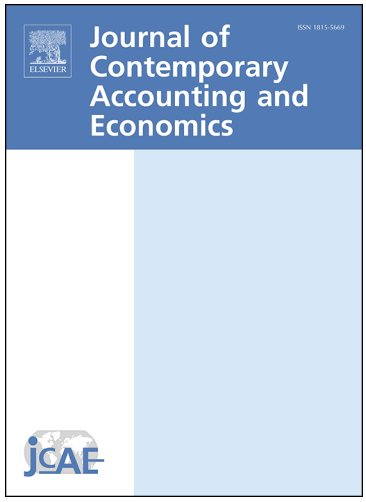

Internal Control Risk and Audit Fees: Evidence from China

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Internal Control Risk and Audit Fees: Evidence from China

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Internal Control Risk and Audit Fees: Evidence from China

Abstract

This study examines the association between internal control risk and audit fees under the voluntary adopting regime of the *Basic Standard of Enterprise Internal Control* in China. We find that audit fees are positively related to disclosed internal control weaknesses (ICWs). In particular, they are significantly associated with non-financial reporting-related, but not with financial reporting-related, ICWs.

Our results also indicate that voluntary assurance in internal control reports can mitigate higher audit fees associated with ICWs. Our study provides timely evidence relating to the debate on whether the scope of internal control should be expanded to non-financial reporting-related areas.

JEL Classification: G34, G38, M42

Keywords:

audit fees; China; internal control risk; internal control weakness; voluntary assurance

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Internal Control Risk and Audit Fees: Evidence from China

1. Introduction

With the increasing importance of risk management in business enterprises and auditors' roles in promoting effective risk management as part of the audit process, it is not surprising that the concept of risk management has become a focus in auditing and assurance research (Knechel, 2007). The number of academic studies devoted to investigating the relationship between enterprise risk management (ERM) and audit risk adjustments has increased (Desender and Lafuente, 2011; Knechel and Willekens, 2006). Internal control, as one of the essential elements of ERM, has attracted enormous attention in recent years, since the stipulation of the *Sarbanes–Oxley Act* (SOX) in the United States (US), which requires auditors to provide an assessment of clients' internal control quality and certify their internal control reports (ICRs). Studies examining the effect of the SOX regulation on audit fees—one of the main audit risk adjustment mechanisms—predominately adopt the supply view of auditing, suggesting that clients' internal control weaknesses (ICWs) in financial reporting represent audit risks that could have negative effects on clients, both currently (e.g., misstatement and error in financial statements) and in the future (e.g., potential litigation liability) (Bedard et al., 2008; Raghunandan and Rama, 2006; Elder et al., 2009; Foster et al., 2007; Hogan and Wilkins, 2008; Hoitash et al., 2008; Choi et al., 2010). Due to increased perceived audit risks and correspondingly increased audit hours and efforts as a result of the implementation of SOX regulation, prior studies provide conclusive evidence that clients' internal control risk leads to auditors' risk adjustment and resulting higher audit fees.

However, whether internal control assessment of the financial reporting area under the SOX regime can truly represent a complete and accurate internal control assessment of business entities has been questioned recently (Public Company Accounting Oversight Board [PCAOB], 2013, 2015). There is a concern that internal control assessment of operational

control risks can also affect financial reporting quality and this issue has been largely ignored by prior studies. It has been argued that the literature on internal control focuses only on financial reporting in an isolated way, rather than as part of an integrative evaluation of overall internal controls in business (Habib et al., 2018; Lawrence et al., 2018). Thus, the limitation of prior studies on internal control risk and audit fees is that they narrow auditors' reactions to ICWs that exist in the financial reporting-related area only, mainly because the SOX is a financial reporting-focused internal control regulation. ERM, however, in the spirit of the *Internal Control-Integrated Framework* developed by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), advocates that auditors should adopt a broader view of risk management, examining clients' internal control at the management level, which might have a more direct and profound effect on the quality of the judgements and estimates made for financial statements rather than focusing solely on accounting errors (COSO, 2004, 2013; Knechel, 2007).

The auditing failures relating to financial scandals such as Enron, WorldCom and Parmalat in the early 2000s share a distinctive characteristic: the financial fraud was conspired and concealed by top management—a crucial area of internal control. These cases highlight the importance of auditors possessing good knowledge of clients' internal control problems beyond financial reporting. The information related to clients' internal control over both financial reporting-related areas and non-financial reporting-related areas is expected to play a complementary role in helping auditors to form the foundation for assessing a client's audit risk.

Disclosed ICWs in non-financial reporting areas could provide auditors with leading indicators for audit risks when determining auditing fees. This incremental value is derived from two sources. First, ICWs in non-financial reporting areas could imply clients' potential litigation risk, which would inevitably increase the perceived audit risk for auditors. Second,

since a business entity functions as an integrated organ (Chen et al., 2016; Simnett et al., 2009), weaknesses in non-financial reporting areas can affect the quality and effectiveness of internal control over financial reporting areas. ICWs in non-financial reporting areas could have either a direct or indirect effect on the quality of financial statements. Thus, given that audit fee pricing is an important strategy for auditors to manage audit risks (Defond and Zhang, 2014; Simunic, 1980), the disclosure of non-financial reporting-related ICWs could assist auditors in determining an acceptable threshold of audit risk, audit hours and compensation for potential legal liability and reputation loss (Dechow et al., 2010).

Raghunandan and Rama (2006), Hoitash et al. (2008) and Hogan and Wilkins (2008) attempt to differentiate top management, human resources (HR) and controlling environment-related ICWs from financial reporting-related ICWs, and find that risks existing in these areas affect auditors' perceptions of their clients. However, inconsistent definitions and classifications of non-financial reporting-related ICWs among prior studies imply that there is still a lack of evidence on whether auditors' assessments of clients' internal control in non-financial reporting areas—that is, in business management and operations-related areas—can assist them in carrying out their audit work more effectively and efficiently. In other words, whether and how business management-related internal control risks affect audit process remains unclear.

The internal control disclosure made by Chinese listed firms provides us with a unique opportunity to address this research gap. Aiming to improve operational efficiency and promote the strategic development of ERM, between 2008 and 2010, Chinese regulatory bodies established a regulatory framework for internal control—China SOX—by issuing the *Basic Standard of Enterprise Internal Control* and three implementation guidelines: the *Internal Control Application Guidelines*; *Internal Control Evaluation Guidelines*; and *Internal Control Audit Guidelines*. China SOX requires listed firms to strengthen their

internal control over the internal operating environment; risk assessment and management; information disclosure and communication; and internal oversight/monitoring. Similar to the SOX in the US, both firms and their auditors are required to provide an evaluation of the effectiveness of their internal control. China SOX became effective on 1 January 2012. Prior to this date, firms possessed discretion in adopting it voluntarily.

Using the internal control disclosures made by Chinese listed firms enables us to overcome one of the limitations of prior studies. Compared with the US SOX regime, China SOX is more comprehensive, extending the scope of the internal control system to much broader business management and operation areas by specifically identifying 18 business management and operation areas where internal control risks could exist, from organisational structure, HR management, budget and corporate social responsibilities, to procurement and sales, outsourcing and contract management. The internal control directly related to the preparation of financial reporting is only one of the components of the overall internal control system articulated in the China SOX. Including risk assessment and management, internal oversight/monitoring and other unspecified weaknesses, firms are required to identify their ICWs in a total of 21 areas. Thus, under the Chinese internal control regime, the ICWs disclosed by firms constitute research data not only on financial reporting, but also on business management and operation areas. As the non-financial reporting-related internal control areas are clearly defined and articulated, this data set provides us with an opportunity to investigate whether much broader internal control risks can have a different effect on auditors' price adjustments, and particularly whether auditors incorporate clients' internal control risks—present in non-financial reporting areas—into their audit service.

More specifically, capitalising on the data available in China, our study examines: (1) the relationship between internal control risks—measured as ICWs disclosed by listed firms—and audit fees; (2) the association between internal control risks existing in financial

reporting areas and in non-financial reporting-related areas, and audit fees respectively; and (3) whether the voluntary assurance of ICRs can mitigate the higher audit fees associated with internal control risks.

Using a sample of 2,343 firms listed on the two Chinese stock exchanges over 2009–11, our results show that audit fees are positively associated with internal control risk—measured as ICWs disclosed in ICRs—indicating that auditors believe the existence of ICWs in firms increases audit risk and therefore charge higher audit fees as compensation for the greater auditing effort required (Hill et al., 1994; Morgan and Stocken, 1998). Our results also show that audit fees are significantly associated with business management and operations-related ICWs, meaning that auditors incorporate these non-financial reporting-related risks into their audit planning and audit fee adjustment. Further, we find that voluntary ICR assurance can mitigate audit risks caused by low internal control quality; that is, disclosure of ICWs. This can be explained as firms voluntarily engaged in ICR assurance have the desire to improve the credibility of the internal control information they disclose and these firms are assumed to be proactive in ERM. Consistent with Desender and Lafuente (2011), ERM-active firms are associated with lower audit fees because effective ERM measures not only create conditions for better internal monitoring, but also facilitate smooth auditing.

Our study makes significant contributions to the literature on internal control, auditing and assurance and also has some practical implications. First, prior studies have documented that the enactment of the US SOX led to a significantly higher level of audit fees; however, these results are limited to a context in which the internal control system narrowly focuses on financial reporting. It is not clear whether auditors take into account internal control problems over and above those solely related to financial reporting when they assess clients' audit risk and the quality of financial reporting. Although several studies expand their research from

internal control in financial reporting related to internal control in other areas (such as information technology [IT]) and assess the effect of internal control quality on financial information quality and audit fees (Lawrence et al., 2018; Masli et al., 2010), our study presents a more comprehensive investigation of the effect of internal control risks—existing in business management and operation areas—on audit fees. Our results demonstrate that auditors adjust their fees based on an assessment of their client's overall internal control risks, rather than simply focusing on the internal control risks associated with financial reporting.

Second, our study enriches the auditing and assurance literature by examining the moderating role played by voluntary ICR assurance in the relationship between audit fees and internal control quality. Our results suggest that there are additional benefits for firms to provide audited ICRs; that is, an assured internal control system will be perceived by auditors as less risky than a system without such assurance. Finally, our study provides useful insight into the possible economic consequences of the official implementation of the *Internal Control Standard* in China from 2012. This information may also be of interest to regulators around the world; in particular, those in emerging markets that are considering implementing regulations similar to the US SOX.

The remainder of the paper is organised as follows. Section 2 provides the institutional background for ERM, internal control reporting and assurance of ICRs in China, and is followed by a literature review and hypothesis development in Section 3. Section 4 describes the research methods, including sample selection, model specification and variable definition. Empirical results are reported and discussed in Section 5. Conclusions are drawn in Section 6.

2. The Internal Control Regulatory Framework in China

Along with the rapid growth of the Chinese stock market comes the gradual establishment of modern corporate management among listed Chinese firms (Chen, 2015). The majority of listed firms were originally transformed from state-owned enterprises (SOEs) that operated under the planned economy prior to China initiating its *Open-door Policy* in 1978 and one of the significant problems identified in these enterprises was the lack of awareness of risk management and poor internal control systems. The establishment of the internal control regulatory framework was undertaken to address this problem, with the clear objective of enhancing enterprises' capacity to detect, assess and prevent risk. The core theme of the China SOX is in line with COSO's internal control framework, with both regarding internal control as the underlying foundation to achieve ERM effectiveness (COSO, 2004; Ministry of Finance, 2008).

