A Study of Voluntary Internal Control Assurance
in Chinese Listed Companies

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Submitted in fulfillment of the requirements for the degree of
Doctor of Philosophy

Deakin University
December 2015
I am the author of the thesis entitled

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ABSTRACT

The overarching objective of this study is to investigate what factors motivate firms to voluntarily adopt internal control assurance (ICAR) and whether the voluntary adoption of ICAR contributes to improving financial reporting quality. The study of the determinants for voluntary ICAR and the effect of voluntary ICAR on financial reporting quality is important and timely, given that current regulations on ICAR vary considerably around the world in terms of nature and scope from voluntary to mandatory requirements. More specifically, except for the US and Japan, most jurisdictions and markets do not require independent auditors to provide ICAR. In addition, research is sparse in relation to ICAR under a low-regulated environment and there is little empirical evidence from the emerging countries with notably different institutional circumstances from those of developed economies. Thus, this study intends to address the knowledge gap with reference to A-share public listed companies in the Chinese capital market. The corporate setting in China provides an interesting and relevant context for this study, given its relatively flexible internal control regulatory environment and specific institutional arrangements.

This study adopts a socio-economic perspective and given the specific institutional setting in China, it is also guided by several theories, namely information economics theory, agency theory, loss of control theory and institutional theory, in assessing the determinants for voluntary ICAR and its impact on financial reporting quality. As independent assurance is costly, it is expected firms that adopt voluntary ICAR will be those for which benefits outweigh costs. It is argued that voluntary ICAR confers several benefits which include (1) enhancing credibility of internal control reports firms
disclosed and facilitating contracts; (2) compensating potential loss of control and transferring signals; and (3) achieving legitimacy under institutional influence. More specifically, this study examines whether the demand for voluntary ICAR is the joint function of firm-level economic incentives and regional-level institutional features. Firm-level economic incentives are captured with three components: (1) agency conflicts embedded in the ownership structure; (2) corporate governance mechanisms; and (3) firm operating characteristics. The regional-level institutional features are captured and measured with a regional marketization index. Data analysis, based on a sample of 593 A-share Chinese listed firms that had voluntarily adopted ICAR from 2007 to 2009, indicates voluntary ICAR is associated with both firm-level economic incentives and regional-level institutional features. In particular, a firm is seen to be inclined to voluntarily adopt ICAR when (1) there are higher agency costs between the controlling shareholders and the minority shareholders; higher cash flow rights of the controlling shareholders and a higher level of institutional shareholding; (2) the firm is cross-listed in the US, has a diligent board of directors and a larger board of supervisors; (3) the firm is larger in size, has a better financial performance and received a clean audit opinion for its financial reporting; and (4) the firm domiciles in the region with weaker institutions, i.e., less developed market-oriented institutions, strong government intervention, and weak legal environment and enforcement. Overall, these findings imply that regulators in China may allow firms some flexibility in their choice for ICAR, because firms can tailor the assurances to suit their specific environments. The findings also lend empirical support for the Chinese regulators who promote mandatory ICAR under different categories and groups. In addition, these findings highlight the need for the Chinese regulators to pay particular attention to the uneven regional institutions when promoting the implementation of internal control regulation.
Further, the effect of voluntary ICAR on financial reporting quality is still unclear and remains an empirical issue for Chinese firms where the internal control profession is still in its infancy. In this study, accrual quality is utilised as a proxy measure of financial reporting quality. More specifically, this study investigates current accruals, which are measured following the performance matched Jones model. The data analysis, after controlling for the potential self-selection bias, reveal that firms which have voluntarily adopted ICAR exhibit a lower quality of discretionary current accruals relative to firms without voluntary ICAR. The results are robust using two alternative proxies of accruals quality which measure accrual noise respectively with the Dechow and Dichev (2002) model, and the modified Dechow and Dichev model by McNichols (2002) and Francis et al. (2005b). These unexpected results raise at least two possible explanations. First, the negative association between voluntary ICAR and financial reporting quality may reflect a developing economy effect, where the internal control in China is still weak and the ICAR profession is still infant, and thus the real effects of assurance are yet to be reflected in higher quality financial reporting. The second explanation is that firms with poorer quality financial reporting may be utilising voluntary ICAR as a legitimizing tool.

Findings from this study provide a number of important insights into ICAR determinants and its association with financial reporting quality, with implications for key stakeholders. In particular, given policy-makers worldwide are continuing to evaluate the policy options of ICAR, there can be lessons from the gradual approach and the relatively flexible regulatory environment adopted by the Chinese government for Chinese listed firms to establish and develop internal control assurance. Based on the findings of this study, several suggestions are provided for future research, namely in relation to cross-country analysis and comparative studies with other emerging markets.
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CHAPTER 1
INTRODUCTION

1.1 Background

Internal control is commonly regarded as a critical corporate governance function for effective management of an organization. It is formally defined as a process, effected by an entity’s board of directors, management and other personnel designed to provide reasonable assurance regarding the achievement of objectives (COSO, 1992, p3). Its main role is to guide an organization towards the fulfillment of its primary objectives on effective and efficient operation, reliable financial reporting, as well as compliance with applicable laws and regulations (COSO, 1992, p3). Subsequent to the unprecedented corporate collapses in the early 2000’s, internal control gained significant attention of the regulators, policy-makers, board of directors and the public in general.

The collapse of Enron, WorldCom and a series of financial scandals led to the public outcry for better corporate governance and more effective internal control. In response, numerous internal control guidelines have been developed and recommended for practice in many of the developed economies, such as the the Enterprise Risk Management – Integrated Framework by the Committee of Sponsoring Organizations of the Treadway Commission (COSO, 2004) in the US; the review of Turnbull Guidance and Combined Code (2005) in the UK; and the Discussion Paper on Risk Management and Internal Control by the Fédération des Experts Comptables Européens (FEE 2005) in Europe. Specifically, some countries have imposed legislation on internal control, as
evidenced by the Sarbanes Oxley Act 2002 (SOX) in the US and the Corporate Law Economic Reform Program (Audit Reform and Corporate Disclosure) Act 2004 (CLERP 9) in Australia. Likewise, a number of emerging economies have also started to establish guidelines and regulations on internal control. For example, South Africa issued the King Report on Corporate Governance for South Africa in 2002. Two stock exchanges of China, namely the Shanghai Stock Exchange (SSE) and the Shenzhen Stock Exchange (SZSE), respectively issued Guidelines of Internal Controls for Public Companies listed on the Shanghai Stock Exchange and Guidelines of Internal Controls for Public Companies listed on the Shenzhen Stock Exchange in 2006, followed by the promulgation of Enterprise Internal Control Basic Standard in 2008 and Implementation Guidelines for Enterprise Internal Control Basic Standards by the Chinese government in 2010. These internal control guidelines and regulations all echo a core principle, that is, good corporate governance entails sound internal control (IFAC, 2006). Arguably, internal control has transformed into being an alternative critical corporate governance mechanism in the new attempts at reform (Michelon et al., 2009), which affects the welfare of numerous stakeholders, including management, directors, auditors, investors, trading partners, regulators and society at large (Kinney, 2000).

While the regulators around the world advocate improving internal control effectiveness, internal control cannot be directly observed, as it is an internal mechanism and a set of activities within organizations. Associated with the public outcry for more effective internal control is the growing demand of various stakeholders for “internal control reporting (ICR)” and “internal control assurance (ICAR)”. Internal control reporting (ICR) is conducted by management which requires management to acknowledge its responsibility for internal control and assess the effectiveness of an internal control system. Internal control assurance (ICAR) is the attestation of external independent
auditors on internal control reports prepared by management. These stakeholders need to be informed about internal control and be confident that high-quality internal control is in place. Prior research has justified the demand for internal control reporting. For example, Hermanson (2000) finds that the stakeholders, including bankers, brokers, directors, executives, analysts, institutional investors, individual investors, CPAs and internal auditors, think that internal control reporting is important and that voluntary internal control reporting facilitates improving internal controls and provides additional information beyond the audited financial statements.

While the enactment of SOX Act in the US seems to have swayed the debate to the former on whether internal control reporting should be mandatory or voluntary, the introduction of the mandatory requirement of Section 404 makes the issue of assurance of internal control reports more salient. The proponents for ICAR maintain that ICAR has the potential benefits of detecting and preventing internal control deficiencies, which in turn is expected to enhance internal governance, including financial reporting quality, through early detection of any intentional and unintentional accounting errors (Bédard, 2006b).

Nevertheless, there are increasing criticisms of the expensive compliance costs associated with a mandatory requirement (Raghunandan and Rama, 2006, Ettredge et al., 2007). The costs and benefits of ICAR are still unclear and subject to debate, which is reflected by the divergent policy options with respect to ICAR by different jurisdictions worldwide. The main difference among currently enacted regulations is that except for the US and Japan, most countries and markets do not require independent auditors to provide ICAR mandatorily (Bedard et al., 2009). However, the globalisation of corporate governance practices is starting to put pressure on firms, particularly in low-
regulated, developing economies such as China, to voluntarily adopt ICAR. For example, over the last three years (2007-2009) there has been a rise in the proportion of Chinese firms selecting voluntary assurance of internal controls, with 23 percent of A-share firms listed in the main board of Chinese capital market providing an assurance statement with their internal control report. The growth in both the number and the proportion of firms indicates a growing demand for voluntary ICAR in a low-regulated environment.

A review of the empirical literature pertaining to firms in emerging nations and in a low-regulated environment in this area indicates further assessment of voluntary ICAR is needed in at least two aspects. The first issue relates to the need for a clearer understanding of what factors drive the uptake of voluntary ICAR, and the second issue is whether the uptake of voluntary ICAR in turn has any impact on financial reporting quality. Studying the determinants of voluntary ICAR and the effects of voluntary ICAR on financial reporting quality are both important and timely. Research of this type may be helpful in the assessment of the potential impacts of policy options involving the deregulation of ICAR, increase understanding which factors influence firms’ selection for voluntary ICAR and whether voluntary ICAR is an effective process in the improvement of financial reporting quality. The findings of this study may have implications to the wider business community and regulators, since a low-regulation environment of ICAR exists widely around the world, particularly in developing economies.
1.2 Research Questions and Motivations

The pivotal aim of this study is to address the drivers and impact of voluntary ICAR within a low-regulated environment. The contextual setting for the study is China and the two main research questions addressed in this thesis are as follows:

RQ1: What are the determinants of voluntary ICAR?

RQ2: Is there a significant association between voluntary ICAR and financial reporting quality?

The guiding theoretical framework for the study is anchored in agency theory (Jensen and Meckling, 1976, Watts and Zimmerman, 1983), and the key motivations for the present study are as follows. First, the current examination of the determinants for voluntary ICAR will inform and build on prior research examining voluntary assurance mechanisms related to financial reporting and their impact on the quality of financial reports. Assurance is an added cost to the investment that firms have already made in internal controls. Insights from prior studies on ICAR are derived mainly from the US post SOX era, where the passage of SOX in the US significantly altered the calculus of ICAR, mandating independent auditors to attest on internal control over financial reporting under Section 404. The mandated requirement nevertheless precludes the opportunity to examine the drivers and effects of voluntary ICAR, which in turn has the advantage of eliminating the confounding impact of regulation (Carey et al., 2000). Yet, little is known about the nature and the extent of voluntary ICAR, specifically under a low-regulated policy setting.
According to agency theory, auditing, or broadly speaking assurance, is generally adopted as a monitoring or bonding mechanism used to reduce information asymmetry and mitigate agency problems (Jensen and Meckling, 1976, Watts and Zimmerman, 1983) and is a cost-effective contractual response to agency costs (Watts and Zimmerman, 1976, DeAngelo, 1981). It is documented that the agency costs of equity and agency costs of debt are critical to the assurance decision (Chow, 1982, Abdel-Khalik, 1993, Blackwell et al., 1998, Carey et al., 2000) and auditor selection (Francis and Wilson, 1988, Johnson and Lys, 1990, DeFond, 1992, Piot, 2001). These studies mainly focus on the agency problems between management and the shareholder (diversified ownership), rather than the more pronounced agency conflicts between the controlling shareholder and the minority shareholder (concentrated ownership) around the world (La Porta et al., 1999). Recent research by Fan and Wong (2005) supports the empirical relation between the appointment of Big 5 auditors and the agency costs embedded in the concentrated ownership by examining East Asian countries. Although agency theory is suggestive of the demand for voluntary ICAR, there is no empirical evidence on its determinants. It is likely other factors such as institutional and political-related factors may sway the decision on providing assurance on the internal controls (Yang et al., 2011b).

