital also attracted much research. This line of research mostly focuses on accelerated filers and examines the consequences of internal control material weaknesses. Beneish et al. (2008) and Ashbaugh-Skaife et al. (2009) find that firms with internal control material weaknesses are associated with a higher cost of equity; Dhaliwal et al. (2011), Costello and Wittenberg-Moerman (2011), and Kim et al. (2011) provide evidence that firms with material internal control weaknesses are associated with a higher cost of private and public debt. Since these studies compare firms with material internal control weaknesses with firms without such weaknesses, they do not provide evidence on the value for a firm to comply with Section 404(b).

Cassell, Myers, and Zhou (2013) identify a small sample of non-accelerated filers that *voluntarily* choose to have their internal controls audited by an external auditor (i.e., obtain a Section 404(b) audit) and a control sample of non-accelerated filers that report on the strength of internal controls but do not have management's internal control assertions audited. They find that companies that voluntarily purchase Section 404(b) audits enjoy lower cost of equity and cost of debt relative to the control sample. So, Cassell et al. (2013) provide evidence on the value for a firm to voluntarily obtain a Section 404(b) audit. Whether there is a value for a firm to obtain a Section 404(b) audit under mandatory requirement is unexplored in the literature.

We examine the effect of having a Section 404(b) audit under mandatory requirement on the cost of debt. We expect the cost of debt to decrease for companies that switch from noncompliance to compliance with Section 404(b) and to increase for companies that switch from compliance to noncompliance with Section 404(b). Our first hypothesis is stated below:

H1: Credit rating improves (deteriorates) for companies that switch from noncompliance (compliance) to compliance (noncompliance) with Section 404(b).

The costs of Section 404(b)

Most of the debate over compliance with Section 404(b) focuses on its costs. Many studies examine the combined effect of Sections 404(a) and 404(b) on audit fees during the initial years of implementation (Raghunandan and Rama 2006; Hogan and Wilkins 2008; Hoitash et al. 2008; SEC survey (SEC (2009a)); Iliev 2010; Kinney and Shepardson 2011). According to Iliev's (2010) results, total audit fees increased by 86.6% in the first year of compliance. According to an SEC web-based survey, the mean compliance cost for Section 404(b)—which includes internal labor cost, audit fees related to ICFR, outside vendor fees, and non-labor cost—is \$2.87 million before 2007 and \$2.33 million afterwards. Both numbers are higher than the SEC staff's initial estimate.

Some studies have examined the effect of AS5 on audit fees (Doogar et al. 2010; Krishnan et al. 2011).⁵ Using a sample of accelerated filers with clean ICFR opinions that have experienced both regulation AS2 and regulation AS5, Doogar, Sivadasan, and Solomon (2010) find that AS5 addresses audit fraud risk better than AS2; meanwhile, AS5 leads to lower audit fees compared with AS2.⁶ Krishnan et al. (2011) extend these findings to firms with qualified ICFR opinions. Their results suggest that audit fees are lower in the first two years of the AS5 period than in the last two years of the AS2 period for firms which remediate their internal control weaknesses and for firms which receive their first adverse internal control opinion. However, their findings do not show that small firms benefit from AS5.

Kinney and Shepardson (2011) also provide some evidence on audit fees related to Section 404(b) when they examine audit fee changes from 2007 to 2008. They show that for firms switching from under Section 404(a) in 2007 to under both Section 404(a) and Section (b) in 2008, audit fees increase substantially. However, they estimate a firm's filer status (i.e., accelerated filer or non-accelerated filer) based on year-end market capitalization due to unavailability of filer status data in Audit Analytics at the time of their study (see footnote 19 of Kinney and Shepardson (2011)). Accelerated filer status is determined based upon a firm's public float as of the end of their second fiscal quarter. Using year-end market capitalization thus can lead to misidentification of accelerated filers and non-accelerated filers. Consequently, the findings in Kinney and Shepardson (2011) are potentially contaminated.

Collectively, prior studies have provided evidence regarding how Section 404(a) and Section 404(b) combined affects audit fees for accelerated filers at the initial years of compliance and some limited evidence on how Section 404(b) affects audit fees (Kinney and

⁵ AS5 refers Auditing Standard No.5.

⁶ AS2 refers Auditing Standard No.2.

Shepardson 2011). Two concerns exist regarding the prior evidence. First, no clean, uncontaminated empirical evidence demonstrates a link between Section 404(b) and audit fees. Second, the initial implementation year does not provide an efficient estimate of long-run compliance costs for SOX404. Therefore, our second hypothesis focuses on audit fees:

***H2:** Audit fees increase (decrease) for companies that switch from noncompliance (compliance) to compliance (noncompliance) with Section 404(b).*

In other words, audit fees increase for companies which switch from not being required to have internal control audits to being required to have such audits. For companies moving from being required to not being required to have internal control audits, we expect audit fees to decrease.

Net Compliance Benefit

Section 404 is one of the most significant portions of SOX and also the most controversial. Not surprisingly, extant studies document different firm behaviors toward this regulation. Using a sample of firms whose public float is near the threshold at the first year of compliance in 2004, Iliev (2010) employs a cross-sectional regression discontinuity design to study how Section 404 affects the market value. He uses an event study, and two-year returns to exploit the net valuation of Section 404. In the event study, he lists ten events from the announcement of the compliance date of Section 404 in August 2002 to the final date of May 17, 2005, when the *New York Times* published an article reporting on the SEC's desire to trim Section 404 compliance costs. While results were somewhat mixed, the majority indicated that the market responds negatively toward Section 404 enforcement. In the two-year (2003-2005) returns study, he constructs an equal-weighted long-short portfolio. The portfolio takes a long position for all companies that should have complied with Section 404 given their starting public float in 2002 and the returns of their industry, and a short position for all companies not

required to comply with the rule by virtue of their 2002 public float and industry returns. The portfolio has a negative monthly risk-adjusted return of -0.81% per month. However, the results in Iliev's study should be interpreted with caution because his test period is shortly after the implementation of Section 404. In the initial year of implementation, the negative perception of Section 404 could reflect a transitional value effect rather than a long-term effect. Moreover, Iliev (2010) examine the costs of Section 404(a) and Section 404(b) combined, not the cost of Section 404(b) alone.

Krishnan and Yu (2012) examine whether auditor attestation of ICFR (i.e., internal control audits or compliance with Section 404(b)) benefits small firms. One of their tests is to see whether the market attaches a higher valuation weight on book value of equity and net income for firms subject to Section 404(b), i.e., accelerated filers, than for firms not subject to Section 404(b), i.e., non-accelerated filers.⁷ They employ the Ohlson (1995) valuation model to conduct a cross-sectional comparison between accelerated filers and non-accelerated filers in the market valuation weights on book value of equity and net income. They find that the valuation coefficient on book value of equity is higher for accelerated filers than non-accelerated filers, suggesting that the book value of equity of accelerated filers is valued more than the book value of equity of non-accelerated filers. Krishnan and Yu (2012) interpret this finding as evidence that Section 404(b) offers a net benefit to small firms.

However, the larger coefficient on book value of equity for accelerated filers relative to non-accelerated filers documented in Krishnan and Yu (2012) is subject to an alternative interpretation—the coefficient on book value of equity is affected by some firm characteristics

⁷ The sample period examined in Krishnan and Yu (2012) is 2007-2009. Consequently, Section 404(a) is effective for both accelerated filers and non-accelerated filers. Starting 2007, the only difference between accelerated filers and non-accelerated filers with respect to Section 404 is that accelerated filers are required to have internal control audits (complying with Section 404(b)) whereas non-accelerated filers are not required to have internal control audits.

that are correlated with the Section 404(b) variable. Their Section 404(b) variable is an indicator variable for accelerated filers (public float greater than \$75 million), which is correlated with many market capitalization-related firm characteristics. As we report later, we can replicate Krishnan and Yu (2012). However, if we replace their Section 404(b) variable with an indicator variable for large book value of equity (total book value of equity larger than the sample median), we obtain qualitatively the same results—the coefficient on book value of equity is larger for firms whose total book value of equity is larger than the sample median. So, Krishnan and Yu (2012) does not provide unequivocal evidence that the market valuation weight on book value of equity is larger for accelerated filers than non-accelerated filers.⁸

Since the coefficient on book value of equity can vary with firm characteristics such as firm size, the Ohlson (1995) model is not suitable for our task. We use Tobin's q to evaluate the net compliance benefit of Section 404(b). Tobin's q is a suitable candidate to proxy for net compliance benefit because it consists of market valuation and reproduction cost. Brainard and Tobin (1968) provide the definition of Tobin's q as the ratio of market valuation of equities to the replacement cost of the physical assets they represent (p103). A high Tobin's q suggests a larger firm valuation premium because investors assign valuable intangible assets in addition to physical assets, such as monopoly power (Lindenberg and Ross 1981), goodwill, or sound governance. From the equity valuation model, "Higher values of Tobin's q could reflect differences in expected discount rates and/or differences in expected future cash flows" (Daske et al. 2008). Daske et al. (2008) use Tobin's q to proxy a firm's value to investigate the economic effects of mandatory adoption of International Financial Reporting Standards (IFRS)

⁸ Krishnan and Yu (2012, 134) acknowledge that "one caveat to our analysis is that although we control for several firm characteristics, some other innate factors that are uncontrolled for might affect our inferences."

around the world. In our study, a high Tobin's q suggests a high net compliance benefit because investors assign more valuable intangible assets to those firms.