The most significant difference between the China SOX and its counterpart in the US is the scope of internal control in the regulatory framework. While the US SOX focuses on internal control over financial reporting, the scope of China SOX is much wider, expanding to other business management and operation areas. The 21 areas can be decomposed into financial reporting-related areas and non-financial related areas depending on each area's effect on a firm's bottom line. Financial reporting-related areas include the internal control over financial reporting; non-financial reporting-related areas cover the internal control over budgeting, finance and investment, procurement, asset management, sales, organisational structure, development of strategy, HR management, corporate social responsibility, organisational culture, research and development, construction projects, guarantee, outsourcing, contract management, internal reporting system, IT system, risk assessment and management, internal oversight/monitoring and other unspecified weaknesses. The non-financial reporting-related areas actually address business entities' management and

operation in a very comprehensive manner. The internal control regulatory framework in China highlights the fact that the internal control over other business management and operation areas is equally important and should not be forgotten in management and auditors' internal control evaluation. China SOX requires auditors to evaluate both financial reporting and non-financial reporting-related ICWs when assessing the effectiveness of their clients' internal control system.

3. Literature Review and Hypothesis Development

Audit fee adjustment has long been considered an important client-related risk management strategy in the auditing literature (Defond and Zhang, 2014; Simunic, 1980). Client-related risks include audit risk and client business risk. Audit risk is the 'risk that the auditor fails to draw attention to a material misstatement, deficiency, abuse, or other unacceptable matter in an audit, and thus issue an incorrect audit opinion', while client business risk is 'the risk that the client's economic condition will deteriorate in either the short or long term' (Elder et al., 2009, p.548).

Client business risks have been proxied by client investment in risky assets, such as inventory and receivables, client losses, qualified audit opinions, probability of business failure as indicated by a firm's financial position, investment decisions and operating performance. Client business risks may lead to greater litigation risk. Studies have suggested that the higher the client business risk, the higher the audit fee (Bell et al., 2001; Hill et al., 1994; Seetharaman et al., 2002).

3.1 Internal control risk and audit fees

The stipulation of the US SOX enables researchers to measure audit risk by quantifying control risk—one of the three components[1] of audit risk—and to examine the effect of such a risk on audit fees. Control risk is the perceived level of risk that a material misstatement in the client's financial statements will not be detected and corrected by management's internal control procedures (American Institute of Certified Public Accountants, 2006). The ICW information disclosed by clients thus provides auditors with opportunities to gauge the level of control risk of their clients. As Elder and Allen (2003) point out, since control risk equals the likelihood of error occurring in clients' accounts prior to the auditors' testing, it is more relevant to the auditors' client risk management decisions (Elder et al., 2009). Clients' ICWs have the potential to affect financial reporting quality (Foster et al., 2007). Control risk could lead to failures in the application of accounting rules and fraudulent financial reporting. Hogan and Wilkins (2008) provide empirical results, suggesting that the stipulation of the US SOX increases auditors' sensitivity to clients' control risk. Given that clients with ICWs are more likely to have accounting errors or irregularities and to engage in opportunistic earnings' management behaviours (Ashbaugh-Skaife et al., 2007; Doyle et al., 2007; Lenard et al., 2016), auditors must expend more audit effort. Johnstone and Bedard (2004) and Elder et al. (2009) find that planned audit personnel hours and planned hourly billing rates are higher for firms with ICWs to facilitate more stringent identification and rectification in the audit process. In addition, Ashbaugh-Skaife et al. (2009) point out that firms with internal control deficiencies are those that have higher idiosyncratic risks that could possibly expose clients to litigation risks and consequently damage auditors' reputations (DeAngelo, 1981).

[1] SAS No. 107 (American Institute of Certified Practicing Accountants, 2006) decomposes audit risk into inherent risk, control risk and detection risk. Inherent risk is the perceived level of risk that a material misstatement may occur in a client's financial statements in the absence of internal control procedures. Detection risk is the perceived level of risk that a material misstatement in the client's financial statements will not be detected by the auditor.

Thus, higher audit fees charged to clients with ICWs are audit risk premiums in compensating for clients' potential legal liability (Ashbaugh-Skaife et al., 2009; Bedard et al., 2008; Elder et al., 2009).

Given that the literature provides the conclusive finding that ICWs in the financial reporting process can proxy control risk over financial reporting, and that audit fee adjustment is one of the practical approaches taken by auditors to manage such risk (Bryan and Mason, 2016; Elder et al., 2009), we expect that audit fees are positively associated with disclosure of ICWs in China. Hypothesis 1 is therefore formulated as:

H1: *Ceteris paribus*, audit fees for firms with internal control weaknesses are higher than those for firms without internal control weaknesses.

3.2 Internal control risks in financial reporting and non-financial reporting-related areas, and their effects on audit fees

The aim underpinning our second hypothesis is to capitalise on the unique data set of ICWs disclosed by Chinese listed firms and determine whether auditors measure risks differently according to the type of identified weakness—for example, financial reporting-related and non-financial reporting-related weaknesses—and price them differently.

Despite the US SOX being financial reporting focused, studies have attempted to identify some ICWs outside the financial reporting area and investigate their effect on audit fees. However, the literature only provides us with limited evidence and inconclusive findings. For example, Raghunandan and Rama (2006) report a significant association between audit fees and material weaknesses (MWs) disclosed in ICRs. This association, however, does not vary between account/transaction-related MWs and top management-related MWs. Hoitash et al. (2008) classify ICWs in revenue recognition, cost estimation/recognition, inventory valuation and so on as accounting-specific problems; and

ICWs related to human resources, senior management issues, technology and so on as general problems. They first find that audit fees are significantly associated with both account-specific and general problems, meaning both accounting-related ICWs and ICWs in areas other than accounting have an effect on clients' audit risks and thus audit fees. They also find a greater association between general problems—in particular, problems related to HR and the controlling environment of a firm—and audit fees. Hoitash et al. (2008) suggest that ICWs related to general problems are harder to detect and audit. It also takes a firm longer to remedy general problem-related ICWs and therefore, these ICWs are likely to have more severe consequences for financial reporting. This argument is echoed by Doyle et al. (2007), who find that accrual quality is associated with company-level problems but not with account-specific problems. Hogan and Wilkins (2008) provide further evidence, showing that 'audit fees are significantly higher with more pervasive weakness (e.g., accounting policies, the internal control environment as a whole, or issues with management and personnel), whereas fees are not significantly higher if the weaknesses are less severe and are relatively isolated (e.g., account-specific or subsidiary-specific)' (p.236).

The limitation of prior studies with respect to the effect on audit fees of ICWs beyond financial reporting is that these studies heavily concentrate their discussion on three aspects of business entities: top management, HR and internal control environment. The ICWs existing in these areas are of course important, but they do not necessarily capture the internal control deficiency in a firm's overall non-financial reporting areas in a comprehensive manner or with a broader view of risk management. The much wider scope of the China SOX and clearly articulated internal control on both financial reporting and non-financial reporting-related areas provide us with a good opportunity to conduct a thorough investigation of the association between different types of ICWs and audit fees.

The ICWs in non-financial reporting-related areas encompass some fundamental ERM issues that are crucial for a company's operation; hence, they are likely to be associated with higher audit fees. From a supply perspective of audit services, to accomplish a high-quality audit, auditors must meet with corporate management regularly throughout the year and collect relevant information necessary for them to assess clients' regulatory and litigation risks. Auditors then need to evaluate such information when determining the acceptable threshold of audit risk. The higher the audit risk, the lower the acceptable threshold and the more audit works are required in the auditing process (Chen et al., 2016). Clients' weaknesses in non-financial reporting areas is one type of information to which auditors would pay particular attention in the process of evaluating audit risk, for three specific reasons. First, the risks associated with the ICWs identified in non-financial reporting areas may affect a client's business risk in the short or long term. For example, Hunan Jiarui New Material Ltd suffered a significant financial loss as a guarantor because of the lack of internal control over the procedure of signing the guarantee contract. In another example, WuKuang XiTu Ltd's ICR reveals that family members of the board of directors were trading the company's shares during a restricted share-trading period.[2] The incident was reported as a weakness in organisational structure, another non-financial reporting internal control area. This firm not only breached the company's constitution, but also violated the listing rules, and was therefore penalised by the Chinese stock market regulator, the China Security Regulatory Commission (CSRC). These cases provide evidence that non-financial reporting-related ICWs can lead to a client's financial loss, litigation risk or regulatory sanctions; and increase client-related risks for auditors.

Second, the literature argues that a business entity works as an integrated organ (Chen et al., 2016; Simnett et al., 2009). Thus, management's commitment or attitude towards to

[2] According to the CSRC regulations, there are certain periods in which directors are restricted from trading their shares held in the company (CSRC, 2007).

internal control should exhibit a certain degree of consistency across all aspects of a business entity (Lawrence et al., 2018). For example, Chen et al. (2016) demonstrate that a firm's high-quality financial information can signal the higher credibility of its corporate social responsibility disclosure, and vice versa. Since the internal control system for financial reporting and non-financial reporting in a firm would be designed and overseen by the same management team, weaknesses in the business management and operation area would inevitably make auditors question the effectiveness of internal control over the financial reporting area when planning their audit works.

Third, ICWs in non-financial reporting areas could have either a direct or indirect effect on the quality of financial statements. For example, the organisational structure area addresses the composition and operation of the board of directors, supervisory board and audit committee, which are the fundamental elements of a firm's corporate governance. Studies have provided evidence for a close association between poor corporate governance and lower financial statement quality (Dechow et al., 2010; Vafeas, 2000), which in turn leads to an increase in audit fees. Such a view is also supported by debt-rating agencies. Fitch Ratings (2005) consider certain ICWs—that is, 'problems with "tone at the top" or the quality of personnel in charge of the financial reporting function'—as pervasive/systemic control weaknesses that should 'be looked at carefully' by auditors. High-profile corporate collapses in China in recent years, such as Xintai Electric, Jinya Technology and Sanxia New Materials,[3] further highlight that ICWs in organisational structure could lead to weakened monitoring capacity, fraudulent practices or corruption (Bao, 2016; Chen and Chen, 2015; Jiang, 2016).

[3] Xintai Electric Ltd is the first listed firm forced to withdraw from the Chinese stock market. Management was found to have used manipulative methods to conceal uncollectable accounts receivables. The CEO of Jinya Technology Ltd, Xuhui Zhou was found to have used related-party transactions for earnings' management, to generate a positive influence on the share price at a time when the company was suffering significant financial losses. Under the instructions of senior management, Sanxia New Materials Ltd deliberately misapplied the accounting standards to overstate its profit.

The above discussions show that disclosure of non-financial reporting-related ICWs provides auditors with incremental information that can assist them to assess overall audit risks in client firms. Based on the comprehensiveness of ICW disclosure under the China SOX regime, our hypotheses H2a and H2b are envisaged as follows:

H2a: *Ceteris paribus*, audit fees are higher for firms disclosing financial reporting-related ICWs than for firms not disclosing financial reporting-related ICWs.

H2b: *Ceteris paribus*, audit fees are higher for firms having non-financial reporting-related ICWs than for firms not disclosing non-financial reporting-related ICWs.

3.3 Voluntary assurance of internal control weaknesses and audit fees

Prior to the effective date of the China SOX, 1 January 2012, Chinese listed firms could choose to release ICRs and to have their ICRs assured voluntarily. This provides us with a unique setting in which to investigate whether the relationship between disclosure of ICWs and audit fees is affected by voluntary assurance of ICRs. The research question is whether a voluntary audit of an ICR can mitigate higher audit fees in the face of ICWs.[4] Conceptually, if internal control quality of a firm is assured by its external auditor, this will provide additional certainty about a firm's internal control system. As a result, the risk perceived by auditors, when providing an auditing service, can be reduced. This intuitive idea is yet to be empirically tested.