Second, it is unclear if the same economic incentives for firms’ selection for voluntary internal control reporting and internal control weaknesses disclosure also affect voluntary ICAR. On one hand, previous internal control literature suggests that firms’ operating characteristics such as firm size, financial health, rapid growth and transaction complexity are significantly associated with the quality of an internal control system, influencing a firm’s decision on the voluntary disclosure of internal control system and its weaknesses (Bronson et al., 2006, Deumes and Knechel, 2008, Doyle et al., 2007a,
Ashbaugh-Skaife et al., 2007). These characteristics are referred as the internal control risk factors within the organization, indicating the potential loss of control and the failure of internal control. When internal control risks are higher, a firm will have more incentive to inform outsiders that their internal control system is in place and operates effectively through internal control reporting. On the contrary, higher internal control risks also imply more potential occurrence of internal control weaknesses, which may discourage a firm from undertaking voluntary internal control reporting and downplay its responsibility on internal controls. This line of rationale could also apply to the context of voluntary ICAR. For instance, the potential loss of control and the failure of internal control systems necessitate the need for monitoring systems from outside the boundaries in the form of external assurance (Abdel-Khalik, 1993). However, to date there is little empirical evidence whether firms with increasing internal control risks will proceed to voluntarily adopt ICAR.

On the other hand, ICAR is not cheap and the costs may significantly vary across firms. The empirical evidence on the mandated auditor testing under Section 404 of the SOX reveals the process as being costly in terms of both internal costs and external audit fees (Raghunandan and Rama, 2006, Ettredge et al., 2007). Although voluntary ICAR is expected to contribute to reducing the efficiency loss of information asymmetry and agency problems, the adoption of voluntary assurance can be a cost-benefit response. Furthermore, various monitoring/bonding governance mechanisms are utilized to address agency costs. One common view is that the adoption of voluntary assurance is a cost-effective response to agency costs (Watts and Zimmerman, 1976, DeAngelo, 1981). This is in the same vein of the proposition by Williamson (1983), who argues a substituted relationship among various governance mechanisms. By contrast, Roe (2005) hypothesizes that the interaction of different governance mechanisms is either
complementary or substituted. Thus, theoretically, two relationships are possible between internal control monitoring mechanisms (internal control reporting and internal control assurance) and alternative corporate governance mechanisms.

Empirically, prior research also provides mixed evidence on the role of corporate governance mechanisms. The quality of an entity’s internal control is the function of its control environment (COSO 1992). One branch of the research finds that better corporate governance, such as a diligent and independent board and audit committee, a high quality external auditor, or an overseas cross-listing and institutional investors, can significantly promote voluntary internal control reporting and internal control weakness disclosure (Bryan and Lilien, 2005, Ge and McVay, 2005, Krishnan, 2005, Ashbaugh-Skaife et al., 2007, Goh, 2007, Goh, 2009, Doyle et al., 2007a, Doyle et al., 2007b, Naiker and Sharma, 2009). Conversely, another branch documents that voluntary internal control disclosure and its extensive level of disclosure are adopted as a substitute for ineffective corporate governance mechanisms (Michelon et al., 2009). Nevertheless, the interaction between the adoption of voluntary ICAR and other corporate governance mechanisms in place is still an open question. It is argued that attempting to improve financial reporting quality by improving corporate governance quality might be a less costly alternative to the audit of internal controls (SEC 2005). Thus, a clear understanding of the association between internal control and corporate governance contributes not only to regulators’ decision-making on policy options, but also to firms’ decisions on corporate governance choice.

Third, the examination of the determinants for voluntary ICAR is also motivated by a growing literature which examines the influence of various institutions on the related demand for governance mechanisms based on a cross-country analysis from the
institutional theory perspective (La Porta et al., 1999, La Porta et al., 2000, La Porta et al., 1998, Doidge et al., 2007, Durnev and Kim, 2005). These findings indicate that the governance structures are fundamentally endogenous to the legal system and other institutions that facilitate contracting. However, there are two competing views: a complementary view and a substitution view. The former argues firms are more likely to invest in better corporate governance in the countries with strong investor protection and a well-developed economy and financial markets (Doidge et al., 2007); while the latter contends that a firm’s governance mechanisms play a substitute effect for absent or weak country-level institutions that constrain the behavior of contracting parties (Durnev and Kim, 2005). More recently, Francis et al (2011) examine the voluntary assurance of financial reporting based on a cross-country analysis and document the effect of the variant country-level institutions on firms’ decisions on voluntary assurance. In particular, they find that the adoption of voluntary assurance serves as a substitute for weak institutions. However, little is known about the demand for voluntary assurance in response to the divergent institutions within a single country setting, especially in the emerging economies and under the internal control context. This is particularly so in China, where there is great variation in legal and other institutions across various regions, due to geographic reasons and decentralization of the political and economic system since 1978 (Wei, 1999). As such, this study further investigates the influence of the unbalanced regional-level institutions on firms’ selection of ICAR in a single country setting.

Fourth, internal control is a process to provide reasonable assurance regarding the reliability of financial reporting (COSO, 1992). Good internal control is supposed to be associated with more reliable financial information through preventing and/or detecting errors or fraud that could result in a misstatement of the financial statements,
unintentional and/or intentional (Doyle et al., 2007a, Ashbaugh-Skaife et al., 2008). It is also argued that ICAR is of benefit in improving internal control quality, either through increasing management’s consciousness of internal control, or through enhancing the audit effort on attestation (Bédard, 2006b), which in turn leads to more reliable financial reporting. Bandyopadhyay et al. (2007) also support the benefits of voluntary auditors’ involvement by suggesting that when there is no mandated requirement for audit or assurance, firms that choose to voluntarily engage auditors will probably purchase the highest quality review from their auditors, in order to signal quality to the market and distinguish themselves from other firms. However, when assurance is required by regulatory authorities, all firms will likely purchase the lowest level of review from their external auditors, in order to satisfy the minimum regulatory requirements. Although it is expected a positive relation between voluntary ICAR and financial reporting quality, there is little empirical evidence, which necessitates further examination of this association. Accrual quality is one of the measures of financial reporting quality which has been widely used in prior studies. Thus, this study attempts to examine the association between voluntary ICAR and accrual quality.

As discussed above, this study addresses the following specific research issues:

SQ1: What are the firm-level economic incentives influencing a firm’s decision on voluntary ICAR?

• Does the agency problem and information asymmetry embedded in the concentrated ownership structure influence a firm’s decision on voluntary ICAR?

• Do corporate governance mechanisms in place influence a firm’s decision on voluntary ICAR?

• Do a firm’s operating characteristics influence the firm’s decision on
voluntary ICAR?

SQ2: Do the unbalanced institutions across regions influence a firm’s decision on voluntary ICAR?

SQ3: Is there any significant effect of voluntary ICAR on a firm's financial reporting quality in terms of accrual quality?

SQ1 and SQ2 are related to RQ1, namely, the determinants of voluntary ICAR. More specially, SQ1 looks into the influence of three types of firm-level economic incentives including ownership structure, corporate governance mechanisms and firm operating characteristics, while SQ2 explores the influence of unbalanced institutions across regions, i.e., regional-level institutional features. Accordingly, four primary hypotheses are developed with these four influential factors. SQ3 is associated with RQ2 to examine the effect of voluntary ICAR on accrual quality and the fifth primary hypothesis is postulated between voluntary ICAR and accrual quality.

1.3 Justification for China as the contextual setting

The corporate setting in China provides an interesting and relevant context for study for the following reasons. First, China has become the second largest economy in the world and an indispensable participant in the global economy. According to the statistics of the World Federation of Exchanges (WFE), by the end of 2009, the market capitalization of the Shanghai Stock Exchange (SSE) and the Shenzhen Stock Exchange (SZSE) were respectively US$ 2705 billion and US$ 868 billion, which were ranked 7th and 17th among the top 30 biggest stock markets. In terms of daily turnover, SSE and SZSE were ranked as the 3rd and 6th biggest stock markets (WFE, 2009). Thus, the quality and strength of its capital market has direct relevance for the global economy.

Second, with the development of its securities market, the Chinese government has taken
steps to improve the Chinese investment climate to make it more appealing to domestic and foreign capital funds, including requiring listed firms to establish and strengthen internal control systems. Unlike in the developed countries where internal control is a spontaneous management mechanism and has been developed over a long period, internal control in China is a new issue, which is an indispensable institutional arrangement to accommodate the rapid development of the Chinese capital market. As internal control in China is still in its period of infancy, the Chinese government has adopted a gradual approach and provided a relatively flexible regulatory environment for Chinese listed firms to establish and develop internal control from the start (Liu, 2008).

Third, in the current liberalized economic climate, Chinese firms are also taking steps to attract investors. In an effort to achieve competitive advantages, Chinese firms have adopted new strategies, including voluntary assurance of internal control. These developments have a profound impact on the Chinese financial markets. This study is, therefore, expected to shed light on the emerging practice of ICAR in a growing capital market. Specifically, this study seeks to examine the determinants of voluntary assurance of internal control for Chinese public firms and its association with financial reporting quality.

Finally, China provides both a suitable low-regulation environment and an available database to study voluntary ICAR. From 2007, the Chinese government started to require listed companies to establish an internal control system. To assist in internal control establishment within listed firms, the two stock exchanges, namely the Shanghai Stock Exchange and the Shenzhen Stock Exchange, respectively issued the guidelines in 2006, titled Guidelines of Internal Controls for Public Companies listed on the
The Shanghai Stock Exchange and Guidelines of Internal Controls for Public Companies listed on the Shenzhen Stock Exchange. Further, accompanying these requirements was the recommendation that firms provide an assurance report on the efficiency and effectiveness of their internal controls on a voluntary basis. More recently, the Chinese government issued the Enterprise Internal Control Standard Framework and set up the timetable for mandated ICAR, which initially started with the public firms’ cross-listing on overseas markets since 2011. Interestingly, this policy mirrors the requirements pursuant to Section 404 of SOX on mandatory ICAR. Although the requirement on mandated ICAR has started to phase in, many Chinese public companies had voluntarily undertaken ICAR prior to this most recent regulation.

This study also focuses on the Chinese environment given its specific institutions. Since its opening-up in 1978, China has undergone significant institutional shifts and witnessed incredibly rapid economic development. In addition to an overall progressive improvement of institutions, the Chinese legal system and other institutions are generally weak and unbalanced across regions within China. Chinese listed firms feature a pyramid ownership structure dominated by the controlling shareholders and less developed corporate governance, unlike US firms with more diverse ownership and better investor protection mechanisms. With great variation in legal and other institutions across various regions, China offers a good opportunity to test the effect of the unbalanced regional-level institutions on firms’ decisions on ICAR in a single country setting. The focus on a single country has its advantages over a cross-country approach, as the former can control data quality better, which allows researchers to analyze the impacts of key institutional factors on various issues in-depth with more

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1 Notice on Doing a Better Job of Annual Reports respectively issued by SSE and SZSE from 2007 to 2009 were the complement regulatory documents, recommending listed companies to undertake internal control assurance on their discretions.
available data at the firm-level and the regional-level, while holding constant other factors that might be difficult to disentangle in cross-country studies (Fan et al., 2011, Jang et al., 2011). With the pyramid-like concentrated ownership structure, China provides a natural laboratory to examine how the agency costs embedded in the concentrated ownership affect a firm’s decision on voluntary ICAR, to complement prior research pertaining to voluntary assurance which has primarily focused on the developed countries with more diversified ownership structures.