Intuition suggests that the policymakers who voted in favor of SOX believed SOX would provide a net social benefit. Economic theory also provides arguments for why firm value should improve as a result of Section 404(b). Section 404(b) should reduce information asymmetry between management and investors, leading investors to require a lower discount rate for their investment. Thus, we make the following hypothesis:

***H3:** Net compliance benefit as captured by Tobin's q increases (decreases) for companies that switch from noncompliance (compliance) to compliance (noncompliance) with Section 404(b).*

We expect the net compliance benefit (Tobin's q) to increase for companies which switch from not being required to have internal control audits to being required to have internal control audits. For companies moving from being required to not being required of such audits, we expect a decline in Tobin's q .

4. Research design, data, and analyses

Research Design

To conduct our tests, we identify compliance status using data from Audit Analytics. Section 404(b) compliance status is either compliance of Section 404(b) for accelerated filers and large accelerated filers or noncompliance for non-accelerated filers. We use a dummy variable, $Sox404b$, to indicate the compliance status: $Sox404b = 1$ for firms required to comply with Section 404(b) and $Sox404b = 0$ for firms not required to comply with Section 404(b). According to the regulation, a firm's filing status is determined by its public float on the last business day of the second fiscal quarter. If a firm's public float is larger than or equal to \$75

million, it is an accelerated filer subject to Section 404(b). Otherwise, the firm is a non-accelerated filer not subject to Section 404(b).

A firm's filing status can change from non-accelerated filers to accelerated filers in the annual 10-K filing if its public float, measured on the last business day of the second fiscal quarter, increases from below \$75 million to \$75 million or above. The critical change is that as an accelerated filer, the firm needs to comply with Section 404(b) during the same fiscal year, meaning that the firm's auditor will audit ICFR during the year-end audit process. On the other hand, a firm's filing status can change from an accelerated filer to a non-accelerated filer. When a firm's public float, measured on the last business day of the second fiscal quarter, falls below \$50 million, the firm is reclassified as a non-accelerated filer and is no longer required to comply with Section 404(b). The firm discloses its filing status as well as its auditor's ICFR audit in the 10-K filing.

Before December 2007, when a firm changes its filing status, it must change its compliance status of both Section 404(a) and Section 404(b). After 2007, all firms (both accelerated filers and non-accelerated filers) are required to comply with Section 404(a). So after 2007, when firms change their filing status, they only change compliance with Section 404(b). In another words, when some firms change from non-accelerated filers (accelerated filers) to accelerated (non-accelerated filers), they need (need not) to comply with Section 404(b). Our sample period is 2007- 2013. So, we examine only the effect of auditor attestation of ICFR (i.e., internal control audits or compliance with Section 404(b)).⁹

Model Specification

⁹ Using the sample period of 2002 to November, 15 2007, we can test the joint effect of both Sections 404(a) and (b). Since our focus in this study is on Section 404 (b), we do not provide these results. However, they are available from the authors upon request.

We employ the following firm-fixed effects model to analyze the effect of Section 404(b).¹⁰

$$\text{Dependent Variable} = \beta_0 + \beta_1 \text{Sox404b} + \sum \beta_j \text{Controls}_j + \text{Year Dummies} \quad (1)$$

Dependent Variable is one of the three effects of Section 404(b): credit rating, audit fees, and Tobin's *q*. *Sox404b* is a dummy variable indicating a firm's filing status as defined earlier.

Controls_j is one of the three sets of control variables, corresponding to credit rating, audit fees, and Tobin's *q*.

Our variable of interest is *Sox404b*. Using the firm-fixed effects regression, the coefficient on *Sox404b* (β_1) captures the effect of the change in *Sox404b* on the change in *Dependent Variable* (credit rating, audit fees, or Tobin's *q*). A positive β_1 means that for firms switching filing status from noncompliance (compliance) to compliance (noncompliance), credit rating, audit fees, or Tobin's *q* increases (decreases). The fixed effects model provides consistent estimators in panel data.

In addition to using a firm-fixed effects regression model to control for unobserved time-invariant firm characteristics, we use year dummies to control for time trends, and include extensive control variables for firm characteristics. For the credit rating regressions, we follow recent studies (Ashbaugh-Skaife et al. 2006; Fortin and Pittman 2007; Lennox and Pittman 2011) to control for the following determinants of credit rating: *IntCov*, *Liquidity*, *LnSale*, *LnAge*, *Size*, *Lev*, and *Big4*. See Table 1 for definitions of all variables. In the audit fees regressions,

¹⁰ A firm-fixed effects model has two main advantages over other models. First, the classic merit of a fixed effects model is that it addresses the concern of omitted correlated variables. The estimators we get from pooled OLS or random effects model will be biased if any unobserved firm characteristics—for example, firm risk or firm culture—correlate with the variable of interest, *Sox404b*. In other words, although Section 404 regulation is exogenous, there might still be endogeneity issues because compliance firms are considered less risky than non-compliance firms, leading to biased estimators. The second advantage is that a fixed effect model has unique advantages over other models, such as pooled OLS or random effects, particularly for policy analysis and program evaluation. Unlike other models, program participation estimates under fixed effects are still consistent even when correlated with persistent components in the error term (Wooldridge, 2002).

following prior literature (Simunic 1980, Francis 1984, Davis, Ricchiute, and Trompeter 1993, O’Keefe, Simunic, and Stein 1994, Bell, Landsman, and Shackelford 2001, Hay, Knechel, and Wong 2006, Bell, Doogar, Sivadasan, and Solomon 2010), we control for *Big4*, *Size*, *ROA*, *InvRec*, *Special*, *Restruct*, *Lev*, *Busy*, *Loss*, *ForOp*, *Frisk*, *Filing*, and *Merger*. For the Tobin’s *q* regressions, following extant literature (Daske et al. 2008; Black and Kim 2012; Lang and Maffett 2011), we include *SaleGrowth*, *Size*, *Lev*, *PPE*, *Capital*, *EBIT*, *Merger*, *LnAge*, and *ME*. See Table 1 for definitions of all variables.

INSERT TABLE 1

5. Sample selection

We obtain all variables from Audit Analytics and Compustat. We obtain total audit fees by adding audit fees and audit related fees because the separate internal control assessment fees are not required to be disclosed. In addition, all audit firms conduct integrated financial reporting audits and internal control audits. In another words, accelerated-filers always have the same auditor conduct both financial reporting audits and internal control audits.

To identify all firms’ filing status and their Section 404(b) compliance status, we review firm data in Audit Analytics from 2007 to 2014. Since non-accelerated filers are required to comply with Section 404(a) starting December 15 2007 fiscal year, we choose a sample period encompassing December 2007 through December 2013. During this sample period, all firms have complied with Section 404(a), and when a firm changes its filing status, it ONLY changes its Section 404(b) compliance requirement.

Using data from Audit Analytics, we first select all U.S. firms that have a filing status available from their Form 10-K between the fiscal years 2007 and 2013. When a firm reports its filing status as an accelerated filer, *Sox404b* equals 1; otherwise, *Sox404b* equals 0.