The literature relating to voluntary audit is limited but nevertheless provides some insights into firms' decisions to choose voluntary audit (Lennox and Pittman, 2011). Abdel-Khalik (1993) contends that 'the loss of internal control induced by organizational design may potentially give rise to moral hazard problems and increase the likelihood of distorted

[4] These questions are consistent with the concerns raised from the debate on the cost and benefit of US SOX. Since the US SOX was implemented in 2002, it has been repeatedly argued that the compliance costs—audit fees—are too high in relation to the claimed benefits (Cox, 2006; Dhaliwal et al., 2011). Given that China was going to impose its own SOX with mandated audits on all ICRs in 2012, it is pertinent to investigate whether there are any added benefits of having ICRs audited in the voluntary period of 2010–2011.

communication (e.g. providing financial statements), thus, voluntary assurance of financial statement can be an effective within-company control mechanism to compensate for such a loss of control' (p.35). Melumad and Thoman (1990) find that, in a voluntary audit environment, the decision to have financial statements voluntarily audited signals that a firm has a lower financial risk; as a result, firms will have added benefits. For example, Blackwell et al. (1998) find that firms with voluntary audit of their financial statements are associated with cheaper debt because voluntary assurance is found to be perceived by institutional creditors as a means of control. Simnett et al. (2009) conclude that voluntary assurance serves as a useful control mechanism to enhance the credibility of disclosed information and facilitate greater user confidence.

The effect of voluntary assurance on ICRs is relatively unknown, with the exception that Cassell et al. (2013) find that firms choosing to have their internal controls audited benefit by having a significantly lower cost of equity and cost of debt. Cassell et al. (2013) attribute this result to reduced information risk associated with audited ICRs. In fact, auditors' involvement in the evaluation process of internal control can lead to: (1) improved ICW detection and timely remediation; and (2) more conservative and precise reporting of ICWs (Bedard and Graham, 2011; Cassell et al., 2013). These will, in turn, be viewed by financial information users as audited ICRs, which are more reliable and informative than those without a voluntary audit. Will auditors—who verify financial statements—respond differently to the two types of firms; that is, firms with or without a voluntary audit of ICRs? In other words, are there any added benefits for firms having their ICRs audited; that is, to reduce overall audit fees?

In our study, it is of particular interest to examine how audit fees are affected by voluntary assurance of ICRs. From an auditor's perspective, additional assurance needs more audit effort; therefore, audit fees will be increased (the 'additional audit efforts' perspective).

However, additional assurance of ICRs will reduce the auditor's risk associated with internal control deficiency (i.e., ICWs) when providing an assurance for a firm's financial statements. Auditors will consider the audit risk higher for firms disclosing ICWs but without having them voluntarily assessed, than for firms disclosing ICWs but having them voluntarily assessed. As a consequence, auditors will charge higher audit fees for the firms disclosing ICWs but without additional audit assurance. Since firms engaged in voluntary assurance have the desire to improve the credibility of the information disclosed (Simnett et al., 2009), we can assume that such firms are proactive in ERM. According to Desender and Lafuente (2011), ERM-active firms are more likely to create better conditions to facilitate auditors' work, thus, enjoying resulting lower audit fees (the 'ERM active' perspective). Based on prior studies, we expect that firms have an incentive to voluntarily seek ICR assurance if the benefits of voluntary assurance of ICWs outweigh the cost associated with additional audit efforts, or, the 'ERM active' argument dominates over the 'additional audit effort' perspective. Our Hypothesis 3 is therefore formulated as follows:

H3: *Ceteris paribus*, overall audit fees are lower for firms having ICWs and also having them voluntarily audited than for firms not having them audited.

4. Research Methods

4.1 Model specifications and variable definitions

4.1.1 Models for the association between auditor fees and internal control risk

One of the unique aspects of our study is its voluntary nature in the Chinese context. Many factors might motivate firms to voluntarily provide ICRs and disclose ICWs. Thus, studies in the context of the voluntary disclosure regime may suffer an endogeneity problem caused by selection bias. For instance, a larger firm may be more likely to provide an ICR. To

overcome this issue, we apply two-stage modelling to test our hypotheses, following Heckman (1979) and Lennox et al. (2012). In the first stage, we employ the Probit model (Model 1) to estimate the likelihood of firms disclosing ICWs:

$$\begin{aligned}\text{Prob}(DISWEAK)_{it} = f(&\alpha_1 + \beta_1 ROA_{it} + \beta_2 LOSS_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} \\ &+ \beta_5 GROWTH_{it} + \beta_6 RETURN\_DEV_{it} + \beta_7 TURNOVER\_A_{it} + \beta_8 TURNOVER\_I_{it} \\ &+ \beta_9 AGE_{it} + \beta_{10} BRDSIZE_{it} + \beta_{11} BRDIND_{it} + \beta_{12} SUPERSIZE_{it} + \beta_{13} SUPERIND_{it} \\ &+ \beta_{14} DUALITY_{it} + \beta_{15} TOP3_{it} + \beta_{16} CODE\_STATE_{it} + \beta_{17} TRADABLE_{it} + \beta_{18} INSTITUTE_{it} \\ &+ \beta_{19} AUDIT\_SPE_{it} + \beta_{20} CODE\_BIG4_{it} + \beta_{21} CODE\_BIGLOCAL10_{it} \\ &+ \sum_{j=1}^{15} \gamma_j IND_{jit} + \varphi_1 Y2009_{it} + \varphi_2 Y2010_{it}) + \varepsilon_{it}\end{aligned} \quad (1)$$

In Model 1, Prob (*DISWEAK*) represents the estimated probability of a firm disclosing ICWs, which is determined based on its economic characteristics, corporate governance, ownership structure and external auditor status.[5] We calculate the inverse Mills' ratio (*IMR_DISWEAK*) from Model 1 and apply it to each of the second-stage models—Models 2, 3 and 4.

Following previous research (Ashbaugh-Skaife et al., 2007; Ge and McVay, 2005), we control four different categories of variables in our models. The first is a firm category, which includes *ROA*, net income or total profits after taxes divided by total assets; *LOSS*, coded as 1 if net income is negative, 0 otherwise; *SIZE*, the logarithm of total assets; *LEV*, total liability divided by total assets; *GROWTH*, changes in sales revenues divided by sales revenues; *RETURN_DEV*, standard deviation of monthly returns over the 12 months of the financial year; *TURNOVER_A*, total accounts receivable divided by total sales revenue; *TURNOVER_I*, total inventory divided by total costs of goods sold; and *AGE*, number of years a firm has operated. The second category is corporate governance, which includes *BRDIND*, percentage of independent directors on the board of directors; *BRDSIZE*, logarithm of the number of

[5] While we attempt to consider and include all possible factors that can contribute to firm's decision to provide ICRs and disclose ICWs, it is still reasonable to expect that some variables may not be presented in the model (Model 1).

directors on the board of directors; *SUPERSIZE*, logarithm of the number of supervisors on the supervisory board; *SUPERIND*, percentage of unpaid supervisors on the supervisory board (Cho and Rui, 2009); and *DUALITY*, coded as 1 if a CEO is also the chairperson of the board of directors, 0 otherwise. The third category, ownership structure, includes *TOP3*, percentage of the top three shareholders' ownership interests in a firm; *CODE_STATE*, coded as 1 if a firm is a state-controlled firm, 0 otherwise; *TRADABLE*, percentage of shares that can be traded without any restrictions; and *INSTITUTE*, percentage of shares held by management funds. The fourth category, auditor status, includes *AUDIT_SPE*, which equals 1 if the audit firm has more than 30% of the market share in an industry according to CSRC industry classification, 0 otherwise (Hogan and Jeter, 1999); *CODE_BIG*4, coded as 1 if a Big 4 audit firm is engaged as the auditor, 0 otherwise; and *CODE_BIGLOCAL10*, coded as 1 if one of the top 10 Chinese local audit firms is engaged as the auditor, 0 otherwise. IND_j are dummy variables for industries classified according to the CSRC industry classification code, j =1, 2, …16.

Model 2 is applied to investigate the relationship between audit fees and voluntary disclosure of ICWs (Hoitash et al., 2008; Raghunandan and Rama, 2006):

$$\begin{aligned} AUDITFEE_{it} &= \alpha_1 + \phi_1 IMR\_DISWEAK_{it} + \phi_2 DISWEAK_{it} \\ &+ \beta_1 ROA_{it} + \beta_2 LOSS_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \beta_5 GROWTH_{it} \\ &+ \beta_6 RETURN\_DEV_{it} + \beta_7 TURNOVER\_A_{it} + \beta_8 TURNOVER\_I_{it} \\ &+ \beta_9 AGE_{it} + \beta_{10} BRDSIZE_{it} + \beta_{11} BRDIND_{it} + \beta_{12} SUPERSIZE_{it} + \beta_{13} SUPERIND_{it} \\ &+ \beta_{14} DUALITY_{it} + \beta_{15} TOP3_{it} + \beta_{16} CODE\_STATE_{it} + \beta_{17} TRADABLE_{it} + \beta_{18} INSTITUTE_{it} \\ &+ \beta_{19} AUDIT\_SPE_{it} + \beta_{20} CODE\_BIG4_{it} + \beta_{21} CODE\_BIGLOCAL10_{it} \\ &+ \sum_{j=1}^{15} \gamma_j IND_{jit} + \varphi_1 Y2009_{it} + \varphi_2 Y2010_{it} + \varepsilon_{it} \end{aligned} \quad (2)$$

In Model 2, the dependent variable *AUDITFEE* is defined as the logarithm of total audit fees. The testing variable is *DISWEAK*, the measurer of internal control risk. *DISWEAK* is a dummy variable that equals 1 when firms disclose ICWs in their reports, 0 otherwise. It is

argued that if a firm discloses ICWs in its ICR, external auditors will make more effort to verify weaknesses disclosed and endure more risks, and therefore charge higher audit fees (Hogan and Wilkins, 2008; Hoitash et al., 2008). Hence, we expect that ϕ_1, the coefficient of *DISWEAK*, is positive and statistically significant in Model 2. All other variables are the same as defined in Model 1. Definitions of variables are provided in Appendix A.

We then separate *DISWEAK* into financial reporting-related ICWs (*DISWEAK_FIN*) and non-financial reporting-related ICWs (*DISWEAK_NONFIN*) to test whether financial reporting-related and non-financial reporting-related ICWs are associated with higher audit fees. Financial reporting-related weaknesses refer to weaknesses in the financial reporting area, one of the 21 internal control areas articulated by the China SOX; non-financial reporting-related weaknesses refer to the weaknesses existing in the other 20 areas specified by the China SOX, which include budgeting, finance and investment, procurement, asset management, sales, organisational structure, development of strategy, HR management, corporate social responsibility, organisational culture, research and development, construction projects, guarantee, outsourcing, contract management, internal reporting system, IT system, risk assessment and management, internal oversight/monitoring and other unspecified weaknesses. The effects of financial reporting-related and non-financial reporting-related ICWs are examined in Model 3:

$$
\begin{aligned}
&AUDITFEE_{it} = \alpha_1 + \phi_1 IMR\_DISWEAK_{it} \\
&+\phi_2 DISWEAK\_FIN_{it} + \phi_3 DISWEAK\_NONFIN_{it} \\
&+\beta_1 ROA_{it} + \beta_2 LOSS_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \beta_5 GROWTH_{it} \\
&+\beta_6 RETURN\_DEV_{it} + \beta_7 TURNOVER\_A_{it} + \beta_8 TURNOVER\_I_{it} \\
&+\beta_9 AGE_{it} + \beta_{10} BRDSIZE_{it} + \beta_{11} BRDIND_{it} + \beta_{12} SUPERSIZE_{it} + \beta_{13} SUPERIND_{it} \\
&+\beta_{14} DUALITY_{it} + \beta_{15} TOP3_{it} + \beta_{16} CODE\_STATE_{it} + \beta_{17} TRADABLE_{it} + \beta_{18} INSTITUTE_{it} \\
&+\beta_{19} AUDIT\_SPE_{it} + \beta_{20} CODE\_BIG4_{it} + \beta_{21} CODE\_BIGLOCAL10_{it} \\
&+\sum_{j=1}^{15} \gamma_j IND_{jit} + \varphi_1 Y2009_{it} + \varphi_2 Y2010_{it} + \varepsilon_{it}
\end{aligned}
\tag{3}
$$

In Model 3, *DISWEAK_FIN* is a dummy variable that equals 1 if a firm discloses financial reporting-related weaknesses, 0 otherwise; *DISWEAK_NONFIN* is a dummy variable that equals 1 if a firm discloses non-financial reporting-related weaknesses, 0 otherwise. All other variables are the same as defined under Models 1 and 2, and they are presented in Appendix A.