Therefore, this study is motivated to provide a detailed examination of the drivers of voluntary ICAR and its association with financial reporting quality in the Chinese context.

1.4 Expected Contributions of This Study

This study presents several potential contributions to theory and practice. The primary contribution lies in the assessment of the knowledge gap about the drivers and effects of voluntary ICAR. Specifically, this research contributes to the literature in the following ways.

This study is related to the growing literature on internal control (Deumes and Knechel, 2008, Bronson et al., 2006, Michelon et al., 2009, Bryan and Lilien, 2005, Bedard and Graham, 2011b, Hammersley et al., 2008, Ettredge et al., 2010, Ashbaugh-Skaife et al., 2007, Ashbaugh-Skaife et al., 2009, Ashbaugh-Skaife et al., 2008). First, this study supplements the literature of internal control with the evidence from an emerging and transitional country, China, where the market-oriented institutions are relatively weak and unbalanced. Second, this study extends the research on internal control to a more specific topic of ICAR under a voluntary regulatory setting and contributes to our
understanding of the emerging assurance on internal control. Third, this study is believed to be the first comprehensive attempt at evaluating the determinants of voluntary ICAR from the socio-economic perspective, drawing upon both the firm-specific economic incentives and the institutional features. Fourth, this study empirically links voluntary ICAR and financial reporting quality in terms of accrual quality.

This study is also related to prior research that studies firms’ incentives for better corporate governance, i.e., adoption of voluntary assurance (Simnett et al., 2009, Fan and Wong, 2005, Choi and Wong, 2007, Choi et al., 2008, Francis et al., 2011, Kolk and Perego, 2010). Prior research is well recognized and documents the demand for financial auditing, but the demand for assurance on non-financial information in general, and assurance on internal control in particular, is minimal. This study thereby adds to the latter in several aspects. First, this study not only extends the new line of research examining the importance of both the firm-level economic incentives and the endogenous institutions in interpreting the adoption for better corporate governance in the field of internal control, but also extends these studies from a cross-country basis to a single country basis. Second, this study examines the effect of agency conflicts within a concentrated ownership structure on a firm’s decision for voluntary ICAR, extending prior research mainly focusing on the agency costs with a diversified ownership structure. Finally, this study provides evidence about the institutions effect on firms’ demand for voluntary assurance in a single country setting.

This study supplements the literature on accrual quality (Dechow et al., 1995, Becker et al., 1998, Francis et al., 1999, Dechow and Dichev, 2002, Francis et al., 2004, Kothari et al., 2005), empirically linking voluntary ICAR as one influential factor of the quality of financial reporting, namely in terms of accrual quality, in addition to firm
characteristics documented by prior research. The findings of this study also contribute to assessing the effectiveness of voluntary ICAR policy on improving financial reporting quality in China. Likewise, the findings of this analysis would be of interest to numerous stakeholders, such as management, investors and practitioners alike.

This study has important policy implications for the Chinese capital market and regulators. It contributes to a better understanding of both the influential factors for voluntary adoption of ICAR and its effect on financial reporting quality. This understanding will be of interest of the regulators in China to re-evaluate the present policies to ensure the desired outcome is achieved, or to help in the development of new policies to reinforce present standards governing ICAR.

1.5 Structure of the Thesis

The remainder of the thesis is organized as follows.

Chapter 2 discusses the institutional background in China. This chapter starts with the review of Chinese internal control regulatory environment. Through this review, it is noted that internal control is a new issue in China and still in its early stages of adoption. Because of this, the Chinese government has adopted a gradual approach and provided a flexible regulatory environment for Chinese listed firms to establish and develop internal control from the start. This chapter further discusses the weak and unbalanced institutions across China and the unique characteristics of Chinese listed firms. The discussion is to provide an institutional background to further analyze the impacts of key institutional factors on the drivers and effect of voluntary ICAR in-depth, with more available data at the firm-level and the regional-level.
Chapter 3 reviews two major streams of literature pertaining to this study: internal control and voluntary assurance. The literature review also highlights limitations of previous studies and knowledge gaps. Two pertinent research questions are raised: 1) exploring the determinants of voluntary ICAR; and 2) examining the effect of voluntary ICAR on financial reporting quality.

Chapter 4 builds up the conceptual framework and develops hypotheses for the study of the determinants of voluntary ICAR. This chapter initially discusses four inter-related theoretical perspectives associated with the demand for voluntary assurance, namely information economics, agency theory, loss of control theory and institutional theory. In light of these theoretical perspectives, an argument for the demand and the value of voluntary ICAR proceeds and is followed by the identification of key determinants of voluntary ICAR and the corresponding hypotheses. Chapter 5 subsequently develops the arguments explaining the association between voluntary ICAR and accrual quality.

Chapter 6 outlines the sample collection and selection process, justifies the selection of the time period and details the primary research methodology utilized, namely the use of multiple regression. In particular, the statistical tests and models adopted for this study are detailed, namely the logistic regression model (examining the determinants of voluntary ICAR); the ordinary least squares model (examining the association between voluntary internal assurance on financial reporting quality without control for self-selection bias); and the two-stage treatment effect model (examining the association between voluntary internal assurance on financial reporting quality with control for self-selection bias) are defined. The measures of related variables are also detailed as well.

Chapter 7 analyses the data and presents the data analysis results. The results for the two primary research questions of this study are presented separately. The descriptive
statistics and univariate results are firstly reported and followed by the results of multivariate analysis and robustness tests.

Chapter 8 describes the achievement of the research objectives through the conclusions, contributions and implications of the research. This chapter also addresses the limitations of the research and proposes future research directions.
CHAPTER 2
INSTITUTIONAL BACKGROUND IN CHINA

2.1 Introduction

This chapter discusses the institutional background in China. It starts with the discussion of the Chinese internal control environment in section 2.2, followed by a review of the weak and unbalanced institutions across China in section 2.3 and the unique characteristics of Chinese listed firms in section 2.4. Finally, a summary concludes this chapter.

2.2 Internal Control Regulatory Environment in China

Unlike in the developed countries where internal control as a corporate governance mechanism has developed over a long period, the role of internal control in China as a governance and financial reporting oversight mechanism is a new issue and increasingly seen as an indispensable institutional arrangement driven by the government to accommodate the rapid development of the Chinese capital market. As the concept of internal control in China is still in its infancy, the Chinese government adopted a gradual approach, which took the form of improved regulations in developing and implementing internal control. In fact, in China internal control and its regulations mirroring systems used in more developed nations have evolved from being nonexistent before the 1980s, to coexistence with various government policies up to 2008, to a current unified regulatory framework, including Enterprise Internal Control Basic Standard and Implementation Guidelines for Enterprise Internal Control Basic Standards. Meanwhile, the approach adopted by the Chinese government provides a relatively flexible
regulatory environment for Chinese listed firms to establish and develop internal control from the start.

**Evolution of internal control policies and regulations**

*Emergence of internal control mechanisms since the mid of 1980s*

The internal control mechanisms initially emerged in the mid of 1980s. On one hand, following the ten-year cultural revolution, the fundamental accounting system in China appears to have been jeopardized. On the other hand, the old Chinese accounting system was no longer aligned with more global governance systems purporting to support economic development and corporate reform. The old Chinese accounting system was a fund accounting system, which followed the pattern of the Soviet Union. The function of ‘fund accounting’ was to satisfy the information needs of government, assisting government in planning and controlling economic activities. This functional arrangement of accounting reflected the then centrally-planned economy, where government dominated the role of resource allocation, while enterprises had little autonomy (Chen et al., 1997). Hence, in order to rebuild and strengthen the fundamental accounting system, *Rules of Accounting Personnel* was issued by the Ministry of Finance (MOF) in April 1984. Within the Rules, organizations were required to set up accounting positions, clarify the responsibilities and separate duties. Although the concept of internal control was not clearly mentioned in the *Rules*, some internal control mechanisms, such as separation of duties, reviews, reconciliations and authorizations, had been included in the government document (Liu, 2008). Meanwhile, some successful experience in the period of the central planned economy had been collected and summarized into this guideline, such as “*Liang Can Yi Gai San Jie He*” implemented in the Handan Steel Company in the 1960s. The slogan means that the management
activities were involved with the participation of managers, workers and technicians to revise the unsuitable management system and to be implemented by them together (Liu, 2008).

**Internal control accounting standards between the late 1990s and the mid 2000s**

Not until the late 1990s did the Chinese government recognise the importance of internal control and decide to establish the regulatory framework of internal control. The establishment of the internal control regulatory framework was primarily driven by the economic and corporate reforms, particularly by the emergence and rapid development of the Chinese capital market. Arguably, the Chinese internal control regulatory framework is an indispensable component of Chinese accounting reforms. In addition, the increasing trend of economic globalization and the severe impacts of the global financial crisis also triggered the convergence of the Chinese internal control regulatory framework with international best practice. Wang Jun, the former deputy minister of the Ministry of Finance (MOF) in charge of accounting affairs, pointed out that the establishment of the Chinese internal control regulatory framework was another significant breakthrough following the issuance and convergence of Chinese Accounting Standards for Business Enterprises (CASBE) and the Chinese Auditing Standards (CAS) in 2006 (MOF, 2006).

In the 1990s, China witnessed great social, economic and ideological achievements. Progress in economic reform prompted the economic development and societal growth in wealth and ended the era of materials shortage. In ideological terms, the speeches of the late paramount leader Deng Xiao Ping during his tour in South China in 1992, pointed out the development direction in establishing a socialist market economy with Chinese characteristics, followed by the CPC Central Committee’s Decisions on Some
Issues Concerning Establishing Socialist Market Economy System, which was passed by the Third Plenary of the 14th Central Committee in 1993. Released from the ideological constraints and equipped with a clear direction for development, the Chinese economy commenced a rapid period of growth, with the consecutive average annual growth rate of GDP being more than 10 per cent. However, rapid economic growth exposed the lack and inadequacy of enterprise internal control. For example, accompanied with the rapid economic growth, some problems emerged, such as theft, embezzlement and defalcation, fraud and fabrication of accounting information, earnings manipulation and window dressing.

A landmark development is that the requirement to establish and improve the internal accounting supervision system within organizations was formally written in the revised Accounting Law of People’s Republic of China in 1999, as the first legislative regulation on internal control (Liu, 2008, Liu, 2001, Wang, 2002). To implement the Accounting Law, strengthen internal accounting supervision and address the low-quality of accounting information, the Ministry of Finance (MOF) started to issue the Internal Accounting Control Standards (IACS) from 2001 to 2004. The IACS consists of the Basic Standard and Specific Accounting Control Standards. Table 2.1 summarizes the IACS.