We obtain financial variables from Compustat. Following prior studies (Iliev 2010; Singer et al. 2011; Krishnan et al. 2012; Nondorf et al. 2012), we exclude financial institutions observations with two digit SIC codes 49 and those between 60 and 69. Excluding the observations with missing variables, we identify a sample of 20,896 firm-year observation to conduct the audit fee analysis. Since there are many observations with missing credit rating information on Compustat, we only have 5,009 observations in our analysis of credit rating. The final sample for analyzing Tobin's q includes 16,866 observations.

6. Results and Inferences

Credit Rating

We employ the following regression model to investigate the effect of Section 404(b) on credit ratings during our 2007-2013 sample period.

$$\begin{aligned}
 Rating_{it} = & \beta_0 + \beta_1 Sox404b_{it} + \beta_2 LnAge_{it} + \beta_3 Big4_{it} + \beta_4 Size_{it} + \beta_5 LnSale_{it} + \beta_6 IntCov_{it} + \beta_7 \\
 & Liquidity_{it} + \beta_8 Lev_{it} + \mu_{it}
 \end{aligned}
 \tag{2}$$

Where:

Rating = Standard & Poor's (S&P) long-term domestic issuer credit rating (COMPUSTAT data item SPLTCRM), following prior studies (e.g., Minton and Schrand 1999; Ahmed et al. 2002; Jiang 2008; Cassell et al. 2013), I convert rating letters into rating numbers. A smaller number designates a better rating.

Sox404b = an indicator variable set equal to 1 if the firm is required to comply with Section 404(b), 0 otherwise;

LnAge = the natural logarithm of the firm's age in years;

Big4 = an indicator variable set equal to 1 if the firm's auditor is a Big 4 firm, 0 otherwise;

Size = the natural logarithm of the firms' total assets;

LnSale = the natural logarithm of the firms' sales;

IntCov = interest expense divided by earnings before interest and taxation

Liquidity = (current assets - inventory) divided by current liabilities

Lev = total liability divided by total asset

Following prior studies (e.g., Minton and Schrand 1999; Ahmed et al. 2002; Jiang 2008; Cassell et al. 2013), we obtain the dependent variable, *Rating*, from Standard & Poor's (S&P) long-term domestic issuer credit rating. We convert rating letters into rating numbers, with a smaller number designates a better rating. Following prior studies (e.g., Ashbaugh-Skaife et al. 2006; Fortin and Pittman 2007; Lennox and Pittman 2011), we include the variable of interest coverage, *IntCov*, which is measured as interest expense divided by earnings before interest and taxes. A lower *IntCov* indicates greater interest coverage. Prior literature (e.g., Ashbaugh-Skaife et al. 2006; Fortin and Pittman 2007; Lennox and Pittman 2011) has documented that higher sales, company age, company size and lower leverage are all associated with better credit rating. Thus, we include *Liquidity*, *LnSale*, *LnAge*, *Size*, and *Lev* as control variables in the analysis. Additionally, we include an audit type variable (*Big4*) because Pittman and Fortin (2004) and Cassell et al. (2013) have suggested that firms with Big 4 auditors are associated with a better credit rating.

We employ both across time analysis and cross section analysis. The across time analysis focuses on the change in credit rating when a firm changes its compliance status. The hypothesis is that when a firm switches from non-accelerated (accelerated) filer to accelerated (non-accelerated) filer, its credit rating improves (deteriorates). The cross section analysis focuses on the difference in means between accelerated-filers and non-accelerated filers. The hypothesis is that accelerated filers have better credit ratings than non-accelerated filers. Table 2

reports descriptive statistics of the credit rating sample for the compliance group ($Sox404b=1$) and the non-compliance group ($Sox404b=0$).

INSERT TABLE 2

Table 2 shows the mean (median) of credit rating for Section 404(b) firms is 11.28 (12) while the mean (median) for non-Section 404(b) firms is 14.63 (15). The differences in means and in medians for the two groups are highly significant ($p < 0.01$) and suggest that Section 404(b) firms experience a better credit rating than non-Section 404(b) firms.

Table 3 presents Pearson correlation coefficients across all the variables. As expected, the *Rating* variable is negatively correlated with the *Sox404b* variable.

INSERT TABLE 3

Table 4 reports results for our within-firm and between-firm regressions. Our main variable of interest, *Sox404b*, is negatively related to credit rating in our within analysis (-0.40, t -statistic = -4.19). This result supports H1 and indicates that an auditor attestation of internal controls is associated with a better credit rating. For the between analysis, the coefficient for *Sox404b* is -0.58, and it is also statistically significant.

INSERT TABLE 4

Audit fees

To investigate the effect of Section 404(b) on audit fees, we examine the following regression.

$$\begin{aligned} LnAuditfees_{it} = & \beta_0 + \beta_1 Sox404b_{it} + \beta_2 filing_{it} + \beta_3 Big4_{it} + \beta_4 Special_{it} + \beta_5 Lev_{it} + \beta_6 Restruct_{it} \\ & + \beta_7 Size_{it} + \beta_8 ROA_{it} + \beta_9 Loss_{it} + \beta_{10} ForOp_{it} + \beta_{11} InvRec_{it} + \beta_{13} Busy_{it} + \beta_{14} Merger_{it} + \beta_{15} \\ & Frisk_{it} + \mu_{it} \end{aligned} \quad (3)$$

Where:

<i>LnAuditfees</i>	= the natural logarithm of the audit and audit-related fees paid to the firm's auditor;
<i>Sox404b</i>	= set equal to 1 if the firm is required to comply with Section 404(b), 0 otherwise (compliance vs non-compliance filing status);
<i>Filing</i>	= number of calendar days between the auditee's fiscal year end and the 10-K filing date;
<i>Big4</i>	= an indicator variable set equal to 1 if the firm's auditor is a Big 4 firm, 0 otherwise;
<i>Special</i>	= an indicator variable set equal to 1 if the firm reports special items (Compustat data item SPI); 0 otherwise;
<i>Lev</i>	= total liability divided by total asset;
<i>Restruct</i>	= an indicator variable set equal to 1 if the firm took a reconstruction charge (Compustat data item RCP or RCEPS); 0 otherwise
<i>Size</i>	= the natural logarithm of the total assets;
<i>ROA</i>	= return-on-assets ratio. Calculated as operating income after depreciation, divided by total assets;
<i>Loss</i>	= an indicator variable set equal to 1 if the firm's net income is negative, 0 otherwise;
<i>ForOp</i>	= an indicator variable set equal to 1 if the firm reports foreign currency translation value other than 0 (Compustat data item FCA), 0 otherwise;
<i>InvRec</i>	= (total receivables + total inventories) / total assets
<i>Busy</i>	= an indicator variable set equal to 1 if the auditee's fiscal year ends on December or January, zero otherwise;
<i>Merger</i>	= an indicator variable set equal to 1 if the auditee is engaged in a merger or acquisition (Compustat data item AQP or AQEPS), zero otherwise;
<i>Frisk</i>	= an indicator variable set equal to 1 if F -Score ¹¹ ≥ 1 , zero otherwise. This binary variable measures the probability of audit fraud risk, from Doogar et al. (2010). Dechow et al. (2011) develop this variable.

¹¹ F -score = $e^{PV} / [0.00345(1 + e^{PV})]$

$PV = -6.789 + 0.817 \text{Rsst_acc} + 3.230 \text{Ch_rec} + 2.436 \text{Ch_inv} + 0.122 \text{Ch_cs} - 0.992$
 $\text{Ch_earn} + 0.972 \text{Issue}$

$\text{Rsst_acc} = [(WC_t - WC_{t-1}) + (NCO_t - NCO_{t-1}) + (FIN_t - FIN_{t-1})] \div [0.5(AT_t + AT_{t-1})]$

We model audit fees as a function of auditee size, auditor type, firm and audit complexity, firm performance, firm operation risk and financial risk. The dependent variable is the natural logarithm of the audit and audit-related fees paid to the firm's auditor. The primary variable of interest is *Sox404b*, the binary indicator indicating required compliance with Section 404(b). Appendix A describes the control variables we utilize in our analyses.

Table 5 reports descriptive statistics for audit fees across the compliance group (*Sox404b* = 1) and the non-compliance group (*Sox404b* = 0) for the 2007- 2013 sample period.

The first row of Table 5 shows that the mean (median) of the natural logarithm of audit fees for Section 404(b) firms is 14.09 (14.01) while the mean (median) for non-Section 404(b) firms is 12.28 (12.19). The differences in the mean and median for the two groups are highly significant ($p < 0.01$). The differences in the mean and median for other control variables are also highly significant.