4.1.2 Models for audit fees and voluntary assurance of internal control reports

The audit and assurance literature shows that audit fees are higher for firms with lower internal control quality, as measured by ICWs disclosed (Hogan and Wilkins, 2008; Hoitash et al., 2008; Raghunandan and Rama, 2006). However, it is unclear whether voluntary assurance of an ICR has any mitigating effects on the higher audit fees associated with internal control risk. We examine this issue in Model 4. In Model 4, we introduce another variable *DISAUDIT* and interact it with *DISWEAK*, where *DISAUDIT* is a dummy variable that equals 1 if a firm has its ICR voluntarily assured, 0 otherwise. Other control variables in Model 4 are defined as before, and are presented in Appendix A:

$$\begin{aligned} AUDITFEE_{it} &= \alpha_1 + \phi_1 IMR\_DISWEAK_{it} + \phi_2 DISWEAK_{it} + \phi_3 DISAUDIT_{it} \\ &+ \phi_4 DISWEK_{it} * DISAUDIT_{it} \\ &+ \beta_1 ROA_{it} + \beta_2 LOSS_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \beta_5 GROWTH_{it} \\ &+ \beta_6 RETURN\_DEV_{it} + \beta_7 TURNOVER\_A_{it} + \beta_8 TURNOVER\_I_{it} \\ &+ \beta_9 AGE_{it} + \beta_{10} BRDSIZE_{it} + \beta_{11} BRDIND_{it} + \beta_{12} SUPERSIZE_{it} + \beta_{13} SUPERIND_{it} \\ &+ \beta_{14} DUALITY_{it} + \beta_{15} TOP3_{it} + \beta_{16} CODE\_STATE_{it} + \beta_{17} TRADABLE_{it} + \beta_{18} INSTITUTE_{it} \\ &+ \beta_{19} AUDIT\_SPE_{it} + \beta_{20} CODE\_BIG4_{it} + \beta_{21} CODE\_BIGLOCAL10_{it} \\ &+ \sum_{j=1}^{15} \gamma_j IND_{jit} + \varphi_1 Y2009_{it} + \varphi_2 Y2010_{it} + \varepsilon_{it} \end{aligned} \quad (4)$$

By including two dummy variables, *DISAUDIT* and *DISWEAK*, our sample can be divided into four subgroups: (1) firms that do not have any ICWs and do not have their ICRs assured—the coefficient of this group is represented by α_1 after controlling other factors relating to audit fees; (2) firms disclosing ICWs in their ICRs but not having their ICRs

assured—the coefficient for this group is represented by $\alpha_1+\phi_2$. It is expected that the incremental coefficient of ϕ_2 is positive and significant because perceived audit risks are higher if firms disclose ICWs in ICRs; (3) firms that do not have any ICWs disclosed but have their ICRs voluntarily assured—the coefficient for this group is represented by $\alpha_1+\phi_3$. It is expected that the incremental coefficient of ϕ_3 is positive and significant because when firms choose to have their ICRs assured voluntarily, the auditor's workload increases and therefore audit fees increase; and (4) firms disclosing ICWs in their ICRs and also having their ICRs assured voluntarily, indicating that the ICWs disclosed have been ascertained by auditors. The coefficient for this group is represented by $\alpha_1+\phi_2+\phi_3+\phi_4$. As discussed above, both ϕ_2 and ϕ_3 are expected to be positive and significant.

The mitigating effects of additional assurance on the audit fees associated with ICW disclosures will be captured by the coefficient ϕ_4. It is expected that audited ICRs will enhance the creditability and authenticity of ICW information, which in turn will minimise the risks associated with the ICWs disclosed. We expect that the coefficient (ϕ_4) of the interaction term *DISAUDIT*DISWEAK* in Model 4 is negative and significant (H3), implying a voluntary audit can mitigate the higher audit risks caused by the presence of ICWs.

4.2 Sample selection

Our sample is selected from all publicly listed firms on the Shanghai Stock Exchange and Shenzhen Stock Exchange.[6] The sample period is 2009–11, the voluntary reporting

[6] Since mid-2000, the Chinese stock exchanges have gradually changed to a multi-tier capital market that is designed for enterprises at different stages of growth and of different qualities and risk profiles. It aims to satisfy the capital-raising needs of enterprises and the different risk appetites of investors. The multi-tier market system helps maximise market efficiency and facilitates risk control and sound development of the capital market. So far, China has developed a relatively complete multi-tier capital market, comprising the Shanghai Stock Exchange and the Shenzhen Stock Exchange Main Board markets, the Small and Medium Enterprises Board market, the Innovative Growth Enterprises market and the Over-the-Counter market. Firms listed on the main boards were relatively large prior to listing and have been operating for longer periods than firms listed on the other two boards (Cho and Rui, 2009; Firth et al., 2012).

period of the China SOX.[7] The internal control reporting data are obtained from DIB Risk Managing Company in China. All other variables are collected from the China Stock Market and Accounting Research (CSMAR) database.

According to Panel A of Table 1, the total number of listed firms from the two stock exchanges was 1,804 in 2009, 2,149 in 2010 and 2,428 in 2011. Among them, 1,278 firms in 2009 (70.8% of the total listed firms) provided ICRs. The number of firms providing ICRs increased to 1,619 in 2010 (75.3% of total listed firms) and 1,847 in 2011 (76.1% of total listed firms). Overall, both the number and percentage of firms providing ICRs increased over the three years. After omitting firms with missing data, we have a final sample of 2,343 observations: 647 in 2009, 735 in 2010 and 961 in 2011.

Insert Table 1 about here

The industrial distribution of our sample firms is shown in Panel B, Table 1. Industries are classified according to the CSRC's *Guideline on Industry Classification of Listed Companies*. Over the three-year period between 2009 and 2011, nearly two-thirds of the total observations are from the manufacturing sector (60.4%), followed by the real estate sector (7.6%), the wholesale and retail sector (6.4%) and the transportation sector (5.7%). Our sample represents similar industry distributions for all listed firms in the two Chinese stock exchanges in which listed firms are dominated by firms in the manufacturing sector. The industrial distributions on a yearly basis are consistent over 2009–11. For example, the percentages of firms providing ICRs in the manufacturing industry are 60.6% in 2009, 59% in 2010 and 61.3% in 2011, while the percentages of firms providing ICRs in the real estate sector stands at 7.7% in 2009, 8.3% in 2010 and 7.1% in 2011.

[7] Firms required to undertake early adoption of China SOX are excluded from the sample. For example, Chinese firms listed overseas were required to comply with the regulation from 2011.

5. Results

5.1. Descriptive statistics

Table 2 reports descriptive statistics for each of the testing and control variables. According to Table 2, the mean for the disclosure level of ICW (*DISWEAK*) is 0.1746, meaning that on average, over 17% of sample firms disclose ICWs. The mean of *DISWEAK_FIN* is 0.0098 and the mean of *DISWEAK_NONFIN* is 0.1647. These results suggest that on average, around 1% of firms disclose financial reporting-related ICWs and around 16% of firms disclose non-financial reporting-related ICWs. The mean of log of audit fees is 13.52 and the median is 13.30, indicating that the log of audit fees is not severely skewed. Of the control variables for firm characteristics, firm age ranges from 1 to 31 years. As firm age is a proxy for firm experience in establishing internal control procedures and employees' experience in internal control (Ge and McVay, 2005), this statistic shows that our sample firms vary substantially in this respect. In contrast to Ge and McVay (2005), who calculated firm age as the number of years the firm has price data available on stock exchanges, we use the exact longevity (operating years) of sample firms.

Insert Table 2 about here

For governance variables, the mean of *DUALITY* is 0.1622, implying that only 16% of firms have CEOs that also serve as chairpersons on the board of directors. The mean (median) of log of *BRDSIZE* is 2.2046 (2.1972), while the mean (median) of log of *SUPERSIZE* is 1.3350 (1.0986). These results indicate that, on average, the size of the board of directors is larger than that of the supervisory board. In terms of independence, the two types of board are similar with 36.88% *(BRDIND*) and 35.43% (*SUPERIND*) of their board members being independent.

Of the ownership structure variables, the mean (median) of *TOP3* is 0.1779 (0.1488), meaning that, on average, around 18% of shares are owned by the top three largest shareholders. The mean of *CODE_STATE* is 0.5493, suggesting that over half of the firms in our sample are controlled by the state. This is not surprising given that most of the listed firms in China were corporatised originally from former SOEs, and even with multiple and diversified owners the state remains the controlling shareholder.

The correlation matrix in Table 3 shows that *DISWEAK* is negatively and significantly correlated with *ROA*, *SIZE* and *TOP3*, meaning less profitable firms and small firms are more likely to have ICWs. Firms with more ownership concentration are less likely to have ICWs.

Insert Table 3 about here

In contrast, Table 3 shows that *DISWEAK* is positively and significantly correlated with *RETURN_DEV*, implying that firms with a higher business risk exhibit more ICWs. Different to previous findings (Ge and McVay, 2005), our results in Table 3 show a positive correlation between *AGE* and *DISWEAK*, which indicates that older firms, being more mature, are more likely to exhibit ICWs. One possible explanation is that mature firms may have more severe agency conflicts. The correlation between *DISWEAK_FIN* and *DISWEAK_NONFIN* is 0.2462 ($p < 0.01$), which is below the threshold of multicollinearity of 0.80. Table 3 also shows that correlation coefficients among dependent variables are low; therefore, our models are not subject to multicollinearity problems.

5.2. Results of hypothesis tests

We employ two empirical models (Model 2 and Model 3) to investigate the effect of voluntary adoption of the internal control standard on audit pricing in China. Model 2 tests whether audit fees are associated with ICWs disclosed in ICRs. We then separate ICWs into

financial reporting-related and non-financial reporting-related weaknesses, and investigate the effects of each types of weaknesses on audit fees in Model 3 (the empirical results of both Model 2 and Model 3 are presented in Table 4). We also examine whether a voluntary audit of ICRs can mitigate high audit fees caused by the existence of ICWs in Model 4 (the empirical results are presented in Table 5).

5.2.1 Results for the association between auditor fees and internal control risk (H1)

The results for Model 2 in Table 4 show that the coefficient of the testing variable—ICW disclosure (*DISWEAK*)—is in the predicted direction, positively and significantly associated with audit fees. The coefficient for *DISWEAK* is 0.0515, significant at the 5% level. This result supports our first hypothesis (H1) that audit fees are higher for firms with lower internal control quality; in other words, audit fees are higher for firms with ICWs than for firms without ICWs. This result is consistent with the findings of studies such as Raghunandan and Rama (2006) and Hoitash et al. (2008). This is expected since even though China and the US are different in many aspects of their business operations and information environment, some fundamentals should remain the same. One of these is that if a business lacks efficiency in its operation with more internal control problems, then this will be perceived by auditors as riskier. This would require greater auditing effort when assessing the quality of the business's financial statement. Inevitably, this will be reflected in audit pricing.

Insert Table 4 about here

With respect to control variables of firm characteristics, as shown in Table 4, probability (*ROA*), firm size (*SIZE*) and business complexity (*TURNOVER_A*) are positively and significantly associated with audit fees. However, another measurement of business complexity, inventory over total cost of goods (*TURNOVER_I*), is negatively and

significantly associated with audit fees. This may be because of the low demand for checking inventory transactions.