Table 2.1 Internal Accounting Control Standards Issued by MOF (2001-2004)

<table>
<thead>
<tr>
<th>Date of Issuance</th>
<th>Standards</th>
</tr>
</thead>
</table>
| June 2001        | Internal accounting control standards --- basic standard (trail)  
|                  | Internal accounting control standards --- cash (trail)           |
| December 2002    | Internal accounting control standards --- purchase and payment (trail) |
|                  | Internal accounting control standards --- sales and collection (trail) |
| October 2003     | Internal accounting control standards --- construction projects (trail) |
There are two principles underlying IACS. First, IACS are the supporting documents of the Accounting Law and subordinated to the Chinese accounting regulatory framework. Other government agencies could establish and implement their own internal accounting control system suitable to their regulatory needs, in accordance with IACS and other related regulations and legislations (Wang, 2002). Concurrently, there were more than 20 policies and regulations published by various government agencies, such as the Ministry of Finance (MOF), the China National Audit Office (CNAO), the China Security Regulatory Committee (CSRC), the China Insurance Regulatory Committee (CIRC), the China Bank Regulatory Committee (CBRC), the State Assets Supervision and Administration Committee (SASAC) and the Chinese Institute of Certified Public Accountants (CICPA). Although the arrangement represented the divergent requirements of an internal control system, the divided policies from various sources created a lot of conflict and resulted in poor implementation (Chen and Li, 2008). Second, the issuance process was in the form of batches and step by step. Initially, the focus was trying to address the prominent weaknesses in internal control and thus the standards were issued in batches, such as cash, construction projects, purchases and payments, and then progressed to a comprehensive standard framework which was compatible to the Chinese economic development (CICSC 2007). These standards were all codified with trail implementation. Trail implementation, does not mean pilot implementation in the selected organizations, but instead represented the regulator’s intention to consecutively improve and perfect the standards along with the economic development and enterprise-specific management requirements (CICSC, 2006).
Enterprise Internal Control Regulatory Framework since the mid 2000s

Entering into the new century, it is widely recognized that China is a new growth engine and an indispensable participant in the global economy (Qu and Leung, 2006). As with the rapid economic growth since the implemented economic reform, China has developed into the second largest economy in the world in terms of GDP. Also, entry into the WTO in 2003 injected new energy into Chinese economic development. In the ideological area, Decisions on Perfecting the Socialist Market Economy System resolved at the Third Plenary Session of the 16th Central Committee in 2003, proposed the new requirements to implement the ‘going global’ strategy, to promote propriety right reforms and improve the modern enterprise system. At the same time, the financial scandals of Enron, WorldCom and Xerox shook the corporate world, which directly led to the enactment of the Sarbanes-Oxley Act in the US. In China, a quite large number of corporate failures, such as the substantive loss of China Aviation Oil (Singapore) Company, the falsifications of Kelon and the fraud at Skyworth, also called for strengthening corporate governance and improving internal control (Liu, 2008).

Strengthening corporate governance and improving internal control gained great attention from the central government, which led to another important stage of internal control regulation reforms. Under this situation at home and abroad, the then Premier Minister, Wen Jiabao, stressed the need to strengthen corporate governance and improve internal control in Reports on the Work of the Government at the Fourth Session of the Tenth National People’s Congress in March 2006. Before that, the State Council had made two important and successive instructions on improving internal control respectively at the end of 2004 and in June 2005. With the latter, the State Council approved the Report on Borrowing the Experience of Sarbanes-Oxley Act and Improving
Internal Control System in Chinese Listed Companies jointly submitted by the MOF, CSRC and SASAC, and sought to establish a generally accepted standard framework on enterprise internal control (Liu, 2008, CICSC, 2006).

In June and September of 2006, two stock exchanges, namely the Shanghai Stock Exchange and the Shenzhen Stock Exchange, took the lead in improving internal control systems and respectively issued Guidelines of Internal Controls for Public Companies listed on the Shanghai Stock Exchange and Guidelines of Internal Controls for Public Companies listed on the Shenzhen Stock Exchange. These two guidelines represent the landmark move of the regulatory transformation from recommending to clearly requiring Chinese listed companies to establish internal control systems (Chen and Li, 2008). The formulation of these two guidelines drew extensively on the experience from COSO internal control framework, COSO risk management framework and Sarbanes-Oxley Act for reference.

On July 15th 2006, the China Internal Control Standards Committee (CICSC) was jointly set up by six government agencies including the MOF, the SASAC, the CSRC, the CBRC and the CIRC, which indicated that the drafting of internal control standards had formally started. The MOF is primarily responsible for internal control standards drafting and the CICSC serves as an advisory body. The members of the CICSC are composed of personnel from various sectors, covering regulatory agencies, industries and academics. The drafting and issuing process involved six stages: i) information collection and theoretical research; ii) framework formulation; iii) formal drafting; iv) preliminary review and revision; v) exposure for opinion; and vi) formal promulgation (CICSC, 2006).

On June 28th 2008, the Basic Standard for Enterprise Internal Control (refer to “Basic
Standard” thereafter) was announced jointly by MOF, CSRC, CANO, CBRC and CIRC, followed by the promulgation of the Implementation Guidelines for Enterprise Internal Control (refer to “Implementation Guidelines” thereafter) on April 26th 2010. Table 2.2 lists the contents and timetables of Basic standards and Implementation Guidelines. The Basic Standard function as the conceptual framework which outlines the regulatory requirements for Chinese enterprises to establish, evaluate and assess effectiveness of their internal controls and for accounting firms to audit the effectiveness of Chinese enterprises' internal controls. The Implementation Guidelines are issued to provide guidance in implementing the Basic Standard, which consists of 21 Specific Application Guidelines, including Guidelines for Enterprises' Internal Control Self-Assessment (refer to “Self-Assessment Guidelines” thereafter) and Guidelines for Auditors' Auditing on Enterprise Internal Control (refer to “Auditing Guidelines” thereafter). The 21 Specific Application Guidelines address the detailed requirements of the five elements within the internal control framework to establish and implement an internal control system; the Self-Assessment Guidelines provide the instructions for an enterprise to conduct self-evaluation of the adequacy and effectiveness of its internal control system; and the Auditing Guidelines are to guide external auditors to undertake the audit of enterprise internal control systems (Li 2008; Liu 2010).

Among the 21 Specific Application Guidelines, 18 guidelines have been promulgated on April 26, 2010, while the rest three guidelines respectively regarding banks, securities and insurance have not published yet.
Table 2. Enterprise Internal Control Standard Framework

<table>
<thead>
<tr>
<th>Date of Issuance</th>
<th>Names of Internal Control Standards</th>
<th>Timetable for Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 28th 2008</td>
<td>Basic Standard for Enterprise Internal Control</td>
<td>July 1st 2009: started to implement in listed firms; Recommend for implementation in non-listed large and medium-sized enterprises.</td>
</tr>
<tr>
<td>April 15th 2010</td>
<td>Implementation Guidelines for Enterprise Internal Control</td>
<td>2011: started to implement in overseas cross-listed companies; 2012: started to implement in state-controlled firms listed on the main board of the Shanghai Stock Exchange and the Shenzhen Stock Exchange; 2013: started to implemented in non-state-controlled firms listed on the main board of the Shanghai Stock Exchange and the Shenzhen Stock Exchange, which satisfy requirements on firms’ market value and profitability; 2014: started to implement in the rest firms listed on the main board of the Shanghai Stock Exchange and the Shenzhen Stock Exchange; Will expand to companies listed on SME Board and ChiNext board if and when appropriate; Recommend for implementation in non-listed large and medium-sized enterprises.</td>
</tr>
</tbody>
</table>

I. Specific Application Guidelines:
- Application Guidelines for Enterprise Internal Control No. 1-Organizational Structure
- Application Guidelines for Enterprise Internal Control No. 2-Development Strategy
- Application Guidelines for Enterprise Internal Control No. 3-Human Resources
- Application Guidelines for Enterprise Internal Control No. 4-Social Responsibilities
- Application Guidelines for Enterprise Internal Control No. 5-Corporate Culture
- Application Guidelines for Enterprise Internal Control No. 6-Fund-Related Activities
- Application Guidelines for Enterprise Internal Control No. 7-Procurement Activities
- Application Guidelines for Enterprise Internal Control No. 8-Asset Management
- Application Guidelines for Enterprise Internal Control No. 9-Sales Activities
- Application Guidelines for Enterprise Internal Control No. 10-Research & Development
- Application Guidelines for Enterprise Internal Control No. 11-Construction Projects
- Application Guidelines for Enterprise Internal Control No. 12-Guarantee Business
- Application Guidelines for Enterprise Internal Control No. 13-Outsourcing
- Application Guidelines for Enterprise Internal Control No. 14-Financial Reports
- Application Guidelines for Enterprise Internal Control No. 15-Comprehensive Budgeting
- Application Guidelines for Enterprise Internal Control No. 16-Contract Management
- Application Guidelines for Enterprise Internal Control No. 17-Communication of Internal Information
- Application Guidelines for Enterprise Internal Control No. 18-Information System

II. Guidelines for Enterprises' Internal Control Self-Assessment

III. Guidelines for Auditors' Auditing on Enterprise Internal Control
Figure 2.1 (below) depicts the whole framework. There is a two-fold meaning of the so-called “framework”. First, it is a standard framework, which is composed of two elements: control standards and evaluation standards. Control standards are the criteria for the establishment and improvement of an internal control system, while evaluation standards provide the guidelines to conduct the assessment of an internal control system. Second, it refers to an implementation framework, which includes the coordination and cooperation of enterprises, external auditors and regulators (Liu, 2010). According to the framework, it requires an enterprise to establish and self-assess its internal control system and publicly disclose its annual internal control self-evaluation report. It also requires external auditors to attest and issue a report on the effectiveness of an enterprise’s internal controls over financial reporting and other non-financial controls. Meanwhile, the adequacy and effectiveness of an enterprise’s internal control system is incorporated into government regulation. It is interpreted that the full implementation of Chinese Enterprise Internal Control Standard Framework implies mandatory requirement on both internal control reporting and ICAR.

There are several unique characteristics of the Chinese Enterprise Internal Control Standard Framework. First, the awareness of internal control has expanded from the internal accounting controls to an enterprise-wide risk-based concept embedded in corporate governance. Meanwhile, the Chinese Enterprise Internal Control Standard Framework has achieved convergence with international best practice. Its establishment has sufficiently drawn on reference to COSO (1992) Integrated Framework - Internal Control and COSO (2004) Integrated Framework - Enterprise Risk Management and Sarbanes-Oxley Act (2002). Second, the full implementation of the Chinese Enterprise Internal Control Standard Framework in Chinese listed firms is being phased in over a
five-year period (2009-2014) or even longer (refer to Table 2.2). As internal control was still in early development in China, and the related legislations and other institutions were not sophisticated, the Chinese government implemented internal control standard framework gradually. This arrangement not only provided a relative flexible environment for companies to establish and develop internal control from the beginning, but also took account of enterprises’ substantial compliance costs, which have already been documented in the US (CICSC 2007). Third, it is regarded that the establishment of the Chinese Internal Control Standard Framework is another important breakthrough after the successful convergence of Chinese Accounting Standards and Chinese Auditing Standards, which will contribute to improve the quality of listed companies comprehensively (MOF, 2006).

In sum, Figure 2.2 that follows explicitly depicts the evolution of regulations on enterprise internal control from the mid 2000s.
Figure 2.1 Enterprise Internal Control Regulatory Framework
Figure 2. 2 Chinese Internal Control Regulations Since Mid-2000s

- MOF Internal Accounting Control Standards
- Enterprise Internal Control Basic Standard
- SSE Guidelines on Internal Control
- SZSE Guidelines on Internal Control
- Implementation Guidelines for Enterprise Internal Control Basic Standard
- Notice on Doing a Better Job of Annual Report by CSRC, SSE & SZSE

3-year Testing Period

Stage 1:
- Public companies Overseas cross-listed

Stage 2:
- State-controlled public companies listed on Main board in SSE and SZSE
Requirements on internal control reporting and internal control assurance

The promulgation of *SSE Guidelines, SZSE Guidelines* and *Basic Standards* marks the regulatory transformation from recommending to requiring Chinese listed firms to establish an internal control system (Chen and Li, 2008). Before 2011, the regulatory authority put emphasis on the provision of internal control reports and recommended an assurance statement to accompany such reports. These regulations require listed firms to disclose internal control reports. The contents of internal control reports should include but not be limited to the description of (1) the status of the establishment, development and implementation of internal control system; (2) the processes of the monitoring and the self-assessment of internal control system; (3) discovered internal control weaknesses and applied remedy actions and plans; and (4) the self-assessment conclusion regarding the adequacy and effectiveness of the internal control system.