INSERT TABLE 5

Table 6 reports Pearson correlation coefficients across all the variables for the 2007-2013 sample period. Consistent with the expectation, *LnAuditfees* is significantly positively correlated with *Sox404b* at 0.001 level. The dependent variable, *LnAuditfees*, is significantly correlated with all the innate characteristics of firms identified from prior studies

$$WC = [Current\ Assets\ (ACT) - Cash\ and\ Short-Term\ Investments\ (CHE)] - [Current\ Liabilities\ (LCT) - Short-Term\ Debt\ (DLC)]$$

$$NCO = [Total\ Assets\ (AT) - Current\ Assets\ (ACT) - Long-Term\ Investments\ (IVAO)] - [Total\ Liabilities\ (LT) - Current\ Liabilities\ (LCT) - Long-Term\ Debt\ (DLTT)]$$

$$FIN = [Short-Term\ Investments\ (IVST) + Long-Term\ Investments\ (IVAO)] - [Long-Term\ Debt\ (DLTT) + Short-Term\ Debt\ (DLC) + Preferred\ Stock\ (PSTK)]$$

$$Ch_rec = [Rec_t - Rec_{t-1}] \div [0.5(AT_t + AT_{t-1})]$$

$$Ch_inv = [Inv_t - Inv_{t-1}] \div [0.5(AT_t + AT_{t-1})]$$

where *Inv* is total inventory (*INVT*)

$$Ch_cs = (CS_t - CS_{t-1}) / CS_{t-1} * 100$$

where *CS* is sales (*SALE*) less change in accounts receivable (*RECT*)

$$Ch_earn = [Earn_t \div AT_t] - [Earn_{t-1} \div AT_{t-1}]$$

where *Earn* is earnings (*IB*)

Issue = 1 if firm issued securities during the year ((*SSTK*) > 0 or (*DLTIS*) > 0), zero otherwise

(Palmrose1986; Ashbaugh et al. 2003; Ettredge et al. 2006; Raghunandan and Rama 2006; Hogan and Wilkins 2008; Hoitash et al. 2008; Doogar et al. 2010; Krishnan et al. 2011; Hoag and Hollingsworth 2011). Meanwhile, *Sox404b* is significantly positively correlated with *Big4*, *Size*, *ROA*, *Restruct*, *Busy*, and *Merger* at 0.001 level, and it is significantly negatively correlated at 0.001 level with *InvRec*, *Special*, *Lev*, *Loss* and *Filing*.

INSERT TABLE 6

Table 7 reports the results of our within and between regressions. The coefficient on the variable *Sox404b* in our within-firm regression measures the change in audit fees due to a change in firms' Section 404(b) compliance status.¹² The coefficient is positive (0.05), and highly significant ($p < 0.01$). This suggests that during 2007 to 2013, holding all else equal, when a firm changes from noncompliance to compliance, it experiences an average increase in audit fees of 5.13% ($= \text{EXP}(0.05) - 1$). The result is highly consistent with the results in our between-firm regression. The coefficient in our between-firm regression is positive (0.14), and highly significant ($p < 0.01$). Recall that the coefficient on the variable *Sox404b* in our between-firm regression measures the difference in audit fees between firms that have complied with Section 404(b) or not. In summary, our results in Table 7 are consistent with H2.

INSERT TABLE 7

Table 7 suggests that audit fees increase only 5.13% if a firm switches from non-accelerated filer to accelerated filer. This modest fee increase is in sharp contrast with larger fees documented in earlier studies. We examine whether this decrease in Section 404(b) compliance fee is due to the 2007 reform that aims to reduce Section 404(b) compliance cost. In untabulated results, we find that the coefficient on *Sox404b* is 0.467 (t -statistic = 34.04) when we estimate Equation (3) using a sample during 2002-2006 before the 2007 reform. This

¹² It includes Section 404(a) and Section 404(b).

coefficient translates into 59.52% (= EXP(0.467) – 1) increase in audit fees if a firm changes its filing status from non-accelerated filer to accelerated filer.

Tobin's q

We first use the following model to replicate Table 8 of Krishnan and Yu (2012):

$$\begin{aligned}
 P_{it} = & \beta_0 + \beta_1 BVE_{it} + \beta_2 NI_{it} + \beta_3 SGROW2_{it} + \beta_4 Sox404b_{it} + \beta_5 Sox404b_{it} \times BVE_{it} \\
 & + \beta_6 Sox404b_{it} \times NI_{it} + \beta_7 Sox404b_{it} \times SGROW2_{it} + \mu_{it}
 \end{aligned} \tag{4}$$

Where:

P = common stock price per share at the end of three months after fiscal year-end;

BVE = book value of equity per share;

NI = net income per share;

$SGROW2$ = sales growth calculated as sales in year t minus sales in year $t-2$ scaled by sales in year $t-2$;

$Sox404b$ = set to 1 if the firm is required to comply with Section 404(b), and 0 otherwise.

The replication results are reported in Table 8, in the Replication column. As shown, the coefficient on $Sox404b_{it} \times BVE_{it}$ is significantly positive (0.71, t -statistic = 3.82). Krishnan and Yu (2012) interpret this positive coefficient as suggesting that the market assigns a higher valuation weight to book value of equity for firms complying with Section 404(b) than firms not complying with Section 404(b).

We replace $Sox404b_{it}$ in Equation (4) with $Large_{it}$, where $Large_{it} = 1$ if a firm's total book value of equity in year t is larger than the sample median, and 0 otherwise. The results from this pseudo test are reported in the Pseudo Test column of Table 8. As shown, the coefficient on $Large_{it} \times BVE_{it}$ is significantly positive (1.04, t -statistic = 5.38). We obtain qualitatively the same results as Krishnan and Yu (2012) when replacing $Sox404b_{it}$ with $Large_{it}$.

This suggests that the positive coefficient on $Sox404b_{it} \times BVE_{it}$ in Krishnan and Yu (2012) cannot be unambiguously attributed to Section 404(b).

A weakness in Equation (4) is that the coefficient on book value of equity is not allowed to vary with firm characteristics. Our pseudo test suggests that Equation (4) is not suitable for testing the net benefit of Section 404(b). We use Tobin's q as the proxy for net benefit and follow the regression approach used by Daske et al. (2008) and Black and Kim (2012) to investigate the effect of Section 404(b) on Tobin's q .

$$\begin{aligned} LnTobinsQ_{it} = & \beta_0 + \beta_1 Sox404b_{it} + \beta_2 LnAge_{it} + \beta_3 Size_{it} + \beta_4 Lev_{it} + \beta_5 SaleGrowth_{it} \\ & + \beta_6 PPE_{it} + \beta_7 Capital_{it} + \beta_8 Merger_{it} + \beta_9 EBIT_{it} + \beta_{10} ME_{it} + \mu_{it} \end{aligned} \quad (5)$$

Where:

$LnTobinsQ$ = the natural logarithm of Tobin's $q = (AT + ME - BE) / AT$

AT: total assets

ME: market value of equity at year-end

BE: book value of equity

BE: (Stockholders Equity + Deferred Taxes + Investment Tax
Credit - Preferred Stock)

$SaleGrowth$ = percentage change of sales;

PPE = ratio of property, plant, and equipment to sales;

$Capital$ = ratio of capital expenditures to PPE;

$EBIT$ = ratio of earnings before interest and taxes to sales;

Tobin's q is the ratio of the market value of assets to their book value where market value of assets is estimated by adding the book value of debt and market value of equity.

Following Daniel and Titman (1997), book value of equity is estimated by Stockholders Equity

+ Deferred Taxes + Investment Tax Credit – Preferred Stock. In our analyses we include firm age, firm size, sales growth, fixed assets intensity, capital expenditures, earnings, and market capitalization as control variables based upon prior studies (e.g., Black et al. 2006; Black and Kim 2012; Lang and Maffett 2011).

We employ similar methodology as in the other two sets of analyses previously presented and discussed. In our analysis across time, we hypothesize that Tobin's q increases (decreases) when a firm switches from non-accelerated (accelerated) filer to accelerated (non-accelerated) filer status. Our cross section focuses on whether an accelerated filer has higher Tobin's q than a non-accelerated filer.