For governance variables, the size and independence of the supervisory board (*SUPERSIZE*, *SUPERIND*) are negatively and significantly associated with audit fees. Despite the ongoing debate as to whether supervisory boards have any role to play in the governance of firms (Firth et al., 2007), our results suggest that an effective supervisory board reduces perceived audit risk and thus reduces audit fees.

We carry out our empirical study in a unique institutional setting (Piotroski and Wong, 2013; Shi and Weisert, 2002; Wang et al., 2008a). In China, most listed firms remain controlled by the state, even after the split-share reform when most non-tradable shares were converted into tradable shares (Wang et al., 2008a; Inoue, 2005). The audit market is shared among the Big 4 international audit firms and local audit firms (Deng and Macve, 2012).[8] As shown in Table 4, institutional ownership (*INSTITUTE*) is negatively and significantly ($p < 0.01$) related to audit fees, suggesting the higher the level of institutional ownership, the lower the audit fees. Prior literature reveals that larger institutional investors are more likely to be involved in management, resulting in better internal control systems being implemented in firms, as well as better earnings' quality. Therefore, institutional ownership can lead to lower audit fees (Beekes et al., 2004).

An interesting result from Table 4 is the coefficient for state-controlled firms (*CODE_STATE*), which is negative and significant ($p < 0.01$), suggesting that these firms are

[8] After 30 years of reform of the Certified Public Accountant (CPA) industry, the Chinese audit market has undergone significant changes (Wang et al., 2008b; Lin and Liu, 2009; Deng and Macve, 2012). The Big 4 have been frequently ranked as the top four auditing firms in China. By the end of 2010 there were 96,498 CPAs in China, of which only 3,340 (3.5%) were employed by the Big 4. However, the total fees earned by the Big 4 were 41.2% of the total audit fees earned by the top 100 audit firms in China. Chinese regulators such as the Chinese Institute of Certified Public Accountants (CICPA) are aware of the issue of market power and the Big 4's monopoly. To strengthen the competiveness of domestic accounting firms, since 2007 the Chinese government has promulgated various policies to encourage them to set up international networks and establish their own brands (CICPA, 2011a, 2011b).

treated favourably and pay lower audit fees. But again, this issue needs to be further examined to determine whether this is because state-controlled firms are less likely to engage the Big 4 as external auditors to avoid more stringent scrutiny, or whether these firms can use their bargaining power or political influence to reduce their audit fees. Our result in general is consistent with prior studies. Chen et al. (2010) finds that privately owned firms, in comparison with non-privately owned firms, pay more audit fees in China. Liu and Subramaniam (2013) investigate the association between state ownership, audit firm size and audit pricing and find they are negatively related. Wang et al. (2008b) examine the association between state ownership in Chinese listed firms and the choice of auditors, and find that firms with state ownership have a tendency to hire small local auditors rather than reputable auditors. Wang et al. (2008b) conclude that this auditor choice pattern is likely to be explained by local auditors' superior local knowledge and another, more important factor—state ownership's collusion incentives in China.

It is not surprising that the use of Big 4 auditors (*CODE_BIG4*) is significantly associated with higher audit fees (coefficient = 0.9584, $p < 0.01$). This result is consistent with studies in which audit fees are found to be positively associated with Big N (Hay et al., 2006). Our results demonstrate that the Big 4 international audit firms earn significant audit fee premiums in China.[9] With respect to audit fees and audit firm industry specialisation, our results show that the relationship between them is positive and statistically significant, indicating industry-specialised audit firms can earn a fee premium in China even though the percentage of industry-specialised audit firms is lower than that in most Western countries (Habib, 2011).

[9] China presents a totally different political, economic and cultural setting for Big 4 auditors. However, they are still successful in this market and share more than a quarter of the auditing service market, compared with the number of CPAs employed by Big 4 firms, which is only 3.5% of the total number of CPAs in China. How and why the Big 4 can earn audit premiums consistently in different countries (supported by many previous studies, e.g., Hay et al., 2006) is an important and interesting research question.

5.2.2 Results for the association between audit fees and internal control risk in financial and non-financial-related areas (H2a and H2b)

Model 3 is used to test hypotheses H2a and H2b. Results are presented in Table 4. After separating *DISWEAK* into *DISWEAK_FIN* and *DISWEAK_NONFIN*, the coefficient for *DISWEAK_NONFIN* is statistically significant (coefficient = 0.0454, $p < 0.05$). Thus, Hypothesis 2b is supported. These results indicate that auditors are more concerned with non-financial reporting-related ICWs because they are harder to detect, estimate and rectify (Hogan and Wilkins, 2008; Hoitash et al., 2008). They are more likely to cause a higher level of business risk and require auditors to be more vigilant and diligent when conducting auditing.

Regression results for audit fees with control variables are consistent with the main result for H1. For example, probability (*ROA*), firm size (*SIZE*) and business complexity (*TURNOVER_A*) are positively and significantly associated with audit fees, while inventory over total cost of goods (*TURNOVER_I*) is negatively and significantly associated with audit fees.

Our finding that audit risks and fees are strongly associated with non-financial reporting-related ICWs is also supported by some direct evidence in the ICRs provided by our sample firms. Many firms identify that audit risks are related to organisational structure and control environment. One firm indicates in its ICR that 'The existence of some ICWs is due to the fact that the Strategy Committee under the Board of Directors (BOD) is not fully functioning. There is a lack of strategic planning for our firm's long-term development'. Another firm indicates the internal control deficiency of its audit committee, as quoted directly from the firm's ICR: 'The role of the Audit Committee (AC) should be enhanced. Besides its routine audit, AC needs to pay more attention to the risks associated with merger and acquisitions'. The second most frequently mentioned non-financial reporting-related

audit risk in ICRs is related to HR management. For example, one firm argues that 'The lack of professional expertise in internal control limits the firm's capacity and efficiency in risk control'; another firm states 'To prevent the accounting errors that occurred in the financial reports, the firm should further strengthen personnel training for the BOD, Supervisory Board, senior management team as well as all accountants in relevant departments, with an aim to improve their awareness of the importance of internal control and essential mechanisms in the internal control system'. Another firm indicates that, 'Due to inadequate staffing, internal control is not efficient and effective; in turn, quality of financial reports may be compromised'.

The association between audit fees and types of ICWs has been examined by only a limited number of studies in the US. China's much broader internal control regulation provides us with the opportunity to investigate this issue further. Both our empirical results and direct evidence highlight that ICWs in areas other than those related to financial reporting are critically important when assessing a firm's audit risks. This finding constitutes one of our significant contributions to the auditing and internal control literature.

5.2.3 Results for audit fees and voluntary assurance of internal control reports (H3)

The effect on audit fees of having ICRs voluntarily audited is investigated by applying Model 4. The results of Model 4 reported in Table 5, show the following. (1) The coefficient for the subgroup of firms disclosing no ICWs in their ICRs and not having ICRs audited is 2.7262, which is statistically significant at the 1% level. (2) For the subgroup of firms disclosing ICWs in their ICRs and not having their ICRs audited, the coefficient for *DISWEAK* is positive and significant (coefficient = 0.0531, p <0.05). This result is consistent with the findings in Model 1 (H1), suggesting that firms with ICWs have higher audit risk

and, as a result, pay higher audit fees. (3) For the subgroup of firms that do not have any ICWs disclosed in their ICRs but choose to have their ICRs audited, the coefficient of *DISAUDIT* is positive and significant (coefficient = 0.1911, p <0.05), which is in line with our expectations; that is, a voluntary audit of ICRs will require more audit work and hence will result in higher audit fees. (4) For the subgroup of firms having ICWs disclosure in their ICRs and also having ICRs voluntarily audited, the coefficient for the interaction term of *DISWEAK* and *DISAUDIT* in Model 4 is –0.0681, significant at the 1% level. This result shows that a voluntary audit of ICRs can mitigate the positive association between audit fees and ICW disclosures. Therefore, H3, the mitigating effect hypothesis, is supported. This result can be interpreted as follows: if firms have disclosed ICWs in their ICRs, and also have these ICRs audited voluntarily, the credibility and authenticity of ICRs can be enhanced substantially.

Insert Table 5 about here

This empirical evidence provides the first support for accounting regulators' requirement that ICRs are audited because ICR auditing can benefit both clients and auditors themselves.

5.3. Robustness tests and results

We carry out several robustness tests. First, we winsorise our data at both the top and bottom 1%, instead of the 0.5% used in the main tests. The results are consistent with the results in the main tests, indicating that our results are not driven by outliers. Second, we group financial reporting and non-financial reporting-related areas differently, by broadening the financial reporting area to include asset management, and finance and investment, the two areas most closely related to financial reporting. We then separate *DISWEAK* into

DISWEAK_FIN(1) and *DISWEAK_NONFIN(1)* to test whether financial reporting-related and non-financial reporting-related ICWs are associated with higher audit fees. We apply this new grouping in Model 5 as follows:

$$
\begin{aligned}
&AUDITFEE_{it} = \alpha_1 + \phi_1 IMR\_DISWEAK_{it} \\
&+\phi_2 DISWEAK\_FIN(1)_{it} + \phi_3 DISWEAK\_NONFIN(1)_{it} \\
&+\beta_1 ROA_{it} + \beta_2 LOSS_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \beta_5 GROWTH_{it} \\
&+\beta_6 RETURN\_DEV_{it} + \beta_7 TURNOVER\_A_{it} + \beta_8 TURNOVER\_I_{it} \\
&+\beta_9 AGE_{it} + \beta_{10} BRDSIZE_{it} + \beta_{11} BRDIND_{it} + \beta_{12} SUPERSIZE_{it} + \beta_{13} SUPERIND_{it} \\
&+\beta_{14} DUALITY_{it} + \beta_{15} TOP3_{it} + \beta_{16} CODE\_STATE_{it} + \beta_{17} TRADABLE_{it} + \beta_{18} INSTITUTE_{it} \\
&+\beta_{19} AUDIT\_SPE_{it} + \beta_{20} CODE\_BIG4_{it} + \beta_{21} CODE\_BIGLOCAL10_{it} \\
&+\sum_{j=1}^{15} \gamma_j IND_{jit} + \varphi_1 Y2009_{it} + \varphi_2 Y2010_{it} + \varepsilon_{it}
\end{aligned}
\tag{5}
$$

The results are reported in Table 6. After separating *DISWEAK* differently into *DISWEAK_FIN(1)* and *DISWEAK_NONFIN(1)*, the coefficient for *DISWEAK_NONFIN(1)* is statistically significant (coefficient = 0.0425, $p < 0.01$). These results are consistent with the results under H2b that auditors do take weaknesses in non-financial reporting areas seriously. This indicates that auditors need to make more effort to detect, estimate and rectify non-financial reporting-related ICWs.