Accompanying these guidelines and standards was the recommendation that firms provide an assurance report on their internal control report in a voluntary basis. The complementary regulatory documents, *Notice on Doing a Better Job of Annual Reports for Public Companies*, respectively issued by SSE and SZSE from 2007 to 2010, recommended that Chinese listed firms appoint external auditors to review internal control and disclose an Internal Control Assurance Report. In the same vein, *Notice on Issuance of Enterprise Internal Control Basic Standard* stipulated “listed companies which are affected by Basic Standard are recommended to appoint audit firms to review the effectiveness of their internal control system and disclose an internal control audit report”. With the release of Implementation Guidelines, the regulatory authorities specified the enterprises to be affected and the implementation timeline and thus the mandatory provision of both an internal control report and an internal control audit
The report accompanying the annual report started to phase in from 2011 (MOF and CSRC, 2012). Application was as follows:

- From 2011, mainland-based companies listed, both domestically and abroad;
- From 2012, central and local state-controlled companies listed on the main board of the Shanghai Stock Exchange and Shenzhen Stock Exchange;
- From 2013, non-state-controlled companies listed on the main board of the Shanghai Stock Exchange and Shenzhen Stock Exchange, satisfying requirements on a firm’s market value (more than RMB ¥5 billion as at the end of 2011) and profitability (the average net profit more than RMB ¥30 million over the period between 2009 and 2011);
- From 2014, other companies listed on the main board of the Shanghai Stock Exchange and Shenzhen Stock Exchange;
- Early adoption was encouraged for other mainland-based non-listed large and medium-sized companies;
- Companies listed on the Small and Medium Enterprise Board and ChiNext Board could adopt the Implementation Guidelines if and when appropriate.

Roles and responsibilities for internal control

Internal control is implemented by a number of parties within a firm, each with important responsibilities. According to the enterprise internal control regulatory framework, the board of directors (BoD) is responsible for the adequacy and effectiveness of internal controls within firms. Management is charged with ensuring the proper operation of internal controls and the audit committee carries the oversight role to review and evaluate internal controls. Internal auditors directly examine internal controls and recommend improvements. Relying on the assessment of the audit committee or internal auditors on internal controls, the BoD formulates an annual internal control report. The
board of supervisors (BoS) (where one exists) and independent directors have the duty to review and express their opinions on such a report.

2.3 Weak and Unbalanced Institutions in China

Since it implemented openness and market-oriented reforms policies from the late 1970s, China has witnessed outstanding economic achievements. It has been recognised that China’s high performance during the past three decades is closely associated with the profound and dynamic institutional reform, that is, the transformation from a centrally-planned economy to a market-oriented economy (Lindbeck, 2006, Qian, 2000). Researchers defined the dramatic institutional changes as the course of ‘marketization’, which is not simple rule-changing, but rather a series of institutional reforms undertaken in economic, legal, social and even political sectors (Fan et al., 2003).

Although China’s market-oriented economic reform has achieved significant progress and the market mechanisms are much freer than previously (Fan and Wang 2009), the Chinese legal system and other institutions are generally weak and unbalanced across regions within China. Chinese market-oriented institutions are relatively weak compared to developed economies, such as political corruption, government control and intervention, and less-effective law enforcement. In addition, China exhibits great institutional divergence across its various regions. The unbalanced institutions across regions are rooted in several reasons, including the legacy of history, an uneven geographic distribution of resources, as well as the regional preferential policy and the decentralization of the political and economic system during the reforming era (Lin and Liu 2000; Song et al. 2000; Démuenger et al. 2002; Jones et al. 2003; Tsui and Wang 2008). The eastern part of China has achieved the highest level of marketization, followed by the central and the western parts of China. In addition to the uneven
development of regional markets (i.e., the non-state sector, product markets and factor markets), the quality of government and its role in business, and the quality of legal environment and enforcement, exhibit wide variations across regions (Du et al. 2008; Fan and Wang 2009).

**Weak legal environment and enforcement**

Since the “Open Door” policy from 1978, Chinese authorities have recognized the necessity for a legal system commensurate with its development strategy. Today, China has formulated key commercial legislation, such as the Company Law (2013), the Security Law (2005) and the Bankruptcy Law (2006) of the People’s Republic China. In particular, in the past decade, the Chinese government has actively undertaken a series of actions to reform the accounting system, enhance corporate governance and strengthen internal control, and is gradually achieving international convergence with respect to corporate governance codes, accounting standards, auditing standards and internal control frameworks. Arguably, enforcement is more critical than the actual standard-setting.

While the Chinese government has adopted various protection measures into the law, enforcement in China in terms of the rule of law (e.g., investor protection systems and corporate governance) and the quality of government (political corruption) is still relatively weak and poor (Allen et al., 2005)\(^3\). Political corruption, lack of judicial

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independence and lack of expertise on the part of judges or law enforcement officers, all can cause different levels of inefficiency in law enforcement (Cai, 2007). Although the de jure unified laws have been developed nationwide in China, legal enforcement varies across regions due to various interpretation of laws by different enforcement authorities and the frequent interventions of local government (Ambler and Witzel 2004; Zhou and Poppo 2010).

**Strong government control and influence**

The Chinese government still exerts strong government control and influence over business through taxation, regulation and state ownership. In fact, China has adopted a dual-track approach to its market transition that liberalizes the former central planning system but retains government controls. First, the Chinese government plays a vital role in various aspects of business through its majority ownership in state-owned enterprises (SOEs). Although listed private enterprises (non-SOEs) are growing in number and the private sector has fuelled most of China's economic growth in the last two decades (Allen et al., 2005), listed SOEs still dominate the Chinese capital market. On one hand, bureaucrats can use their ownership position to support the economy, and on the other hand, bureaucrats can expropriate SOEs for self-interest. Second, the Chinese government maintains its control on state-owned listed firms by appointing the senior executives, such as directors and managers, through which government policies governing firms are executed (Chen et al., 2011, Fan et al., 2011, Fan et al., 2007b). Thus, the Chinese government is more likely to interfere in a firm’s operation through state ownership and political connections.

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Europe, North and South America, Africa, Asia, and Australia, not including any socialist or "transition" economies.)
Given high government involvement in business, the quality of government policies, and ultimately the quality of bureaucrats and politicians who make the policies, is a crucial impacting factor. It is noted that government regulations and procedural guidelines are becoming more and more precise and transparent after a series of administrative reforms of government efficacy\(^4\). The predictability of bureaucratic decisions increased (Nee and Opper, 2007). However, the progress in building an effective bureaucracy has been uneven and inconsistent, which represents a considerable efficacy variance of local bureaucracy across regions and localities in China (Nee and Opper, 2007, Fan and Wang, 2009).

Although it still exerts strong control and influence over the business environment, the Chinese government has strengthened the function of macro management while reducing micro-management intervention. It has switched its role from administrative examination and approval in the economic field to economic regulation, market supervision and public service (Zhang, 2005). Arguably, maintaining government control to some degree in China is the second-best practice, as market and legal institutions are still underdeveloped (Qian, 2000).

### 2.4 Unique Characteristics of Chinese listed companies

\(^4\) One fundamental reform aimed at strengthening the party and government bureaucracy was the separation between the CCP and the state government. The Thirteenth Congress of CCP in 1987 clearly pointed out the CCP’s function was to exercise leadership on political principles and directions, while the state government had more control over specific economic decisions and strategies GOLDMAN, M. 2006. Grassroots political changes, Political Change in China: Public Participation and Local Governance Reforms. Statement prepared for roundtable before the congressional-executive commission on China. Available at http://www.cecc.gov. To restore the efficacy of the state bureaucracy, merit-based national civil service entrance exams and promotion schemes have been implemented. Under the new system, the bureaucrats are recruited for their technical expertise and promoted for their performance, reflecting the legitimacy of the rational-legal norms and approach to public administration in China NEE, V. & OPPER, S. On politicized capitalism. 2007. 93-127.. In addition, the passage of the Civil Service Law of PRC in 2005 culminated in the efforts to strengthen China’s state bureaucracy in the last two decades and institutionalise strict, rule-governed recruitment and performance guidelines at all levels of the national bureaucracy.
The Chinese stock market began to emerge against the background of the transformation from a centrally-planned economy to a market-oriented economy, to accommodate the increasing sophistication of the Chinese economy and the reform of state-owned enterprises (SOEs) (CSRC, 2009). Chinese listed firms are featured with a number of unique characteristics which are inherent in the reform of the SOE’s, that is, a complex ownership structure and weak corporate governance.

**Ownership structure of listed firms**

To analyze the ownership structure of Chinese listed firms, consideration needs to be given to the classification of shares and the trading restrictions imposed on different classes of shares in China. The shares of Chinese listed firms are classified as domestic (A share) and foreign (B share, H share and N share), based on the residency of the holders. A shares and B shares are traded on the SSE and SZSE, but the difference is that A-shares are dominated in RMB dollars, while the SSE B-shares are dominated in US dollars and the SZSE B-shares are dominated in Hong Kong Dollars. With the establishment of the stock market in China, A-shares were designed for domestic investors, whereas B-shares were designed only for investors from outside mainland China. However, since December 2002, A-shares have been available to Qualified Foreign Institutional Investors (QFII), in order to enhance the strength of institutional investors in the market and to align with the commitments of China’s World Trade Organization (WTO) agreement. Since 2001, the B-share market has also been opened to domestic investors with funds from offshore accounts (CSRC, 2009). In addition, cross-listed holdings are held in a number of international exchanges. The most common are H-shares and N-shares, which are respectively issued and traded on the Hong Kong Stock Exchange and the New York Stock Exchange.
When establishing the stock market in the early 1990s, the Chinese government partially privatized some SOEs and launched a split-stock structure in these listed SOEs, in order to maintain government control. Under the split-stock structure, the domestic A-shares of Chinese listed companies were classified into tradable and non-tradable shares. The tradable shares were those purchased by domestic investors in IPOs and listed on the exchanges, while the non-tradable shares are those mainly held by the government and its affiliates before the companies went public and could only be transferred through negotiation among designated parties on the approval of CSRC until 2005. There are two major classes of non-tradable A-shares: state shares and legal-person shares. State shares are owned by the state (both central and local governments) and their agencies. Legal-person shares are held by domestic institutions or other non-individual legal persons, including stock companies, state-private mixed enterprises and non-bank financial institutions (Qi et al., 2000). Furthermore, most of the owners of legal-person shares are enterprises or institutions ultimately controlled by the state (Xu and Wang, 1999, Yang et al., 2011a). State shares and legal-person shares comprised a majority of total shares (roughly two-thirds) in most listed firms. According to the CSRC (2005), by the end of 2004, the total shares of listed companies were 714.9 billion, of which 454.3 billion shares, equivalent to 64 per cent of the total, were non-tradable; among the non-tradable shares, 74 per cent were state-owned. Before the start of the non-tradable share reform in 2005, a typical Chinese listed firm had on average of 30 per cent of state shares and 30 per cent of legal-person shares, with the remaining as individual shares (Fan et al., 2007a). Furthermore, the holdings of state and legal-person owners were highly concentrated (Jiang et al., 2008).
In April 2005, the China Securities Regulatory Commission (CSRC) initiated the non-tradable share reform (NTS reform)\(^5\) that eliminated the various A-share ownership types and made all shares legally tradable. By the end of 2007, 1298 companies listed on the SSE and SZSE had either initiated or completed the process of NTS reform, accounting for 98 per cent of the total listed companies that were subject to the reform; and only 33 listed companies had not completed the reform. Therefore, the NTS reform was mostly completed within two years (CSRC, 2009).

**Concentrated ownership with large state shareholding**

The ownership structure at the early stage of the Chinese stock market can be described as a highly concentrated one, with the domination of non-tradable shares. After more than a decade of operation, particularly post the NTS reform, some changes have occurred in the ownership structures. The first is that the proportion of tradable shares has gradually increased concomitantly with the decreased proportion of non-tradable shares. Note from Panel A of Table 2.3, the average proportion of non-tradable shares which accounts for two-thirds before NTS reform decreased to 23.08% in 2009; while the proportion of tradable shares on average increased to 76.92% in 2009. Second, there was a decline in the state-owned share proportion. According to the statistics, the proportion of state-owned shares decreased from 35.29% in 2004 before NTS reform, to 14.05% in 2009.

Although the proportion of non-tradable shares and state-owned shares decreased significantly after NTS reform, non-tradable shareholdings remained predominant.