Table 9 reports descriptive statistics for the variables used to conduct the Tobin's q analysis for the compliance group ($Sox404b = 1$) and the non-compliance group ($Sox404b = 0$). The compliance group is the treatment group, and the non-compliance group is the control group. As shown, the mean (median) of $LnTobinsQ$ for Section 404(b) firms is 0.50 (0.41) while the mean (median) for non-Section 404(b) firms is 0.28 (0.15). The differences are highly significant ($p < 0.01$). Section 404(b) firms have higher Tobin's q than non-Section 404(b) firms.

INSERT TABLE 9

Table 10 presents the correlation matrix for our Tobin's q analysis. As expected, $LnTobinsQ$ is highly correlated with all the control variables except PPE . Table 11 reports our within-firm and between-firm regression results. All regressions use year dummies, and all t -statistics are based on robust standard errors. The variable for auditor attestation of internal controls, $Sox404b$, is positively related to Tobin's q (0.17, t -statistic = 9.07), suggesting firms that obtain an auditor attestation of internal controls have higher Tobin's q . The coefficient on $Sox404b$ is 0.17. This result suggests that during 2007- 2013, holding all else equal, a firm

experiences an average increase of 18.53% ($= \text{EXP}(0.17) - 1$) in Tobin's q when a firm switches from noncompliance to compliance. For the control variables, Tobin's q is positively related to sales growth, leverage, and negatively related to firm size, PPE , $Ebit$, and Age ..

INSERT TABLE 10

INSERT TABLE 11

7. An Example of the Costs and Benefits of Section 404(b)

Our results indicate that Section 404(b) increases firms' audit fees, improves firms' credit ratings, and increases overall firm value. Allis-Chalmers's 10-K annual report for fiscal year 2005 declares the company as a non-accelerated filer, and its auditor, UHY Mann Frankfort Stein & Lipp CPAs, does not assess the company's internal control over financial reporting that year. In fiscal year 2006, Allis-Chalmers's aggregate market value of the common equity held by its non-affiliates is \$139,745,249, which is above the threshold of \$75 million so Allis-Chalmers files as an accelerated filer for 2006. The same auditor, UHY, assesses and presents its opinion that Allis-Chalmers maintains effective internal control over financial reporting in the 10-K annual report. The total audit fees incurred in 2005 was \$632,612 while in 2006, the total was \$850,223 (an increase of \$217,611), which is a 34.40% increase. We assume that the increase in audit fees represents the cost of having the auditor assess Allis-Chalmers' internal control system in order to achieve Section 404(b) compliance.

A measure of the monetary benefit that having an auditors' assessment brings to Allis-Chalmers can be estimated using the Loan Pricing Company (LPC) *Dealscan* database. Searching *Dealscan* from 2002 to 2009, we find ten instances of borrowing by Allis-Chalmers. The active dates for the ten deals are: one on 2/1/2002, three dated on 12/7/2004 and another three on 7/11/2005, one on 1/18/2006, one on 4/26/2007 and one on 12/3/2007. Since Allis-

Chalmers' fiscal year ending date is December 31, the 1/18/2006 deal should be the last deal closed before the first assessment of Allis-Chalmers's internal control was completed. The 4/26/2007 deal was made after Allis-Chalmers's auditor audited its internal control system for fiscal year 2006. The interest rate in *Dealscan* provides the drawn all-in spread over LIBOR (i.e., *AIS*). The *AIS* in the pre-assessment deal is 300.00 basis points while *AIS* is 175.00 basis points for the after-assessment deal. The interest rate has dropped by 125.00 basis points.

We can estimate the monetary interest saving for Allis-Chalmers. The average amount of Allis-Chalmers loan facility is \$25,733,500, and the mean maturity of the loan is 38.3 months, or 3.18 years. After having its auditor assesses the internal control system, Allis-Chalmers the benefit could be as large as a reduction in estimated annual interest of \$321,668.75. Compared to the increased audit fee cost of \$217,611, the net annual benefit for Allis-Chalmers can be estimated to be \$104,057.75.

8. Robustness Checks

In the within regression analysis, only the firms which experience variation in Section 404(b) compliance status were identified. The variation could be either firms switching from the non-accelerated filer to accelerated filer, or the reverse. In addition, some firms experienced both changes. In order to see how Section 404(b) affect the three groups differently, we divide the sample into three subsamples: a move-up sample, a move-down sample and a move-up&down sample. we conduct the same analysis for each subsample. The move up sample includes firms which at some point in the data cross the threshold that moves them from non-compliance to compliance. While the move down sample consists of firms that have changed from having an auditors' assessment of the internal control system to no longer receiving that

assessment in at least one firm-year. The move up&down sample contains of firms that have either experienced noncompliance—compliance—noncompliance or compliance—noncompliance—compliance.

Untabulated analyses of panel regressions for the audit fees show the coefficient for *Sox404b* is -0.068, and it is significant at 0.05 level for the move-up group, and it is 0.069 for the move-down group.¹³ It is significant at 0.05 level ($p < 0.000$). For move up&down group, the coefficient is 0.096, and it is highly significant at 0.001 levels. We conduct the same analyses on credit rating for the move-up firms, move-down firms and move up&down firms. The coefficient on *Sox404b* is -0.093, and it is not statistically significant for move up sample. For move down sample, the coefficient is -0.213, and it is not statistically significant. The coefficient for move up&down sample is -0.127, and it is not statistically significant. In addition, we conduct the same fixed effects regressions for Tobin's q for the three subsamples. For the move-up sample, the coefficient of *Sox404b* is positive (0.072), and it is significant at 0.10 level. The coefficient on *Sox404b* is 0.13 for the move-down sample and it is highly significant ($p < 0.000$). For the move up&down sample, the coefficient is 0.147, and it is significant at 0.001 level..

A potential concern is whether firms which experience a merger and acquisition are systematically different from those without a merger and acquisition. To control for this possibility, we separate our observations into a merger group and a non-merger group and we then rerun the analyses, we are not able to rerun the credit rating analysis because there are not sufficient observations in the merger sample.

Untabulated results for the panel regressions for audit fees show the coefficient of *Sox404b* is negative (-0.02) for the merger and acquisition group. However, it is not statistically

¹³ All panel regressions in this entire study use year dummies and robust standard errors.

significant. The coefficient for *Sox404b* is 0.06 for the non-merger and acquisition sample, and it is significant at 0.001 levels. We conduct the same analyses for Tobin's q for the merger firms and non-merger firms. The coefficient for *Sox404b* is positive (0.08) and it is significant at 0.05 level. The coefficient on *Sox404b* for non-merger sample is positive (0.17), and it is highly significant ($p < 0.001$). The above results indicate that merger activities are not the driver for the increase in audit fees or Tobin's q

Another robust test we did is that we only keep firms with changing compliance status at least one time during the period. The untabulated results for our fixed-effect analyses regarding audit fees, credit rating, and Tobin's q are very similar to our full sample results.

9. Conclusions

In this study we document results consistent with Section 404(b) imposing compliance costs, but also decreasing firms' cost of debt. Overall, our results indicate that Section 404(b) produces a net compliance benefit of around 18.53%. Overall, the evidence in this study provides consistent results that Section 404(b) does bring a net compliance benefit to firms.

This study makes several contributions to the literature. This study fills a gap in the current literature by being the first to address the question: "Does Section 404(b) bring a net compliance benefit to shareholders?" Utilizing a cost-benefit analysis methodology, this study answers that question in the affirmative. Other extant studies have looked only at the resultant audit fee reductions after the 2007 reforms (e.g., Doogar et. 2010; Hoag et al. 2011; Kinney et al. 2011; Krishnan et al. 2011), and only two have documented how complying with Section 404(b) benefits firms in discovering internal control weakness problems and in improving revenue quality (Bedard and Graham 2011; Krishnan and Yu 2012). Using Tobin's q to proxy for the net compliance benefit, this study documents that companies experience an average 8.63% increase

in firm value when the firm's auditor evaluates the internal control system. Additionally, the result is substantially larger when an industry-adjusted Tobin's q is utilized—an increase in firm value of 51.96%.