Insert Table 6 about here

Third, we carry out additional tests in Model 6, by separating the ICWs (*DISWEAK*) disclosed into four categories: 1) financial information recording-related ICWs (*DISWEAK_RECORDING*)*;* 2) ICWs related to the implementation of accounting standards (*DISWEAK_STANARD*)*;* 3) ICWs related to financial reporting fraud or material financial misstatements (*DISWEAK_FRAUD*); and 4) any ICWs that cannot be classified into the first three categories, which are in fact the ICWs related to non-financial reporting areas (*DISWEAK_OTHERS*). We use this classification as an alternative grouping method to

differentiate financial reporting-related ICWs and non-financial reporting-related ICWs to test whether our hypotheses H2a and H2b still hold.

$$
\begin{aligned}
&AUDITFEE_{it} = \alpha_1 + \phi_1 IMR\_DISWEAK_{it} \\
&+\phi_2 DISWEAK\_RECORDING_{it} + \phi_3 DISWEAK\_STANDARD_{it} \\
&+\phi_3 DISWEAK\_FRAUD_{it} + \phi_3 DISWEAK\_OTHERS_{it} \\
&+\beta_1 ROA_{it} + \beta_2 LOSS_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \beta_5 GROWTH_{it} \\
&+\beta_6 RETURN\_DEV_{it} + \beta_7 TURNOVER\_A_{it} + \beta_8 TURNOVER\_I_{it} \\
&+\beta_9 AGE_{it} + \beta_{10} BRDSIZE_{it} + \beta_{11} BRDIND_{it} + \beta_{12} SUPERSIZE_{it} + \beta_{13} SUPERIND_{it} \\
&+\beta_{14} DUALITY_{it} + \beta_{15} TOP3_{it} + \beta_{16} CODE\_STATE_{it} + \beta_{17} TRADABLE_{it} + \beta_{18} INSTITUTE_{it} \\
&+\beta_{19} AUDIT\_SPE_{it} + \beta_{20} CODE\_BIG4_{it} + \beta_{21} CODE\_BIGLOCAL10_{it} \\
&+\sum_{j=1}^{15} \gamma_j IND_{jit} + \varphi_1 Y2009_{it} + \varphi_2 Y2010_{it} + \varepsilon_{it}
\end{aligned}
\tag{6}
$$

Results for Model 6 are reported in Table 7. It shows that audit fees are significantly and positively associated with fraud (*DISWEAK_FRAUD*) and other non-financial reporting-related (*DISWEAK_OTHERS*) internal weaknesses.

Insert Table 7 about here

Finally, we extend our research by including the mandatory disclosure period (2012–14). The results are presented in Table 8. According to Table 8, the testing variable—ICW disclosure (*DISWEAK*)—is still positively and significantly associated with audit fees (coefficient = 0.0306, $p < 0.05$). This result further supports our first hypothesis (H1): audit fees are higher for firms with lower internal control quality. The results also show that the coefficient of *DISWEAK_NONFIN* is statistically significant (coefficient = 0.0248, $p < 0.10$), supporting H2b.

Insert Table 8 about here

6. Conclusion

This paper examines the association between internal control risks—measured by disclosed ICWs—and audit fees in China. We find that audit fees are positively associated

with ICWs, meaning that the more internal control risks a firm has, the higher the audit fees it will be charged. In addition, higher audit fees are significantly related to internal control risk in non-financial reporting-related areas. The robustness tests show that non-financial reporting-related ICWs—that is, ICWs other than recording or standard compliance-related weaknesses—are positive and significantly associated with audit fees. We also find that voluntary assurance of ICRs can mitigate the higher audit fees associated with the existence of ICWs. Our major contributions to the audit and assurance literature are twofold. First, we find that internal control deficiency in non-financial reporting-related areas or non-accounting-related areas has a more profound effect on audit fees than that in financial reporting-related areas. This is largely due to non-financial reporting-related ICWs—for example, non-recording or standard compliance-related ICWs—being harder to detect and quantify. This requires auditors to make greater efforts when assessing non-financial reporting-related ICWs and signals the importance of improving ERM through a comprehensive internal control system, particularly focusing on non-financial reporting-related areas. This result provides timely evidence to support current debate over the potential expansion of the scope of US SOX into non-financial reporting areas, despite concerns relating to the cost surrounding the implementation of SOX in the US.

Second, we find that having ICRs voluntarily assured can improve the credibility and reliability of ICR information. This will lower audit risks associated with the existence of ICWs. In other words, voluntary assurance of ICRs can mitigate the higher audit fees driven by higher internal control risks.

Our findings have some significant implications for accounting standards' setters and market regulators such as the CSRC and possibly regulators around the world who are currently considering implementing legislation similar to the US SOX. First, ICRs are necessary in addition to traditional financial statements. Even though China has a distinct

political, economic and cultural environment, ICRs are still effective vehicles; they not only improve the quality of financial reporting through improving a firm's internal management and helping to prevent fraud and embezzlement, but also provide useful information to assist auditors in assessing audit risks associated with financial reporting. Second, our results provide a justification for the mandated requirements by market regulators in China for firms to provide assurance for their ICRs.

Like any other study, ours has limitations. It is limited in that we only focus on the voluntary period of the China SOX, 2009–11. Future studies might investigate whether there are any changes in ICW disclosures in the post-China SOX period and the effect of such changes on audit fees in the mandatory regime.

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Table 1: Sample selection and industry distribution

Panel A: Sample selection procedure

	2009	2010	2011	Total
Number of firms listed on main boards	1,804	2,149	2,428	6,381
Number of firms providing internal control reports	1,278	1,619	1,847	4,744
Less: number of firms with missing observations				
Audit fees	155	291	277	723
Financial data and market data	302	409	496	1,207
Corporate governance data	18	31	22	71
Ownership data	156	153	91	400
Sub total	631	884	886	2,401
Final available data	647	735	961	2,343

Panel B: Industry distribution

Industry Code	Industry name	2009		2010		2011		Total	
A	Agriculture	10	1.5%	10	1.4%	14	1.5%	34	1.5%
B	Mining	26	4.0%	24	3.3%	31	3.2%	81	3.5%
C	Manufacturing	392	60.6%	434	59.0%	589	61.3%	1,415	60.4%
D	Utilities	32	4.9%	36	4.9%	43	4.5%	111	4.7%
E	Construction	15	2.3%	19	2.6%	24	2.5%	58	2.5%
F	Wholesale & retail	41	6.3%	53	7.2%	55	5.7%	149	6.4%
G	Transport, storage & postal service	40	6.2%	44	6.0%	50	5.2%	134	5.7%
H	Accommodation & catering	3	0.5%	5	0.7%	7	0.7%	15	0.6%
I	IT	17	2.6%	22	3.0%	37	3.9%	76	3.2%
J	Financial	2	0.3%	2	0.3%	3	0.3%	7	0.3%
K	Real estate	50	7.7%	61	8.3%	68	7.1%	179	7.6%
L	Leasing & commercial service	5	0.8%	7	1.0%	11	1.1%	23	1.0%
M	Scientific research & technical service	0	0.0%	1	0.1%	4	0.4%	5	0.2%
N	Water conservancy, environment & public facility management	7	1.1%	8	1.1%	9	0.9%	24	1.0%
R	Culture, sports & entertainment	2	0.3%	2	0.3%	8	0.8%	12	0.5%
S	Diversified	5	0.8%	7	1.0%	8	0.8%	20	0.9%
Total		647	100%	735	100%	961	100%	2,343	100%

Table 2: Basic descriptive statistics for firms with internal control reports

Variables	Mean	Median	Std. Dev.	Maximum	Minimum
Dependent variable					
AUDITFEE	13.5200	13.3047	0.8687	17.5990	12.1007
Testing variables					
DISWEAK	0.1746	0.0000	0.3797	1.0000	0.0000
DISWEAK_FIN	0.0098	0.0000	0.0986	1.0000	0.0000
DISWEAK_NONFIN	0.1647	0.0000	0.3710	1.0000	0.0000
DISAUDIT	0.0405	0.0000	0.1973	1.0000	0.0000
Control variables					
ROA	0.1026	0.0941	0.1303	0.5994	–1.1967
LOSS	0.0521	0.0000	0.2222	1.0000	0.0000
SIZE	22.2337	22.0220	1.3475	28.2821	18.7134
GROWTH	0.2637	0.1728	0.6167	6.0564	–0.7137
LEV	0.4882	0.5012	0.2030	1.2225	0.0281
RETURN_DEV	0.1202	0.1149	0.0367	0.3827	0.0443
TURNOVER_A	0.1462	0.0986	0.1645	1.2058	0.0000
TURNOVER_I	0.7072	0.2513	1.4992	12.5315	0.0000
AGE	13.4040	13.0000	4.5497	31.0000	1.0000
BRDSIZE	2.2046	2.1972	0.1993	2.8332	1.6094
BRDIND	0.3688	0.3333	0.0563	0.6000	0.2500
SUPERSIZE	1.3350	1.0986	0.3010	2.1972	0.6931
SUPERIND	0.3543	0.3333	0.2801	1.0000	0.0000
DUALITY	0.1622	0.0000	0.3687	1.0000	0.0000
TOP3	0.1779	0.1488	0.1293	0.6417	0.0083
CODE_STATE	0.5493	1.0000	0.4977	1.0000	0.0000
TRADABLE	0.7933	0.9117	0.2444	1.0000	0.1046
INSTITUTE	0.0707	0.0366	0.0849	0.3894	0.0000
AUDIT_SPE	0.0196	0.0000	0.1388	1.0000	0.0000
CODE_BIG4	0.1016	0.0000	0.3022	1.0000	0.0000
CODE_BIGLOCAL10	0.2403	0.0000	0.4274	1.0000	0.0000

This table presents the descriptive statistics for all variables in main tests. Definitions of variables are provided in Appendix A.