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\(^5\) The essence of non-tradable share reform is to remove the institutional negotiability barriers of non-tradable shares by introducing the compensation and communication mechanisms between tradable and non-tradable shareholders. That means non-tradable shareholders bargain with and pay ‘compensation’ to tradable shareholders for gaining the right to trade.
during the lock-up period6 (Yeh et al., 2009). There still remains a large stake of state shareholding in listed firms (Yang et al., 2011a), as the government is reluctant to substantially sell off the state-owned shares (Shi and Tong, 2009). In addition, the ownership after NTS reform is still concentrated in the hands of the largest shareholders, which on average hold 36% of the shares in Chinese listed firms and the Herfindahl index of the largest shareholder is over 0.15 (Panel B of Table 2.3).

Table 2.3 Ownership Structure in Chinese listed firms (2004-2009)

Panel A: Ownership Structure by Negotiability

<table>
<thead>
<tr>
<th>Year</th>
<th>Proportion of Non-tradable share</th>
<th>Proportion of State share</th>
<th>Proportion of tradable share</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>60.18%</td>
<td>35.29%</td>
<td>39.82%</td>
</tr>
<tr>
<td>2005</td>
<td>58.41%</td>
<td>34.05%</td>
<td>41.59%</td>
</tr>
<tr>
<td>2006</td>
<td>50.97%</td>
<td>29.76%</td>
<td>49.03%</td>
</tr>
<tr>
<td>2007</td>
<td>43.96%</td>
<td>26.94%</td>
<td>56.04%</td>
</tr>
<tr>
<td>2008</td>
<td>37.44%</td>
<td>23.88%</td>
<td>62.56%</td>
</tr>
<tr>
<td>2009</td>
<td>23.08%</td>
<td>14.05%</td>
<td>76.92%</td>
</tr>
</tbody>
</table>

Calculated based on all the A-share companies listed in the main board of the Shanghai Stock Exchange (SSE) and the Shenzhen Stock Exchange (SZSE), data available from CSMAR database

Panel B: Concentrated Ownership of the Largest Shareholder

<table>
<thead>
<tr>
<th>Year</th>
<th>Shareholding of the largest shareholder (%)</th>
<th>Herfindahl index of the largest shareholder</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>42.06</td>
<td>0.2053</td>
</tr>
<tr>
<td>2005</td>
<td>40.69</td>
<td>0.1920</td>
</tr>
<tr>
<td>2006</td>
<td>36.25</td>
<td>0.1544</td>
</tr>
<tr>
<td>2007</td>
<td>35.65</td>
<td>0.1510</td>
</tr>
<tr>
<td>2008</td>
<td>35.80</td>
<td>0.1528</td>
</tr>
<tr>
<td>2009</td>
<td>35.80</td>
<td>0.1540</td>
</tr>
</tbody>
</table>

Calculated based on all the A-share companies listed in the main board of the Shanghai Stock Exchange (SSE) and the Shenzhen Stock Exchange (SZSE), data available from CSMAR database

6 According to the CSRC’s ‘Administrative regulation for listed firms’ stock right splitting reform’ (4 September 2005), after the execution of the compensation plan, non-tradable shares were forbidden to be traded for 12 months. After the first 12-month lock-up period, for the next 12-month period non-tradable shareholders could only trade a total number of shares equal to 5 per cent of the firm’s total shares and up to 10 per cent of total shares for the next 24 months.
**Pyramid ownership structure**

Concentrated ownership nevertheless creates agency conflicts. Tight control leads to an entrenchment problem. This agency conflict can be exacerbated as the controlling owner leverages control through stock pyramids, while keeping his or her ownership level low.

Chinese listed companies are featured with pyramidal ownership structures. As La Porta et al. (1999) and Claessens et al. (2000) found, many firms around the world are controlled by a pyramidal-like ownership structure. At the apex of the pyramid sits a controlling owner who exercises his/her authority on a firm rather indirectly through layers of intermediate companies. Similarly, most of the Chinese listed companies, state-owned or private-owned, are controlled by pyramids (Fan et al., 2005). Through a pyramid structure which separates ownership and control, the controlling shareholders are strongly motivated to pursue their private benefit by transferring resources out of the listed company because they obtain all the benefits without bearing the full financial consequences (Lin et al., 2012).

**Characteristics of investors**

The investor structure in the Chinese securities market comprises the coexistence of the predominant state-owned shareholders, the dispersed small and medium individual investors and a growing institutional investor group. It is well known that the Chinese capital market was dominated by state-owned shareholders before the NTS reform. This is attributed to the fact the majority of Chinese listed companies were carved from the state-owned enterprises as part of the plan of state-owned enterprise reforms. In addition, the non-tradable feature of the state-owned ownerships before the NTS reform also contributed to its dominance. Although the NTS reform removes the institutional
barriers for the negotiability of all types of shares, the dominating state-owned structure in the Chinese capital market may not change significantly, as the government still intends to keep its control in the main industries and substantial sell-outs of state-owned ownership may not be expected.

It has been observed that the tradable share market has for a long time been occupied by the individual investors (CSRC, 2009), who are playing the role of free-rider and short-term speculator (Xu and Wang, 1999, Yang et al., 2011a, Qi et al., 2000). On one hand, individual investors are small and medium investors have limited funds and lack investment knowledge and skills. The shares held by individual investors are negligible and very diffused. On the other hand, the minority individual investors have no effective say in corporate matters, as the largest shareholders who attend the general shareholders’ meeting hold on average 84 per cent of the voting shares (Chen et al., 2009).

In response to the dominance of small and medium individual investors in the tradable securities market, the CSRC put forward the strategy in 2000 to aggressively develop institutional investors, taking it as a key measure for improving the investor structure of the Chinese capital market (CSRC, 2009). The development strategy of institutional investors has been undertaken by two means. One is to promote the liberalization and innovation of the funds industry. Table 2.4 highlights some major measures taken to liberalize the funds industry. Following these reforms, the funds industry has witnessed rapid development. According to statistics, the total net value of funds increased from US$ 10 billion in 2002 to US$ 57 billion in 2005. During the same period, the market value of the tradable shares held by securities investment funds also increased from 5 percent to 20 percent of the total market capitalization of the tradable shares (CSRC, 2009). Secondly, other institutional investors, such as insurance companies, enterprise
annuity funds and National Social Security Fund (NSSF), have gradually entered the Chinese capital market and their investments in the stock market have increased significantly (Figure 2.3 and Figure 2.4). By the end of 2007, the outstanding investments in the stock market by the NSSF and insurance companies have respectively achieved US$12.8 billion and US$31.4 billion.

Table 2.4 Roadmap of Liberalization of Fund Industry in China

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>The expert review system was implemented for approval of fund products.</td>
</tr>
<tr>
<td>2002</td>
<td>The CSRC proposed simplifying the approval process and reducing control to initiate market reform in mutual fund industry. Notification on Relevant Issues Concerning the Examination and Approval of Securities Investment Funds was issued by CSRC in November.</td>
</tr>
<tr>
<td>2003</td>
<td>Administrative Measure of Expert Reviews System for Securities Investment Fund was issued by CSRC.</td>
</tr>
<tr>
<td>2005</td>
<td>Circular on Relevant Issues Concerning the Further Improvement of Procedure for the Application and Examination of Raising Securities Funds was issued by CSRC, which adopted simplified procedures for the internal inter review of existing fund products.</td>
</tr>
<tr>
<td>2007</td>
<td>The time required for approving fund applications was further reduced.</td>
</tr>
</tbody>
</table>

Figure 2.3 Total Outstanding Investments in the Chinese Stock Markets by the...
Weak corporate governance

There was no notion of corporate governance in China until the mid-1990s. The promulgation of the *Company Law of People’s Republic of China (PRC)* in 1993 initially introduced the concept of corporate governance into the Chinese legal system.

The current corporate governance structure of Chinese firms represents a mixture of those in the mature economies (German-Japanese and Anglo-American system), having a two-tier system with a board of directors (BoD) consisting of subcommittees and independent directors, and a board of supervisors (BoS) consisting of the representatives...
from shareholders and employees. There are a number of corporate governance regulations and rules in China: *Company Law of People’s Republic of China (PRC)*, *Code of Corporate Governance for Listed Companies, Rules for the General Meetings of Shareholders of Listed Companies, Guidelines for the Articles of Association of Listed Companies* and *Guideline for Setting Up the Independent Directors Mechanism in Listed Companies*. The PRC Company Law is the highest-level regulation on corporate governance in China. Figure 2.5 depicts the current corporate governance structure in China. It appears that the current Chinese corporate governance arrangements, not only in the regulatory rules, but also in the structural format, have achieved significant convergence with the best international practice.

The split-stock system in China’s stock market creates two agency problems: a conflict between non-tradable and tradable shareholders and a conflict between controlling and minority shareholders. The NTS reform was devised to address the former agency problem but the latter problem remains to be tackled (Yeh et al., 2009). It can be expected that with the elimination of shares negotiability, corporate governance in the Chinese stock market will be improved to some extent (Liu and Ren, 2008). For example, the increase of the tradable share proportion may better facilitate the development of an outside market in corporate control (Jiang et al., 2008). It is documented that the NTS reform has contributed to the improvement of corporate governance, especially in mitigating the tunneling behavior of large/controlling shareholders (Wang and Yao, 2011, Liao et al., 2008, Liu and Tian, 2012). With the completion of NTS reform, the absolute controlling position of state-owned shares is gradually weakened, but non-tradable shareholders retained tight control over a firm, even after the NTS reform (Yeh et al., 2009) and there remains a large stake of state shareholding (Zhang, 2014).
Under current circumstances, corporate governance instruments cannot exert substantial supervision over large block holders and the board of directors. The leading reasons are: (1) the large stake of the state in listed firms; (2) strong political connections between the government and listed firms; and (3) the lack of a truly independent judicial system (Yang et al., 2011a). The existence of large state shares has created two major problems. First, because they are mostly government-owned, the standard principal-agent problem is compounded by a multiple-principal problem, as government owners might pursue political and social objectives that do not necessarily relate to profit maximization and that are in conflict with minority shareholders. Second, the lack of a true property owner of state shares means there is a lack of effective monitoring of the management of listed firms and thus encourages insider control. Firm insiders have more discretion to make corporate governance decisions that maximize insiders’ wealth at the expense of minority shareholders. Further, strong political connections between governments and listed firms and the lack of a truly independent judicial system results in weak law enforcement and thus reduces the protection of minority investors.

The internal corporate governance mechanisms including board independence and the board of supervisors are ineffective. This is because, under weak shareholder protection and the lack of corporate control in firms with a pyramidal ownership structure dominated by the controlling shareholders, firm insiders have considerable opportunities to expropriate from the minority shareholders. For example, the domination by controlling shareholders resulted in inadequate general meetings of shareholders, a non-independent board of directors and a dummy board of supervisors, which in turn contributed to the occurrence of insider control, insider trading and financial frauds. In particular, the agency conflicts between the controlling shareholders and the minority shareholders exacerbates when the separation of control from cash flow rights is
increasing (Bebchuk et al., 2000). Moreover, unlike in the US firms where the independent directors take up the majority of positions on the board of directors, in China the board of directors are mainly composed of only 30-40 percent of independent directors (Tong, 2004). The low ratio of independent directors on the board of directors limits their influence, as they do not have enough votes. Moreover, most of the independent directors in China are served by academics and civil servants who lack sufficient practical knowledge in operating companies. It is thus difficult for them to provide sensible judgement for a firm’s critical decisions. In order to avoid losing face, they are unwilling to query when they do not understand (Tong, 2004, Yang, 2006). In addition, without clarified responsibilities, the overlap of the monitoring functions played by the board of supervisors and independent directors still has the potential of free-riding by engaging in endless haggling and shifting responsibilities, which in turn will result in monitoring failure. In sum, the aforementioned problems result in a low level of firm corporate governance compliance/practice even if corporate governance standards are not low (Chen et al., 2010).
Figure 2.5 Corporate Governance Structure in China

General Meetings of Shareholders

Board of Directors

Board Secretary

Audit Committee

Strategic Committee

Nomination Committee

Remuneration Committee

Internal Audit Department

Top Management

Supervise

Supervise

Supervise
2.5 Summary

This chapter has discussed the Chinese institutional background and highlights three important features of Chinese institutions. They are:

i. As internal control is in the infancy in China, the Chinese government has adopted a gradual approach and provided a flexible internal control regulatory environment. In particular, significant regulatory transformation had taken place in terms of emphasis on the provision of reports on the internal control of listed firms with recommendations for voluntary assurance of such reports.

ii. As one of the biggest emerging and transitional countries, China has undergone significant institutional shifts and witnessed rapid economic development. China has become the second largest economy and a key participant in the global economy. Although China has achieved an overall progressive improvement of institutions, the Chinese legal system and other institutions are generally weak and unbalanced across regions within China.

iii. Chinese listed firms feature pyramid-like ownership structures dominated by the controlling shareholders and less developed corporate governance.