This study also contributes evidence to the current debate on the wisdom of exempting non-accelerated filers from Section 404(b). Unlike prior studies (Iliev 2010; Bedard et al. 2011; Kinney et al. 2011), this study investigates Section 404(b) over a longer time frame. According to the SEC's Chairman William H. Donaldson's (2005) statement, the goal of Section 404(b) is to provide long-term benefits to investors (SEC 2005a). We could think of the whole procedure of auditor assessment of internal control as an investment for shareholders. It seems to be extremely costly at the beginning; however, the returns are generated over a long period of time. In theory, the audit exists to reduce the information asymmetry problem. Likewise, the purpose of many regulations is the same. However, compared with large firms, the information asymmetry may be even more pronounced with smaller firms. It would be antithetical to exempt from regulation the firms which are most in need of reduction in information asymmetry.

Firms subject to Section 404(b) provisions experience benefits in reduced cost of debt that exceed the costs to comply with the provisions. These findings compliment Cassell et al. (2013) who find that the net benefit in firm value extends also to firms which voluntarily adopt Section 404(b) compliance. These results suggest that increased internal control, particularly under the Section 404(b) provisions, has benefitted shareholders; efforts directed at rolling back SOX provisions to reduce compliance costs may do more harm than good.

Appendix A – Control Variables

Our control variables include the following: *Filing* is the number of calendar days between the auditee's fiscal year end and the 10-K filing date. Ettredge et al. (2006) document that Section 404 increases significantly in a firm's filing days after control for other things. Meanwhile, changing filing status affects a firm in two ways simultaneously: Section 404(b) of auditor assessment of internal control system and reduction in 10-K filing deadline. Since December 15, 2006, the SEC requires large accelerated filers, accelerated filers and non-accelerated filers to comply with a 60-day, 75-day, and 90-day annual report deadline respectively (SEC 2005b). In order to disentangle the filing deadline reduction effect from the auditor assessment internal control effect, we include this filing period variable in the regression analysis. *Big4* is an indicator variable set equal to 1 if the firm's auditor is a Big 4 firm. Raghunandan and Rama (2006), Hogan and Wilkins (2008), Hoitash et al. (2008), Krishnan et al. (2011), Hoag and Hollingsworth (2011) have documented that companies having a Big 4 accounting firm as their auditors are associated with high audit fees. We track whether special items are included because Palmrose (1986), Ashbaugh et al. (2003), Krishnan et al. (2011) have documented a positive association between audit fees and the existence of special items. We include *ROA*, *Loss*, and *Lev* to control for firms' performance. Prior studies (e.g., Palmrose 1986; Ashbaugh et al. 2003; Doogar et al. 2010; Krishnan et al. 2011) have shown firms' audit fees are positively associated with leverage (*Lev*). Ashbaugh et al. 2003, Francis et al. 2005, and Krishnan et al. 2011 have documented positive association between a firm's performance and a firm's audit fees. Following prior studies (Palmrose 1986; Ashbaugh et al. 2003; Krishnan et al. 2011), we include *Merger* and *Restruct* to control for firms' activity in merger and restructuring. Prior literature has presented remarkably solid evidence that an auditee's size is highly positively associated with audit fees. Following Ashbaugh et al. 2003, Francis et al. 2005,

Hogan and Wilkins 2008, and Krishnan et al. 2011, we use *ForOp* to proxy for a firm's complexity because they have documented a positive association between audit fees and a firm's complexity. Doogar et al. (2010) and Krishnan et al. (2011) have documented *InvRec* is positively associated with audit fees. Doogar et al. (2010) also have documented higher audit fees for companies whose fiscal years end in December or January, which we include here in the binary variable *Busy*. Finally, we adopt *Frisk*, a binary variable to measure the probability of audit fraud, from Doogar et al. (2010). Dechow et al. (2011) develop this variable. Doogar et al. (2010) have shown that AS5 audit fees are positively associated with *Frisk*.¹⁴

¹⁴ AS5 refers Auditing Standard NO.5.

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Table 1 Variable Definitions**Panel A: variables definition for audit fees**

<i>LnAuditfees</i>	the natural logarithm of the audit and audit-related fees paid to the firm's auditor.
<i>Sox404b</i>	set equal to 1 if the firm is required to comply with Section 404(b), 0 otherwise.
<i>Filing</i>	number of calendar days between the auditee's fiscal year end and the 10-K filing date.
<i>Big4</i>	an indicator variable set equal to 1 if the firm's auditor is a Big 4 firm, 0 otherwise.
<i>Special</i>	an indicator variable set equal to 1 if the firm reports special items (Compustat data item SPI); 0 otherwise.
<i>Lev</i>	total liability divided by total asset.
<i>Restruct</i>	an indicator variable set equal to 1 if the firm took a restructuring charge (Compustat data item RCP or RCEPS); 0 otherwise.
<i>Size</i>	the natural logarithm of the total assets.
<i>ROA</i>	return-on-assets ratio. Calculated as operating income after depreciation, divided by total assets.
<i>Loss</i>	an indicator variable set equal to 1 if the firm's net income is negative, 0 otherwise.
<i>ForOp</i>	an indicator variable set equal to 1 if the firm reports foreign currency translation value other than 0 (Compustat data item FCA), 0 otherwise.
<i>InvRec</i>	(total receivables + total inventories) / total assets
<i>Busy</i>	an indicator variable set equal to 1 if the auditee's fiscal year ends on December or January, 0 otherwise.
<i>Merger</i>	an indicator variable set equal to 1 if the auditee is engaged in a merger or acquisition (Compustat data item AQP or AQEPS), 0 otherwise.
<i>Frisk</i>	an indicator variable set equal to 1 if F-Score ^b ≥ 1 , zero otherwise.

Panel B: variables definition for credit rating

<i>Rating</i>	Standard & Poor's (S&P) long-term domestic issuer credit rating (COMPUSTAT data item SPLTICRM), which is converted into rating numbers following Jiang (2008). A smaller number designates a better rating.
<i>LnAge</i>	the natural logarithm of the firm's age in years.
<i>LnSale</i>	the natural logarithm of the firms' sales.
<i>IntCov</i>	interest expense divided by earnings before interest and taxation.
<i>Liquidity</i>	(current assets - inventory) / current liabilities.

Table 1 continued

Panel C: variables definition for Tobin's q

<i>LnTobin_q</i>	the natural logarithm of Tobin's q . It calculates as $(AT + ME - BE) / AT$ AT: total assets ME: market value at year-end BE: book value of equity. Following Daniel and Titman (1997). BE= (Stockholders Equity + Deferred Taxes + Investment tax Credit - Preferred Stock)
<i>SaleGrowth</i>	percentage change of sales.
<i>PPE</i>	ratio of property, plant, and equipment to sales.
<i>Capital</i>	ratio of capital expenditures to PPE.
<i>EBIT</i>	ratio of earnings before interest and taxes to sales.
<i>ME</i>	market value of equity at the end of fiscal year.

^a We winsorize the top and bottom of one percent of each of the continuous variables to mitigate the influence of outliers.

^b F -score = $e^{PV} / [0.00345(1 + e^{PV})]$.

$$PV = -6.789 + 0.817 \text{Rsst_acc} + 3.230 \text{Ch_rec} + 2.436 \text{Ch_inv} + 0.122 \text{Ch_cs} - 0.992 \text{Ch_earn} + 0.972 \text{Issue}$$

$$\text{Rsst_acc} = [(\text{WC}_t - \text{WC}_{t-1}) + (\text{NCO}_t - \text{NCO}_{t-1}) + (\text{FIN}_t - \text{FIN}_{t-1})] \div [0.5(\text{AT}_t + \text{AT}_{t-1})]$$

$$\text{WC} = [\text{Current Assets (ACT)} - \text{Cash and Short-Term Investments (CHE)}] - [\text{Current Liabilities (LCT)} - \text{Short-Term Debt (DLC)}]$$

$$\text{NCO} = [\text{Total Assets (AT)} - \text{Current Assets (ACT)} - \text{Long-Term Investments (IVAO)}] - [\text{Total Liabilities (LT)} - \text{Current Liabilities (LCT)} - \text{Long-Term Debt (DLTT)}]$$

$$\text{FIN} = [\text{Short-Term Investments (IVST)} + \text{Long-Term Investments (IVAO)}] - [\text{Long-Term Debt (DLTT)} + \text{Short-Term Debt (DLC)} + \text{Preferred Stock (PSTK)}]$$

$$\text{Ch_rec} = [\text{Rec}_t - \text{Rec}_{t-1}] \div [0.5(\text{AT}_t + \text{AT}_{t-1})]$$

$$\text{Ch_inv} = [\text{Inv}_t - \text{Inv}_{t-1}] \div [0.5(\text{AT}_t + \text{AT}_{t-1})] \text{ where Inv is total inventory (INVT)}$$

$$\text{Ch_cs} = (\text{CS}_t - \text{CS}_{t-1} / \text{CS}_{t-1}) * 100 \text{ where CS is sales (SALE) less change in accounts receivable (RECT)}$$

$$\text{Ch_earn} = [\text{Earn}_t \div \text{AT}_t] - [\text{Earn}_{t-1} \div \text{AT}_{t-1}] \text{ where Earn is earnings (IB)}$$

Issue = 1 if firm issued securities during the year ((SSTK) > 0 or (DLTIS) > 0), zero otherwise.