Table 3: Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
***DISWEAK* (1)**	1.0000																								
	——																								
***DISWEAK_FIN* (2)**	0.3211	1.0000																							
	0.0000	——																							
DISWEAK_NOFIN	0.9582	0.2462	1.0000																						
(3)	0.0000	0.0000	——																						
***DISAUDIT* (4)**	−0.0261	−0.0154	−0.0616	1.0000																					
	0.2061	0.4567	0.0028	——																					
***ROA* (5)**	−0.0354	−0.0172	−0.0299	0.0555	1.0000																				
	0.0870	0.4051	0.1485	0.0072	——																				
***LOSS* (6)**	0.0238	0.0584	0.0211	−0.0190	−0.5410	1.0000																			
	0.2494	0.0047	0.3078	0.3590	0.0000	——																			
***SIZE* (7)**	−0.0635	−0.0291	−0.0835	0.3354	0.1682	−0.0733	1.0000																		
	0.0021	0.1597	0.0001	0.0000	0.0000	0.0004	——																		
***LEV* (8)**	−0.0221	−0.0162	−0.0215	0.0509	−0.1012	0.1526	0.4694	1.0000																	
	0.2844	0.4346	0.2979	0.0138	0.0000	0.0000	0.0000	——																	
***GROWTH* (9)**	−0.0019	−0.0064	−0.0074	−0.0038	0.2759	−0.1014	0.0782	0.0602	1.0000																
	0.9281	0.7577	0.7216	0.8538	0.0000	0.0000	0.0002	0.0036	——																
***RETURN_DEV* (10)**	0.0717	0.0191	0.0892	−0.1360	−0.0417	0.0314	−0.1490	0.0736	0.0177	1.0000															
	0.0005	0.3561	0.0000	0.0000	0.0434	0.1282	0.0000	0.0004	0.3931	——															
TURNOVER_A	−0.0008	−0.0220	0.0043	−0.0543	−0.0769	0.0342	−0.2808	−0.2123	−0.0294	−0.0168	1.0000														
(11)	0.9703	0.2862	0.8343	0.0085	0.0002	0.0976	0.0000	0.0000	0.1552	0.4172	——														
***TURNOVER_I* (12)**	0.0255	0.0002	0.0229	−0.0011	0.0391	−0.0363	0.0894	0.1666	0.0185	0.1083	−0.0099	1.0000													
	0.2167	0.9914	0.2671	0.9563	0.0586	0.0787	0.0000	0.0000	0.3712	0.0000	0.6316	——													
***AGE* (13)**	0.0598	0.0232	0.0503	−0.0059	−0.0121	0.0256	0.0823	0.2083	0.0243	−0.0283	−0.2101	0.1779	1.0000												
	0.0038	0.2607	0.0149	0.7758	0.5581	0.2147	0.0001	0.0000	0.2406	0.1708	0.0000	0.0000	——												
***BRDSIZE* (14)**	−0.0007	0.0030	−0.0081	0.0895	0.0487	−0.0491	0.2755	0.0992	−0.0121	−0.0512	−0.1183	−0.0690	−0.0160	1.0000											
	0.9721	0.8850	0.6948	0.0000	0.0185	0.0175	0.0000	0.0000	0.5570	0.0131	0.0000	0.0008	0.4379	——											
***BRDIND* (15)**	0.0236	−0.0054	0.0195	0.0503	−0.0257	0.0028	0.0992	0.0231	0.0311	−0.0407	0.0369	0.0348	−0.0575	−0.3091	1.0000										
	0.2526	0.7954	0.3447	0.0148	0.2134	0.8930	0.0000	0.2637	0.1320	0.0490	0.0744	0.0918	0.0054	0.0000	——										
***SUPERSIZE* (16)**	−0.0085	−0.0143	−0.0159	0.1021	0.0178	0.0133	0.2661	0.1260	−0.0158	−0.0087	−0.1677	−0.0750	0.0519	0.3236	−0.0672	1.0000									
	0.6812	0.4893	0.4426	0.0000	0.3885	0.5191	0.0000	0.0000	0.4456	0.6742	0.0000	0.0003	0.0119	0.0000	0.0011	——									
***SUPERIND* (17)**	−0.0251	−0.0138	−0.0271	0.0431	0.0108	−0.0025	0.1349	0.1172	0.0047	0.0099	−0.0850	0.0092	0.0904	0.0443	−0.0410	0.1034	1.0000								
	0.2252	0.5033	0.1894	0.0368	0.5999	0.9047	0.0000	0.0000	0.8209	0.6310	0.0000	0.6554	0.0000	0.0319	0.0472	0.0000	——								
***DUALITY* (18)**	0.0071	−0.0312	0.0066	0.0435	0.0009	−0.0063	0.1803	0.1641	−0.0071	−0.0036	−0.1612	0.0318	0.0862	0.1411	−0.0158	0.1134	0.1903	1.0000							
	0.7306	0.1314	0.7485	0.0353	0.9669	0.7597	0.0000	0.0000	0.7315	0.8602	0.0000	0.1243	0.0000	0.0000	0.4451	0.0000	0.0000	——							
***TOP3* (19)**	−0.0597	−0.0100	−0.0632	0.1357	0.1434	−0.0690	0.3782	0.0905	0.0850	−0.0535	−0.1432	0.0333	−0.2006	0.0466	0.0886	0.1164	0.1370	0.0773	1.0000						
	0.0038	0.6283	0.0022	0.0000	0.0000	0.0008	0.0000	0.0000	0.0000	0.0096	0.0000	0.1069	0.0000	0.0242	0.0000	0.0000	0.0000	0.0002	——						
***CODE_STATE* (20)**	0.0188	−0.0265	0.0107	0.1210	−0.0703	0.0347	0.3948	0.2630	−0.0289	−0.0476	−0.2512	−0.0295	0.1715	0.2119	0.0378	0.2529	0.2152	0.2367	0.2362	1.0000					
	0.3620	0.1997	0.6041	0.0000	0.0007	0.0932	0.0000	0.0000	0.1624	0.0211	0.0000	0.1537	0.0000	0.0000	0.0677	0.0000	0.0000	0.0000	0.0000	——					
***TRADABLE* (21)**	0.0054	0.0028	0.0034	−0.0011	−0.0628	0.0498	0.0275	0.1741	−0.1483	0.0086	−0.1389	−0.0240	0.2735	0.0116	−0.0204	0.0645	0.0804	0.0927	−0.3044	0.1290	1.0000				
	0.7934	0.8931	0.8706	0.9590	0.0024	0.0159	0.1834	0.0000	0.0000	0.6769	0.0000	0.2456	0.0000	0.5759	0.3227	0.0018	0.0001	0.0000	0.0000	0.0000	——				
***INSTITUTION* (22)**	0.0012	−0.0388	0.0081	−0.0014	0.3240	−0.1248	0.0735	−0.0332	0.0476	0.0197	0.0194	−0.0319	0.0044	0.0346	−0.0235	−0.0134	0.0058	−0.0101	−0.1531	−0.0511	0.0921	1.0000			
	0.9528	0.0604	0.6967	0.9474	0.0000	0.0000	0.0004	0.1076	0.0211	0.3417	0.3473	0.1232	0.8330	0.0944	0.2557	0.5181	0.7774	0.6243	0.0000	0.0134	0.0000	——			
***AUDIT_SPE* (23)**	−0.0165	0.0004	−0.0376	0.1269	−0.0300	0.0361	0.2116	0.0251	0.0133	−0.0505	−0.0428	−0.0349	−0.0423	0.0798	0.0843	0.0962	0.0132	0.0122	0.1346	0.1158	0.0140	−0.0577	1.0000		
	0.4261	0.9849	0.0688	0.0000	0.1469	0.0809	0.0000	0.2245	0.5189	0.0145	0.0385	0.0910	0.0405	0.0001	0.0000	0.0000	0.5236	0.5554	0.0000	0.0000	0.4970	0.0052	——		
***CODE_BIG4* (24)**	−0.0318	0.0090	−0.0608	0.6042	0.0826	−0.0407	0.4636	0.0986	−0.0140	−0.1363	−0.1055	−0.0326	−0.0193	0.1292	0.0768	0.1460	0.0682	0.0751	0.2354	0.1967	−0.0117	−0.0331	0.2376	1.0000	
	0.1238	0.6631	0.0033	0.0000	0.0001	0.0491	0.0000	0.0000	0.4993	0.0000	0.0000	0.1142	0.3504	0.0000	0.0002	0.0000	0.0010	0.0003	0.0000	0.0000	0.5700	0.1088	0.0000	——	
CODE_LOCAL10	0.0572	0.0690	0.0566	−0.1156	0.0479	−0.0239	−0.0853	−0.0141	0.0146	0.0336	−0.0151	−0.0104	−0.0282	−0.0398	0.0307	−0.0674	−0.0260	−0.0696	−0.0192	−0.1009	0.0065	0.0068	−0.0580	−0.1891	1.0000
(25)	0.0056	0.0008	0.0061	0.0000	0.0204	0.2475	0.0000	0.4955	0.4814	0.1040	0.4636	0.6138	0.1723	0.0544	0.1376	0.0011	0.2083	0.0007	0.3518	0.0000	0.7532	0.7415	0.0050	0.0000	——

Table 4: Relationship between disclosure of internal control weaknesses (ICWs) and audit fees

Dependent variable: *AUDITFEE*		(Model 2) Disclosure of ICWs				(Model 3) Disclosure of ICWs in financial and non-financial-related areas		
Independent variable	Sign	Coeff.	t-Stat.		Sign	Coeff.	t-Stat.	
C	+/–	2.2120	2.0488	**	+/–	2.1985	2.1114	**
IMR_DISWEAK		1.6083	1.7393	*		1.6211	1.8308	*
DISWEAK	+	0.0515	2.3356	**				
DISWEAK_FIN					+	–0.0566	–0.4172	
DISWEAK_NONFIN						0.0454	2.3346	**
ROA	+/–	0.3823	3.8384	***	+/–	0.3814	3.8651	***
LOSS	+	0.1252	1.3525		+	0.1256	1.3947	
SIZE	+	0.4654	34.8700	***	+	0.4657	34.8012	***
LEV	+	–0.1851	–3.2294	***	+	–0.1874	–3.2593	***
GROWTH	+	–0.0337	–2.7004	***	+	–0.0334	–2.7999	***
RETURN_DEV	+	–0.1021	–0.4057		+	–0.0989	–0.3984	
TURNOVER_A	+	0.1710	1.9605	*	+	0.1710	2.0753	**
TURNOVER_I	+	–0.0381	–4.9304	***	+	–0.0383	–4.9915	***
AGE	+/–	–0.0040	–2.3935	**	+/–	–0.0039	–2.3628	**
BRDSIZE	+/–	0.0528	1.0604		+/–	0.0537	1.0855	
BRDIND	+/–	–0.0416	–0.9019		+/–	–0.0417	–0.9215	
SUPERSIZE	+/–	–0.1347	–8.5777	***	+/–	–0.1347	–8.2811	***
SUPERIND	+/–	–0.0560	–4.5524	***	+/–	–0.0560	–4.6353	***
DUALITY	+/–	–0.0281	–5.5891	***	+/–	–0.0285	–5.3117	***
TOP3	+/–	–0.0996	–4.8564	***	+/–	–0.1019	–5.8432	***
CODE_STATE	+/–	–0.1096	–5.5986	***	+/–	–0.1099	–5.7430	***
TRADABLE	+/–	0.0030	0.0467		+/–	0.0026	0.0401	
INSTITUTE	+/–	–0.6896	–19.9914	***	+/–	–0.6887	–20.5074	***
AUDIT_SPEC	+	0.1108	2.3030	**		0.1132	2.4294	**
CODE_BIG4	+	0.9584	32.5198	***	+	0.9598	33.0932	***
CODE_BIGLOCAL10	+	0.0060	0.1352		+	0.0070	0.1645	
Industries		Yes				Yes		
Years		Yes				Yes		
R-squared		0.7100				0.7099		
Adjusted R-squared		0.7051				0.7048		
F-statistic		144.5722				140.8127		
Prob (F-statistic)		0.0000				0.0000		
Durbin-Watson statistic		0.3095				0.3088		
Observations		2,343				2,342		

This table presents the results on the relationship between audit fees and internal control weaknesses. Model 2 tests whether audit fees are associated with ICWs. Model 3 investigates the effects of each types of weaknesses —financial reporting-related and non-financial reporting-related—on audit fees. Definitions of all variables are provided in Appendix A.

*** Significance at the 0.01 level (two-tailed);

** Significance at the 0.05 level (two-tailed);

* Significance at the 0.10 level (two-tailed).

Table 5: The effect of voluntary audit on relationship between audit fees and disclosure of internal control weaknesses (ICWs)

Dependent variable: *AUDITFEE*		(Model 4) Disclosure of ICWs		
Independent variables	**Sign**	**Coeff.**	**t-Stat.**	
C	+/–	2.7262	2.8348	***
IMR_DISWEAK		1.1370	1.3462	
DISWEAK	+	0.0531	2.5275	**
DISAUDIT	+	0.1911	2.4014	**
DISWEAK*DISAUDIT	–	–0.0681	–3.6980	***
ROA	+/–	0.3456	3.9483	***
LOSS	+	0.1407	1.4493	
SIZE	+	0.4575	42.0229	***
LEV	+	–0.1697	–3.4831	***
GROWTH	+	–0.0324	–2.4056	**
RETURN_DEV	+	–0.0490	–0.1715	
TURNOVER_A	+	0.1414	1.6766	*
TURNOVER_I	+	–0.0353	–4.4752	***
AGE	+/–	–0.0028	–2.3274	**
BRDSIZE	+/–	0.0627	1.3073	
BRDIND	+/–	0.0188	0.6079	
SUPERSIZE	+/–	–0.1355	–8.2234	***
SUPERIND	+/–	–0.0564	–4.3698	***
DUALITY	+/–	–0.0234	–7.5160	***
TOP3	+/–	–0.1138	–7.7845	***
CODE_STATE	+/–	–0.0962	–5.8081	***
TRADABLE	+/–	0.0010	0.0165	
INSTITUTE	+/–	–0.6890	–17.6911	***
AUDIT_SPE		0.1177	2.4872	**
CODE_BIG4	+	0.8818	12.3155	***
CODE_BIGLOCAL10	+	0.0198	0.5105	
Industries		Yes		
Years		Yes		
R-squared		0.7111		
Adjusted R-squared		0.7059		
F-statistic		138.1151		
Prob (F-statistic)		0.0000		
Durbin–Watson statistic		0.3142		
Observations		2,343		

This table presents the results on the effect of voluntary assurance of internal control reports on audit fees. Definitions of all variables are provided in Appendix A.

*** Significance at the 0.01 level (two-tailed);

** Significance at the 0.05 level (two-tailed);

* Significance at the 0.10 level (two-tailed).