Arguably, the macro institutional variances and unique characteristics of Chinese listed firms, adding the flexible internal control regulatory setting, provide an excellent opportunity to examine ICAR from a socio-economic perspective in the emerging economies.
3.1 Introduction

This chapter reviews two major streams of literature pertaining to this study: internal control and voluntary assurance. Section 3.2 starts with a systematic review of studies on internal control beginning with the concept’s definition, key regulatory developments and empirical studies globally. In the following section 3.3, a detailed discussion on monitoring mechanisms such as voluntary audit and assurance of non-financial statement are undertaken. Subsequently, section 3.4 reviews internal control studies specific to the Chinese environment. Taking into consideration the significant variance in internal control regulations around the world, the limitations of prior internal control research elsewhere and specific to Chinese environment, and the limitations of previous voluntary assurance research, two specific issues are raised for further examination in the Chinese context. They include, (1) what are the underlying factors influencing a firm’s decision on assurance of internal control; and (2) is there any significant association between voluntary ICAR and financial reporting quality.

3.2 Review of Internal Control Research

Internal control: definition and characteristics

A widely accepted concept of “internal control” is that provided by the Committee of Sponsoring Organization of the Treadway Commission (COSO, 1992). COSO defines internal control as:
a process, effected by an entity’s board of directors, management and other personnel
designed to provide reasonable assurance regarding the achievement of objectives in
the following categories:

- effectiveness and efficiency of operations
- reliability of financial information
- compliance with the applicable laws and regulations (COSO, 1992, p3).

COSO’s definition of internal control can be further supplemented with that of the
Criteria of Control (CoCo) (CICA, 1995) developed in Canada. In addition to the COSO
definition, which implicitly assumes a constant external environment, CoCo adds the
risk of failure to maintain the organization’s capacity to identify and exploit
opportunities, and the resilience or capacity to respond or adapt to unexpected risks and
opportunities. In other words, CoCo assumes the external environment may change and
defines “good” internal control to include adaptability of the process to a changing
external environment.

Under COSO’s definition, internal control encompasses three distinguishing attributes
(Kinney, 2000): (1) internal control involves a much broader scope, rather than the
traditional view of internal accounting control, which limits the concept exclusively to
the reliability of financial reporting, although the latter is still the central concept
assumed in practice as well as in academic research; (2) internal control is not a static
state, but a dynamic process and this means that internal control cannot be directly
observed or verified; and (3) internal control is risk-related, that is, internal control is
dealing with the risks that will hinder an entity to achieve its objectives. Additionally,
CoCo’s definition of internal control has highlighted another feature of internal control,
that is, internal control is context-based and should be resilient to adapt to the changing
internal and external environment. Li and Nie (2007) also complement the CoCo view with a similar argument, which proposes that internal control is not simply a technical issue, but a mechanism formulated with economic, cultural and social attributes.

Most jurisdictions and markets like the UK and Europe, have adopted the broader view of internal control when issuing guidance for best practice and reporting, except for the Sarbanes-Oxley Act (SOX) in the US which is extremely narrow and focuses entirely on internal control over financial reporting (IFAC, 2006, p.5 and 7). In China, the view of internal control incorporates a broader perspective, which includes managing strategic, operational and compliance risk, in addition to financial reporting risk. Internal control in China is defined as a process to provide reasonable assurance for the achievement of the following objectives:

- *compliance* with the applicable laws and regulations
- *asset safety*
- *reliability* of financial reporting
- *effectiveness and efficiency* of operations
- *alignment with and support to strategic missions* (MOF, 2008: Enterprise Internal Control Basic Standard, p.1).

**Varied internal control regulations around the world**

As internal control is an entity-wide, risk-and-context-based dynamic process to provide reasonable assurance for the achievement of objectives, there may be numerous parties who create the demand for “internal control reporting” and “internal control assurance”. They need to be informed about internal control and confident that high-quality internal control is in place, thus providing “reasonable assurance” that the objectives will be
achieved. Kinney (2000, p.85) explains the demand for internal control reporting and internal control assurance:

“Management would like to know the adequacy and effectiveness of internal control to inform itself and to credibly inform others about its fiduciary and legal responsibilities. Second, the audit committee and outside directors exercising oversight responsibilities would be comforted by such assurance and might use such assurance reports as evidence that they have carried out their oversight responsibilities. On the transaction side, suppliers, customers and employees would like assurance about the quality of internal control, because it affects their future welfare in dealing with the entity. Finally, investors and creditors, prospective investors and regulators would like such assurance as a means of reducing information surprise and asset loss.”

Thus, the knowledge and the confidence about internal control quality are essential elements that affect the welfare of multiple stakeholders, including management, corporate directors, shareholders, auditors, trading partners of an entity and society at large.

The demand for internal control is reflected in varied regulatory reforms in many large capital markets around the world. The unprecedented corporate collapses at the beginning of this century raised internal control on the agenda of business, the accounting profession and the regulators. The collapse of WorldCom, Enron and a series of cases of fraudulent financial reporting, led to a public outcry over financial statement fraud and called into question of the adequacy and effectiveness of internal control. It is asserted in a study commissioned by COSO (1999) that a poor internal control environment contributed significantly to the occurrence of fraud documented over the
ten year frame from 1987 to 1997. Therefore, internal control deficiencies were arguably undermining the financial reporting system (Hunt, 1999). To mitigate the recurrence of such financial scandals and restore investor confidence, the US moved early and enacted the Sarbanes-Oxley Act of 2002 (SOX).

In response to the public outcry from high-profile corporate collapses and the competition among capital markets, there has been a widespread global adoption of the major provisions of SOX in the large capital markets in Asia, Europe and Latin America (Tafara, 2006). Many jurisdictions have issued or revised guidelines and policies, either through listing rules or legislation, to strengthen corporate governance and internal control, such as the review of the *Turnbull Guidance and Combined Code* (2005) in the UK, the *Discussion Paper on Risk Management and Internal Control* by the Fédération des Experts Comptables Européens (FEE, 2005), the Corporate Law Economic Reform Program (Audit Reform and Corporate Disclosure) Act 2004 (CLERP 9) in Australia, the Financial Security Law of 2003 in France and the Revision of New Security Law and New Financial Instruments & Exchange Bill in Japan. In doing so, they have stressed the key role played by the internal control system in the governance of a firm.

Although the function and role of internal control have been widely recognized, internal control is not directly observed by outsiders and therefore outsiders cannot get information on its design and functioning, as internal control is an internal mechanism and a set of activities within companies (Deumes and Knechel, 2008). As a result, the concern regarding the quality of financial reporting has prompted regulators around the world to consider policies designed to disclose internal control information, especially internal control over financial reporting. The main purpose of these internal control policies is to satisfy the need of stakeholders to have confidence not only in the financial
reports issued by a company, but also in the underlying process and controls that are an integral part of producing those reports. To augment internal controls over financial accounting, SOX has three main principal requirements: 1) management must state in the annual report that it is responsible for establishing and maintaining an adequate internal control system; 2) management must publish in the annual report an assessment of the effectiveness of the internal control system; 3) the auditor of the annual report must attest to and report on management’s assessment of the internal control system. These disclosures would both warn outsiders of potential risks and encourage companies to improve their internal control. However, the extent of current enacted regulations with respect to internal control varies significantly around the world. There are mainly three types of policy options. A few jurisdictions, like Mexico and Brazil, have a wholly voluntary regime which does not require management to establish or report on the internal control system. Most jurisdictions, such as Australia, Germany, Hong Kong and the UK, have opted for the comply-or-explain approach, with no mandated control testing by auditors (Tafara, 2006). The last is the most controversial one, with extensive and costly management and auditor testing required by SOX Section 404 in the US and ‘J-SOX’ in Japan (Bedard et al., 2009).

Though these guidelines and regulations all aim to encourage companies to improve internal control, most jurisdictions and markets do not require independent auditors to provide ICAR, except for the US and Japan. Evidence from the US indicates that mandated auditors’ assurance of internal control is costly. Therefore, a key question is whether external auditor testing on internal control, other than that primarily required under the auditing standards, is necessary for an effective process. Given this situation, it is timely to understand how companies make decisions on assurance of internal control under a low-regulated setting and whether the voluntary adoption of internal assurance
is of benefit to improve financial reporting quality. Further research in this area is warranted and will inform law makers and regulators around the world, as they continue to assess the broad array policy options with regard to internal control effectiveness (Bedard et al., 2009).

Prior Research on internal control

Despite most jurisdictions not requiring mandated ICAR by auditors, academic research on these forms of non-financial assurance services on a voluntary basis has been scarce so far. As a result, there is limited understanding of the voluntary drivers and effects of this emergent assurance service, in contrast with literature focused on the following five main strands:

i. mandatory versus voluntary debate - internal control reporting (ICR) and internal control assurance (ICAR);

ii. voluntary internal control reporting - the nature and the economic incentives;

iii. internal control weaknesses;

iv. auditor involvement; and

v. SOX compliance costs and management actions.

Debate on mandatory versus voluntary ICR and ICAR

The first strand of research topics were mainly conducted prior to SOX, under a voluntary regulatory context of internal control reporting and internal control assurance. The debate centred on the costs and benefits of internal control disclosure, whether it should be mandatory or voluntary, and whether the independent auditor should attest internal control reports. It was argued that if strong demands for internal control reporting cannot be documented, then prescribing mandatory reporting is difficult to
justified (Hermanson, 2000). Researchers also investigated users’ perceptions of internal control systems, internal control reporting and auditors’ attestation on internal control reports (Hermanson, 2000, Goodwin and Seow, 2002, O’Reilly-Allen and McMullen, 2002, Cortesi et al., 2009). Hermanson (2000) found that all the user groups feel that internal control reporting is important and the voluntary management reports on internal control (MRIC) are of benefit to improve internal control and provide additional information beyond the audited financial statements. However, O’Reilly-Allen and McMullen (2002) observed that the inclusion of a MRIC or an assurance report on internal control (ICAR) cannot affect the respondents’ perceptions of usefulness and reliability of the financial statements and that such a concept is redundant.

**Voluntary internal control reporting**

The second important strand examines the nature and the economic incentives of voluntary internal control reporting prior to SOX. Little research has been conducted under the truly voluntary setting (Deumes and Knechel, 2008). Bronson et al. (2006) conducted empirical research on internal control reporting in the U.S. under the voluntary settings pre-SOX and Deumes and Knechel (2008) investigated managers’ economic incentives for voluntarily reporting on risk management and internal control, using a sample of publicly traded firms in the Netherlands in the late 1990s. Both Bronson et al. (2006) and Duemes and Knechel (2008) deploy agency theory and firm operating characteristics to examine firms’ incentives to voluntarily disclose internal control reports. Bronson et al. (2006) document that a voluntary MRIC is more likely for firms that are larger, have an audit committee that meets more often, have a greater level of institutional ownership, and have more rapid income growth. Unlike Bronson et al. (2006), Duemes and Knechel (2008) find a negative relationship between the extent of internal control disclosure and management and block-holder ownership, and a
positive relationship between the extent of disclosure and financial leverage, which they explain as the trade-off role of benefit and cost. In addition, the firms that are larger, with better profitability, have higher foreign subsidiaries, are cross-listed in the UK and have a higher ratio of independent directors, are more likely to voluntarily disclose more internal control information. Michelon et al. (2009) also analyze the disclosure on internal control systems of 160 European firms listed in four different stock exchanges (London, Paris, Frankfurt and Milan) over a three-year period (2003-2005), in light of agency theory. They found that internal control reporting is an alternative substituted governance mechanism for the monitoring role played by the ownership structure, the institutional ownership, the proportion of independent directors sitting on the board and the proportion of accounting expert members on the audit committee.