Table 2 Descriptive Statistics for Variables Used in the Credit Rating Analyses..

Variable	Mean		p-value for Difference	Median		p-value for Difference	n	
	<i>Sox404b=0</i>	<i>Sox404b=1</i>		<i>Sox404b=0</i>	<i>Sox404b=1</i>		<i>Sox404b=0</i>	<i>Sox404b=1</i>
<i>Rating</i>	14.63	11.28	<0.01	15	12	<0.01	587	4,422
<i>IntCov</i>	0.75	0.82	0.17	0.3	0.47	<0.01	587	4,422
<i>Liquidity</i>	945.54	3343.71	<0.01	271.67	1124.01	<0.01	587	4,422
<i>LnSale</i>	7.08	8.07	<0.01	6.87	8.00	<0.01	587	4,422
<i>LnAge</i>	2.41	3.08	<0.01	2.40	3.09	<0.01	587	4,422
<i>Size</i>	7.28	8.29	<0.01	7.01	8.18	<0.01	587	4,422
<i>Lev</i>	0.92	0.65	<0.01	0.87	0.62	<0.01	587	4,422
<i>Big4</i>	0.87	0.96	<0.01	1	1	<0.01	587	4,422

We winsorize the top and bottom of one percent of each of the continuous variables to mitigate the influence of outliers.

Table 3 Correlation Matrix for Variables Used in the Credit Rating Analyses

	rating	1	2	3	4	5	6	7
(1) <i>Sox404b</i>	-0.33*							
(2) <i>Big4</i>	-0.18*	0.14*						
(3) <i>LnAge</i>	-0.45*	0.27*	0.12*					
(4) <i>Size</i>	-0.65*	0.24*	0.22*	0.43*				
(5) <i>LnSale</i>	-0.65*	0.23*	0.23*	0.47*	0.88*			
(6) <i>IntCov</i>	0.09*	0.02	0.02	0.13*	-0.08*	0.12*		
(7) <i>Liquidity</i>	-0.55*	0.12*	0.09*	0.31*	0.66*	0.64*	0.01	
(8) <i>Lev</i>	0.44*	-0.34*	-0.02	-0.18*	-0.22*	-0.13*	-0.006	-0.02

*indicates significance at 0.05 level.

Table 4 Regression Results for Credit Rating Analyses

Variable	Within-Firm	Between-Firm
	Time Series Analysis	Cross Sectional Analysis
	<i>Rating</i>	<i>Rating</i>
<i>Sox404b</i>	-0.40*** (-4.19)	-0.58*** (-3.03)
<i>IntCov</i>	0.08** (2.81)	0.53*** (8.90)
<i>Liquidity</i>	2.78e-06 (0.25)	-9.87e-05*** (-7.89)
<i>LnSale</i>	-0.85*** (-6.75)	-1.08*** (-11.33)
<i>LnAge</i>	-0.66*** (-2.90)	-0.49*** (-6.00)
<i>Size</i>	0.14 (1.15)	0.06 (0.62)
<i>Lev</i>	2.86*** (13.30)	3.95*** (15.37)
<i>Big4</i>	0.08 (0.36)	-0.67*** (-2.88)
<i>Cons</i>	17.30*** (14.49)	19.13*** (32.68)
<i>Year Dummies</i>	included	included
R^2	0.23	0.58
N	5,009	5,009

This table presents coefficients from panel regressions of *Rating* (credit rating) on *Sox404b* and other control. *Sox404b* is set equal to 1 if the firm is required to comply with Section 404(b), 0 otherwise. All regression use year dummies and unbalanced panels. *, **, and *** indicate significance at 0.10, 0.05, and 0.01 levels. T-statistics are reported in parentheses.

Table 5 Descriptive Statistics for Variables Used in the Audit Fee Analyses.

Variable	Mean		p-value for Difference	Median		p-value for Difference	n	
	Sox404b=0	Sox404b=1		Sox404b=0	Sox404b=1		Sox404b=0	Sox404b=1
<i>LnAuditfees</i>	12.28	14.09	<0.01	12.19	14.01	<0.01	7,734	13,162
<i>Big4</i>	0.27	0.83	<0.01	0	1	<0.01	7,734	13,162
<i>Size</i>	3.39	6.69	<0.01	3.45	6.59	<0.01	7,734	13,162
<i>ROA</i>	-0.58	0.03	<0.01	-0.04	0.07	<0.01	7,734	13,162
<i>InvRec</i>	0.28	0.22	<0.01	0.24	0.20	<0.01	7,734	13,162
<i>Special</i>	0.99	0.99	0.05	1	1	0.05	7,734	13,162
<i>Restruct</i>	0.15	0.36	<0.01	0	0	<0.01	7,734	13,162
<i>Lev</i>	1.43	0.51	<0.01	0.54	0.48	<0.01	7,734	13,162
<i>Busy</i>	0.71	0.8071	<0.01	1	1	<0.01	7,734	13,162
<i>Loss</i>	0.63	0.78	<0.01	1	0	<0.01	7,734	13,162
<i>ForOp</i>	0.21	0.36	<0.01	0	0	<0.01	7,734	13,162
<i>Frisk</i>	0.47	0.64	<0.01	1	1	<0.01	7,734	13,162
<i>Filing</i>	86.44	62.55	<0.01	88	60	<0.01	7,734	13,162
<i>Merger</i>	0.09	0.24	<0.01	0	0	<0.01	7,734	13,162

We winsorize the top and bottom of one percent of each of the continuous variables to mitigate the influence of outliers.

Table 6 Correlation Matrix for the Audit Fee Analyses Variables

	LnAuditfees	1	2	3	4	5	6	7	8	9	10	11	12	13
(1) <i>Sox404b</i>	0.64*													
(2) <i>Big4</i>	0.69*	0.56*												
(3) <i>Size</i>	0.89*	0.64*	0.65*											
(4) <i>ROA</i>	0.36*	0.27*	0.25*	0.51*										
(5) <i>InvRec</i>	-0.07*	-0.14*	-0.15*	-0.11*	0.07*									
(6) <i>Special</i>	-0.02*	-0.01	-0.02*	-0.02*	-0.01*	-0.02*								
(7) <i>Restruct</i>	0.41*	0.23*	0.28*	0.33*	0.11*	0.02*	0.007							
(8) <i>Lev</i>	-0.26*	-0.22*	-0.19*	-0.39*	-0.79*	-0.002	0.003	-0.07*						
(9) <i>Busy</i>	0.09*	0.08*	0.10*	0.09*	0.01	-0.12*	-0.003	-0.009	-0.01					
(10) <i>Loss</i>	-0.32*	-0.32*	-0.23*	-0.43*	-0.32*	-0.10*	0.02*	-0.01	0.19*	0.03*				
(11) <i>ForOp</i>	0.28*	0.16*	0.16*	0.20*	0.09*	0.06*	-0.0003	0.20*	-0.08*	-0.02*	-0.08*			
(12) <i>Frisk</i>	0.13*	0.16*	0.10*	0.16*	0.09*	0.001	-0.01	-0.08*	-0.06*	0.05*	-0.26*	0.04*		
(13) <i>Filing</i>	-0.61*	-0.63*	-0.53*	-0.67*	-0.35*	0.09*	0.02*	-0.22*	0.29*	-0.05*	0.38*	-0.15*	-0.15*	
(14) <i>Merger</i>	0.27*	0.18*	0.17*	0.25*	0.10*	-0.04*	-0.02*	0.17*	-0.07*	0.001	-0.11*	0.10*	0.12*	-0.17*

*indicates significance at 0.05 level.