Table 6: Additional test: Relationship between disclosure of types of internal control weaknesses (ICWs) and audit fees (alternative classification)

Dependent variable: *AUDITFEE*		(Model 5) Disclosure of ICWs in financial and non-financial-related areas		
Independent variable	Sign	Coeff.	t-Stat.	
C	+/–	2.1808	2.0218	**
IMR_DISWEAK	+/-	1.6397	1.7785	*
DISWEAK_FIN(1)	+	0.0153	1.0204	
DISWEAK_NONFIN(1)	+	0.0425	2.6683	***
ROA	+/–	0.3821	3.8450	***
LOSS	+	0.1234	1.3509	
SIZE	+	0.4657	34.4708	***
LEV	+	–0.1869	–3.2439	***
GROWTH	+	–0.0334	–2.7071	***
RETURN_DEV	+	–0.1031	–0.4111	
TURNOVER_A	+	0.1728	2.0055	**
TURNOVER_I	+	–0.0382	–4.9385	***
AGE	+/–	–0.0039	–2.3457	**
BRDSIZE	+/–	0.0529	1.0602	
BRDIND	+/–	–0.0418	–0.8869	
SUPERSIZE	+/–	–0.1347	–8.3915	***
SUPERIND	+/–	–0.0561	–4.4762	***
DUALITY	+/–	–0.0282	–5.2522	***
TOP3	+/–	–0.0997	–4.8500	***
CODE_STATE	+/–	–0.1101	–5.6156	***
TRADABLE	+/–	0.0029	0.0444	
INSTITUTE	+/–	–0.6884	–19.2001	***
AUDIT_SPEC		0.1125	2.3851	**
CODE_BIG4	+	0.9600	33.1652	***
CODE_BIGLOCAL10	+	0.0056	0.1261	
Industries		Yes		
Years		Yes		
R-squared		0.7099		
Adjusted R-squared		0.7048		
F-statistic		140.7969		
Prob (F-statistic)		0.0000		
Durbin–Watson statistic		0.3082		
Observations		2,342		

This table presents the results from the additional test that classifies financial reporting and non-financial reporting-related areas differently. The alternative classification broadens the financial reporting area to include asset management, and finance and investment which are the two areas most closely related to financial reporting. Definitions of all variables are provided in Appendix A.

*** Significance at the 0.01 level (two-tailed);
** Significance at the 0.05 level (two-tailed);
* Significance at the 0.10 level (two-tailed).

Table 7: Additional test: Relationship between disclosure of types of internal control weaknesses (ICWs) and audit fees

Dependent variable: *AUDITFEE*		(Model 6) Disclosure of ICWs		
Independent variables	**Sign**	**Coeff.**	**t-Stat.**	
C	+/–	2.1802	2.0621	**
IMR_DISWEAK		1.6295	1.8085	*
DISWEAK_RECORDING	+	0.0174	0.4296	
DISWEAK_STANDARD	+	0.0308	0.4218	
DISWEAK_FRAUD	+	0.3368	2.5135	**
DISWEAK_OTHERS	+	0.0418	2.5513	**
ROA	+/–	0.3805	3.9333	***
LOSS	+	0.1213	1.2783	
SIZE	+	0.4659	35.4210	***
LEV	+	–0.1865	–3.3135	***
GROWTH	+	–0.0334	–2.7488	***
RETURN_DEV	+	–0.0997	–0.4009	
TURNOVER_A	+	0.1731	2.0621	**
TURNOVER_I	+	–0.0382	–5.1704	***
AGE	+/–	–0.0039	–2.3721	**
BRDSIZE	+/–	0.0542	1.1253	
BRDIND	+/–	–0.0361	–0.8692	
SUPERSIZE	+/–	–0.1337	–8.4264	***
SUPERIND	+/–	–0.0571	–4.7603	***
DUALITY	+/–	–0.0282	–5.0291	***
TOP3	+/–	–0.0990	–4.8827	***
CODE_STATE	+/–	–0.1107	–5.8300	***
TRADABLE	+/–	0.0034	0.0532	
INSTITUTE	+/–	–0.6881	–19.0694	***
AUD_SPE		0.1133	2.3811	**
CODE_BIG4	+	0.9576	33.1847	***
CODE_BIGLOCAL10	+	0.0059	0.1348	
Industries		Yes		
Years		Yes		
R-squared		0.7100		
Adjusted R-squared		0.7047		
F-statistic		134.0619		
Prob (F-statistic)		0.0000		
Durbin–Watson statistic		0.3088		
Observations		2,343		

This table presents the results from the additional test that separating ICWs into four categories: 1) financial information recording-related ICWs (*DISWEAK_RECORDING*); 2) ICWs related to the implementation of accounting standards (*DISWEAK_STANARD*); 3) ICWs related to financial reporting fraud or material financial misstatements (*DISWEAK_FRAUD*); and 4) any ICWs that cannot be classified into the first three categories, which are in fact the ICWs related to non-financial reporting areas (*DISWEAK_OTHERS*). Definitions of all variables are provided in Appendix A.

*** Significance at the 0.01 level (two-tailed);
** Significance at the 0.05 level (two-tailed);
* Significance at the 0.10 level (two-tailed).

Table 8: Additional test: Relationship between disclosure of internal control weaknesses (ICWs) and audit fees for the period 2009–14

Dependent variable: *AUDITFEE*		(Model 2) Disclosure of ICWs				(Model 3) Disclosure of ICWs in financial and non-financial related areas		
Independent variable	Sign	Coeff.	t-Stat.		Sign	Coeff.	t-Stat.	
C	+/–	6.0430	4.4805	***	+/–	3.8769	4.6099	***
IMR_DISWEAK		–1.9224	–1.3187			0.5417	0.5417	
DISWEAK	+	0.0306	2.1733	**				
DISWEAK_FIN					+	0.0612	1.4999	
DISWEAK_NONFIN						0.0248	1.7986	*
ROA	+/–	–0.0819	–0.7364		+/–	0.1074	0.9514	
LOSS	+	0.1677	2.0434	**	+	0.0744	1.4920	
SIZE	+	0.4163	32.5617	***	+	0.4325	33.4212	***
LEV	+	–0.0836	–1.8504	*	+	–0.1004	–2.1831	**
GROWTH	+	–0.0085	–0.7939		+	–0.0115	–1.0954	
RETURN_DEV	+	0.4134	2.0969	**	+	0.1147	0.8028	
TURNOVER_A	+	–0.1148	–1.9668	**	+	–0.0167	–0.2972	
TURNOVER_I	+	–0.0086	–0.8613		+	–0.0242	–3.6188	***
AGE	+/–	0.0084	2.0158	**	+/–	0.0016	0.5068	
BRDSIZE	+/–	0.0629	2.2418	**	+/–	0.0377	1.3917	
BRDIND	+/–	0.4019	2.2478	**	+/–	0.1476	0.9676	
SUPERSIZE	+/–	–0.0801	–4.1674	***	+/–	–0.0762	–4.0905	***
SUPERIND	+/–	–0.0516	–3.3574	***	+/–	–0.0374	–2.6232	***
DUALITY	+/–	0.0032	0.3293		+/–	–0.0183	–2.1770	**
TOP3	+/–	–0.2123	–3.9081	***	+/–	–0.1119	–3.8825	***
CODE_STATE	+/–	0.0650	3.5402	***	+/–	0.0087	0.2844	
TRADABLE	+/–	0.0058	0.1854		+/–	0.0027	0.0873	
INSTITUTE	+/–	–0.5762	–7.8636	***	+/–	–0.4913	–6.9297	***
AUDIT_SPEC	+	0.1280	3.4214	***		0.1279	3.3675	***
CODE_BIG4	+	0.7412	13.4001	***	+	0.7892	12.9227	***
CODE_BIGLOCAL10	+	0.0549	1.3180		+	–0.0176	–0.7934	
Industries		Yes				Yes		
Years		Yes				Yes		
R-squared		0.7052				0.7096		
Adjusted R-squared		0.7036				0.7079		
F-statistic		431.2604				419.9610		
Prob (F-statistic)		0.0000				0.0000		
Durbin–Watson statistic		0.3749				0.3513		
Observations		7,434				7,434		

This table presents the results from the additional tests that including the mandatory disclosure period (2012–14). Definitions of all variables are provided in Appendix A.
*** Significance at the 0.01 level (two-tailed);
** Significance at the 0.05 level (two-tailed);
* Significance at the 0.10 level (two-tailed).

Appendix A

Variables	Definition
AUDITFEE	The logarithm of total audit fees.
DISAUDIT	A dummy variable, which equals 1 if a firm has its internal control report voluntarily assured, 0 otherwise.
DISWEAK	A dummy variable, which equals 1 when firms disclose ICWs in their internal control reports, 0 otherwise.
DISWEAK_FIN	A dummy variable, which equals 1 when firms disclose ICWs in financial reporting areas, 0 otherwise.
DISWEAK_NONFIN	A dummy variable, which equals 1 when firms disclose ICWs in non-financial reporting areas, 0 otherwise.
IMR_DISWEAK	Inverse Mill's ratio, is calculated based on the Probit model to estimate the likelihood of firms disclosing internal control weaknesses (Heckman, 1979 and Lennox et al. 2012).
ROA	Net income or total profits after taxes divided by total assets.
LOSS	It is coded as 1 if net income is negative, 0 otherwise.
SIZE	It is calculated as the logarithm of total assets.
LEV	Total liability divided by total assets.
GROWTH	Changes in sales revenues divided by sales revenues.
RETURN_DEV	Standard deviation of monthly returns over the 12 months of the financial year.
TURNOVER_A	Total accounts receivable divided by total sales revenue.
TURNOVER_I	Total inventory divided by total costs of goods sold.
AGE	Number of years a firm has operated.
BRDSIZE	The logarithm of the number of directors on the board of directors.
BRDIND	Percentage of independent directors on the board of directors.
SUPERSIZE	The logarithm of the number of supervisors on the supervisory board.
SUPERIND	Percentage of unpaid supervisors on the supervisory board.
DUALITY	It is coded as 1 if a CEO is also the chairperson of the board of directors, 0 otherwise.
TOP3	Percentage of the top three shareholders' ownership interests in a firm.
CODE_STATE	It is coded as 1 if a firm is a state-controlled firm, 0 otherwise.
TRADABLE	Percentage of shares that can be traded without any restrictions.
INSTITUTE	Percentage of shares held by management funds.
AUDIT_SPE	It equals 1 if the audit firm has more than 30% of the market share in an industry, 0 otherwise.
CODE_BIG4	It is coded as 1 if a Big 4 audit firm is engaged as the auditor, 0 otherwise.
CODE_LOCAL10	It is coded as 1 if one of the top 10 Chinese local audit firms is engaged as the auditor, 0 otherwise.
INDj	They are dummy variables for industries classified according to the CSRC industry classification code, j =1, 2, …16.
DISWEAK_FIN(1)	An alternative way of classifying internal control weaknesses. A dummy variable, which equals 1 when firms disclose ICWs in financial reporting areas, including areas of asset management, and finance and investment, 0 otherwise.
DISWEAK_NONFIN(1)	An alternative way of classifying internal control weaknesses. A dummy variable, which equals 1 when firms disclose ICWs in non-financial reporting areas, excluding areas of asset management, and finance and investment, 0 otherwise.
DISWEAK_RECORDING	A dummy variable, which equals 1 when firms disclose ICWs related to financial information recording, 0 otherwise.
DISWEAK_STANDARD	A dummy variable, which equals 1 when firms disclose ICWs related to the implementation of accounting standards, 0 otherwise.
DISWEAK_FRAUD	A dummy variable, which equals 1 when firms disclose ICWs related to financial reporting fraud or material financial misstatements, 0 otherwise.
DISWEAK_OTHERS	A dummy variable, which equals 1 when firms disclose ICWs that cannot be classified into three categories of DISWEAK_RECORDING, DISWEAK_STANDARD or DISWEAK_FRAUD, 0 otherwise.