Table 7 Regression Results for Audit Fees Analyses

Variable	Within-Firm	Between-Firm
	Time Series Analysis	Cross Sectional Analyses
	<i>LnAuditfees</i>	<i>LnAuditfees</i>
<i>Sox404b</i>	0.05 ^{***} (3.67)	0.14 ^{***} (5.53)
<i>Big4</i>	0.44 ^{***} (14.44)	0.48 ^{***} (22.63)
<i>Size</i>	0.29 ^{***} (25.65)	0.43 ^{***} (74.90)
<i>ROA</i>	-0.05 ^{***} (-6.47)	-0.08 ^{***} (-7.52)
<i>InvRec</i>	0.19 ^{**} (4.08)	0.42 ^{***} (10.24)
<i>Special</i>	0.004 (0.23)	0.10 (0.86)
<i>Restruct</i>	0.03 [*] (4.43)	0.36 ^{***} (15.15)
<i>Lev</i>	0.009 ^{**} (2.15)	0.02 ^{***} (3.32)
<i>Busy</i>	0.06 (0.86)	0.015 (0.85)
<i>Loss</i>	0.034 ^{***} (5.15)	0.24 ^{***} (10.40)
<i>ForOp</i>	0.03 ^{**} (2.18)	0.22 ^{***} (12.36)
<i>Frisk</i>	0.004 (0.96)	0.045 [*] (1.86)
<i>Filing</i>	0.0037 ^{***} (9.25)	-0.0007 (-1.05)
<i>Merger</i>	0.055 ^{***} (8.19)	0.26 ^{***} (8.87)
<i>Cons</i>	11.14 ^{***} (120.22)	10.32 ^{***} (74.23)
<i>Year Dummies</i>	included	included
R^2	0.25	0.88
<i>N</i>	20,896	20,896

This table presents coefficients from panel regressions of *LnAuditfees* on *Sox404b* and control variables. *Sox404b* is set equal to 1 if the firm is required to comply with Section 404(b), 0 otherwise. All regressions use year dummies and unbalanced panels. *, **, and *** indicate significance at 0.10, 0.05, and 0.01 levels. T-statistics are reported in parentheses.

Table 8 Replication of Krishnan and Yu (2012) and Pseudo Test		
	Replication	Pseudo Test
	P	P
<i>BVE</i>	0.50* (1.78)	0.26 (0.88)
<i>NI</i>	-0.81*** (-7.25)	-0.97*** (-11.73)
<i>SGROW2</i>	0.42* (1.81)	0.26 (1.20)
<i>Sox404b (Large)</i>	2.42*** (3.11)	-0.54 (-1.19)
<i>Sox404b</i> × <i>BVE (Large</i> × <i>BVE)</i>	0.71*** (3.82)	1.04*** (5.38)
<i>Sox404b</i> × <i>NI (Large</i> × <i>NI)</i>	0.39* (1.82)	1.09*** (4.14)
<i>Sox404b</i> × <i>SGROW2 (Large</i> × <i>SGROW2)</i>	-0.38 (-1.01)	-0.005 (-0.02)
<i>Industry</i>	Yes	Yes
<i>Year effect</i>	Yes	Yes
<i>Adjusted R²</i>	0.588	0.617
<i>N</i>	2,239	2,239

*, **, *** Indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively, for a two-tailed test. Robust t-statistics are based on clustering of standard errors by firm and year.

This table presents results of replication Table 8 of Krishnan and Yu (2012) and pseudo test. The dependent variable is stock price per share (P). The sample period is 2007 – 2009. All the variables are defined as in Krishnan and Yu (2012). In the Pseudo Test column, *Sox404b* is replaced by *Large*.

P = common stock price per share at the end of three months after fiscal year-end;

BVE = book value of equity per share;

NI = net income per share;

SGROW2 = sales growth calculated as sales in year *t* minus sales in year *t*–2 scaled by sales in year *t*–2;

Sox404b = set to 1 if the firm is required to comply with Section 404(b), and 0 otherwise;

Large = 1 for firms whose total book value of equity is larger than the sample median, and 0 otherwise.

Table 9 Descriptive Statistics for Variables Used in the Tobin's q Analyses.

variable	Mean		p-value for Difference	Median		p-value for Difference	n	
	Sox404b=0	Sox404b=1		Sox404b=0	Sox404b=1		Sox404b=0	Sox404b=1
<i>LnTobinsQ</i>	0.28	0.50	<0.01	0.15	0.41	<0.01	4,721	12,145
<i>SaleGrowth</i>	0.12	0.13	0.31	0.02	0.07	<0.01	4,721	12,145
<i>ME</i>	97.15	3,893.86	<0.01	26.29	765.40	<0.01	4,721	12,145
<i>Size</i>	3.58	6.74	<0.01	3.58	6.62	<0.01	4,721	12,145
<i>Lev</i>	0.43	0.47	<0.01	0.41	0.46	<0.01	4,721	12,145
<i>PPE</i>	1.16	0.98	<0.01	0.34	0.39	<0.01	4,721	12,145
<i>Capital</i>	2.26	0.22	<0.01	0.61	0.02	<0.01	4,721	12,145
<i>EBIT</i>	-1.09	-0.28	<0.01	0.03	0.12	<0.01	4,721	12,145
<i>Merger</i>	0.09	0.25	<0.01	0	0	<0.01	4,721	12,145
<i>LnAge</i>	2.61	2.81	<0.01	2.08	2.83	<0.01	4,721	12,145

We winsorize the top and bottom of one percent of each of the continuous variables to mitigate the influence of outliers.

Table 10 Correlation matrix for Variables Used in the Tobin's q Analyses.

	LnTobinsQ	1	2	3	4	5	6	7	8	9
(1) <i>Sox404b</i>	0.17*									
(2) <i>Size</i>	-0.06*	0.67*								
(3) <i>SaleGrowth</i>	0.17*	0.008*	-0.04*							
(4) <i>LnAge</i>	-0.09*	0.12*	0.27*	-0.17*						
(5) <i>Lev</i>	-0.07*	0.07*	0.30*	-0.03*	0.06*					
(6) <i>PPE</i>	-0.02*	-0.04*	-0.05*	0.001	-0.09*	0.01				
(7) <i>Capital</i>	0.13*	-0.34*	-0.44*	0.10*	-0.12*	-0.11*	-0.03*			
(8) <i>EBIT</i>	-0.15*	0.10*	0.21*	-0.01	0.12*	0.09*	-0.58*	-0.24*		
(9) <i>Merger</i>	0.002	0.17*	0.24*	0.03*	0.05*	0.07*	-0.08*	-0.11*	0.07*	
(10) <i>ME</i>	0.14*	0.20*	0.54*	-0.02*	0.25*	0.10*	-0.02*	-0.09*	0.06*	0.10*

Table 11 Regressions Results for Tobin's q Analyses

Variable	Within-Firm Analysis) <i>LnTobinsQ</i>	Between-Firm Analysis <i>LnTobinsQ</i>
<i>Sox404b</i>	0.17*** (9.07)	0.74*** (29.21)
<i>SaleGrowth</i>	0.11*** (10.43)	0.14*** (7.16)
<i>Size</i>	-0.24*** (-16.02)	-0.17*** (-25.07)
<i>Lev</i>	0.14*** (3.93)	0.26*** (7.15)
<i>PPE</i>	-0.01*** (-2.75)	-0.03*** (-6.91)
<i>Capital</i>	0.006 (1.06)	0.01*** (3.73)
<i>EBIT</i>	-0.007* (-1.79)	-0.03*** (-10.89)
<i>Merger</i>	-0.001 (-0.19)	-0.03 (-1.22)
<i>LnAge</i>	-0.07* (-1.72)	-0.04*** (-3.85)
<i>ME</i>	0.000029*** (13.16)	0.000025*** (20.97)
<i>Cons</i>	1.88*** (15.09)	0.73*** (15.37)
<i>Year Dummies</i>	included	included
R^2	0.28	0.16
N	16,866	16,866

This table presents coefficients from panel regressions of $LnTobin_q$ on *Sox404b* and other control variables as in Panel C of Table 1. *Sox404b* is set equal to 1 if the firm is required to comply with Section 404(b), 0 otherwise. All regression use year dummies and unbalanced panels. *, **, and *** indicate significance at 0.10, 0.05, and 0.01 levels. t statistics are reported in parentheses.