**Internal control weaknesses**

As SOX requires companies under SEC supervision in the US to assess their internal controls and to report material weaknesses, more direct data on internal control quality are available after the introduction of SOX. As a result, much of the research post SOX has centred on internal control weaknesses (ICWs). In this area of research, investigations focus on the relationship between firm characteristics (economic characteristics, and governance characteristics) and the existence or absence of ICWs (Naiker and Sharma, 2009, Bryan and Lilien, 2005, Ge and McVay, 2005, Krishnan, 2005, Ashbaugh-Skaife et al., 2007, Goh, 2007, Doyle et al., 2007a, Doyle et al., 2007b, Goh, 2009); the analysis of specific ICWs (Ge and McVay, 2005, Doyle et al., 2007a, Bedard et al., 2009, Hermanson and Zhongxia, 2009); and also the remediation of ICWs (Goh, 2009, Li et al., 2010). It is documented that ICWs are more likely to exist in smaller companies, riskier/more complex companies, poorly performing companies and those companies with a weaker board, audit committee and financial management. In
addition, financial resources and human capital, such as the audit committee with non-accounting financial experience and new CFO with better qualifications, are found playing important roles in the remediation of ICWs. The more severe ICWs are, the longer it will take to remediate.

The common feature shared in both the second strand and the third strand of internal control research as described above is that researchers pay considerable attention to the interaction between internal control disclosure and corporate governance. The empirical findings in terms of the relationship between internal control disclosure and other corporate governance mechanisms are mixed. One branch of the research finds that better corporate governance, such as an effective board and audit committee, together with a high quality external auditor, can significantly promote internal control reporting and the disclosure of internal control weakness (Bryan and Lilien, 2005, Ge and McVay, 2005, Krishnan, 2005, Ashbaugh-Skaife et al., 2007, Goh, 2007, Goh, 2009, Doyle et al., 2007a, Doyle et al., 2007b, Naiker and Sharma, 2009). Conversely, another branch of research documents that both internal control reporting and the level of the disclosure are the substitutes for other corporate governance mechanisms (Michelon et al., 2009, Deumes and Knechel, 2008). In other words, when other mechanisms are weak, a firm has more incentive to make voluntary disclosure of internal control information and disclose extensively.

In addition, more attention has been given to examining the economic consequences of ICWs. These economic consequences include accrual quality (Chan et al., 2005, Bédard, 2006b, Doyle et al., 2007b, Ashbaugh-Skaife et al., 2007, Feng et al., 2009); cost of capital (Ogneva et al., 2007, Beneish et al., 2008, Ashbaugh-Skaife et al., 2009); stock market responses (Bryan and Lilien, 2005, Emanuels et al., 2006, Goh, 2007, Krishnan
et al., 2007, Beneish et al., 2008, Hammersley et al., 2008, Ittonen, 2010, Murphy and Tibbs, 2010); and the turnover of directors and top managers (Goh, 2007). The existence or disclosure of ICWs has been found to result in negative consequences, in terms of lower accrual quality, higher cost of debt, negative equity market reactions and less accurate earnings forecasts.

**Auditor involvement**

The fourth strand considers auditor’s involvement in internal control. Required by SOX Section 404, external auditors need to opine on internal control effectiveness. As a result, several studies have examined auditor judgment and decision-making (Earley et al., 2008, Kaplan et al., 2008); audit process and auditor characteristics (Mitra and Hossain, 2010, Elder et al., 2009, Ettredge et al., 2006, Hammersley et al., 2008, Fleming and Romanus, 2007); auditor-client relationship (Elder et al., 2009, Ettredge et al., 2007, Ettredge et al., 2010); and audit fees (Raghunandan and Rama, 2006, Ettredge et al., 2007, Fleming and Romanus, 2007, Hogan and Wilkins, 2008, Hoitash et al., 2008, Elder et al., 2009). In addition, as the internal auditor plays an intermediary role and assists in the discharge of the oversight function of an audit committee on internal control (Fadzil et al., 2005), some research examines the association between internal audit and internal control (Fadzil et al., 2005, Haron et al., 2010).

It has been found that external auditor involvement was critical for the identification and public disclosure of material weaknesses. For example, Hammersley et al. (2008) provided evidence that the auditor, rather than management, discovered the ICWs in over half of the companies. Similarly, Bedard and Graham (2011a) found that the external auditor (or external auditor and client jointly) detected over 70 percent of ICWs and nearly 85 percent of material weaknesses. Auditors identified most ICWs when
performing tests of controls, rather than substantive tests, and client management tended
to understate the severity of management-detected ICWs. In addition, the adoption of
Section 404 reporting and auditing requirements has had an effect on auditor-client
realignments and significantly increased audit fees. In particular, audit fees were higher
for companies reporting ICWs than those without such weaknesses and the literature
generally provides evidence that suggests the severity of the disclosed weakness is
associated with the size of the audit fee increase.

**SOX compliance costs and management actions**

The last research strand centres on the costs of complying with SOX Section 404 and
management actions to delay/avoid Section 404. In addition to the rising audit fees
documented in the former strand, several studies have investigated costs attributed to
Section 404 compliance (Krishnan et al., 2008, Engel et al., 2007). It has been found
that the compliance costs of Section 404 far exceed original estimates and vary with
company size (increasing with size) and compliance history (decreasing with increased
compliance experience) (SEC 2009). More importantly, the compliance costs are more
burdensome for smaller and less liquid companies (Engel et al., 2007). In addition, some
studies investigate and document that some companies have taken actions to avoid or
delay Section 404 costs, i.e. by delisting (Austen and Dickins, 2007) or reducing market
values (Gao et al., 2009).

In sum, Figure 3.1 provides the overview of prior research on internal control
regarding research topics.
Figure 3.1 Overview of Prior Research Strands on Internal Control

Prior Research on Internal Control

- Debate on mandatory vs. voluntary ICR & ICAR
- Voluntary ICR
- Internal Control Weaknesses (ICWs)
- External Auditor Involvement
- SOX Costs & Management Actions

- Determinants of ICWs & its disclosure
- Analysis of specific ICWs
- Remediation of ICWs
- Economic consequences of ICWs
- Economic consequences of ICWs
- External auditor
- Internal auditor
- Judgement and decision-making
- Audit process & auditor characteristics
- Auditor-client relationship
- Audit fee
Limitations of prior internal control research

There are two particular limitations in the growing body of research in this area. The first limitation is that previous studies have disproportionately focused on the developed countries and paid little attention to the emerging economies, which have notably different institutional circumstances from those of developed economies. The second is that the majority of studies have ignored the assurance of internal control on a voluntary basis. Further discussions of these two points are as follows.

Firstly, prior internal control literature is mainly limited to a few countries and areas. Figure 3.2 shows the distribution. It is noted that the majority of prior research focus on the US regulatory context. Besides the US, a few papers address internal control issues respectively in Europe, Malaysia and Singapore. For example, Cortesi et al. (2009) examine the relationship between internal control systems and corporate governance in Italy. Deumes and Knechel (2008) study the economic incentives of voluntary internal control disclosure in The Netherlands. Michelon et al. (2009) extend Deumes and Knechel (2008)’s study more broadly to Europe to investigate internal control disclosure in the light of agency theory. Additionally, Fadzil et al. (2005) and Haron et al. (2010) examine the internal control issue from an internal audit perspective in Malaysia, while Goodwin and Seow (2002) investigate the role of corporate governance on preventing and detecting internal control weaknesses in Singapore. However, it is noted that internal control research related to the emerging economies remains minimal.
Internal control is equally or perhaps even more important in the emerging economies that are attempting to gain credibility among global investors. Emerging markets have grown swiftly in the past two decades and have played an increasingly important role in the global economy, given their high economic growth prospects and their improving physical and legal infrastructures (Ararat and Dallas, 2011). Emerging markets with notably different institutional circumstances from those of developed economies provide valuable research opportunities to redefine, from another perspective, the significance and role of internal control in corporate governance. The growing law and finance literature has shown that the variance of institutional environments among different countries has an impact on firm behavior (Shleifer and Vishny, 1994, Shleifer, 1998, Johnson and Mitton, 2003, Faccio, 2006); influence corporate reporting incentives (La Porta et al., 1998, La Porta et al., 1999, La Porta et al., 2000, Ball et al., 2000, Fan and Wong, 2002, Leuz et al., 2003, Bushman et al., 2004); affect corporate transparency (Bushman et al., 2004); and assurance decision and auditor selection (Choi and Wong, 2007, Fan and Wong, 2005, Francis et al., 2011). Nevertheless, internal control research to date has paid little attention to internal control quality and its impact on financial reporting outcomes from a developing nation context.
To date, most of the research on internal control has been conducted under the US regulatory environment, which has limited its application to only a small subset of controls (internal controls over financial reporting) in a single market segment, namely companies under SEC control in the US (Deumes and Knechel, 2008). The SOX requirements are confined to the narrow definition of internal control instead of a broader definition (that is, financial reporting only versus risk-based business-wide controls) (Deumes and Knechel, 2008). Except in the US, most of the policy reports on internal control and its reporting are principle-based and consider the broader perspective of internal controls (IFAC, 2006), which aim to manage strategic, operational and compliance risks, as well as financial reporting risks.

The passage of SOX in the US significantly altered the calculus of ICAR, mandating independent auditors to attest on internal control over financial reporting under Section 404. The mandated requirement nevertheless precludes the opportunity to examine the drivers and effects of voluntary ICAR, which in turn has the advantage of eliminating the confounding impact of regulation (Carey et al., 2000). As the regulators around the world are considering various policy options with regard to internal control effectiveness, further research on both the drivers and effects of voluntary ICAR, is still warranted under the context of different countries and areas.

3.3 Research on Voluntary Assurance

As one of the objectives of this study is to identify the determinants underlying voluntary assurance decisions on internal control, the literature included in this review primarily relates to demand for voluntary assurance. The subject matter in this study, internal control, has become a topical issue subsequent to the world-wide high-profile financial scandals at the beginning of this century. A review of internal control research suggests
that considerable attention has been given to internal control with research mainly conducted in the US post SOX. The passage of SOX in the US significantly altered the calculus of ICAR, mandating independent auditors to attest on internal control over financial reporting under Section 404. The mandated requirement limits the opportunity to examine the voluntary drivers for ICAR and we have hitherto little knowledge in this regard. However, the knowledge of the voluntary drivers for ICAR are particularly important, as most regulators around the world do not require independent auditors to provide ICAR and they are continuing to assess the broad array policy options with regard to internal control effectiveness. Therefore, the literature review in this section will start from the definition of assurance, prior research on the demand for voluntary assurance in the traditional financial statements context and followed by the related studies in non-financial information, i.e., the environmental or sustainable reports context. These studies examining factors associated with firms’ decisions on voluntary audit of financial statements and assurance of sustainability information can be highly indicative of those related to firms’ decisions to take up the assurance on internal control.

Definition of assurance

Assurance service is a term used to describe the broad range of information enhancement services that are provided by an external auditor. In general, assurance services consist of two types: those that increase the reliability of information and those that involve putting information in a format or context that facilitates decision-making (Whittington and Pany, 2008). The focus of this study is the first type - audit and assurance services that involve enhancing the reliability of corporate information. Attesting to the information provided by companies means providing assurance as to its reliability. The attest engagement is defined as ‘a practitioner is engaged to issue or does issue an
examination, a review or an agreed-upon procedures report on subject matter or an assertion about subject matter that is the responsibility of another party (e.g. management)’. More formally, an assurance engagement is defined by the International Auditing and Assurance Standards Board (IAASB 2004a, p. 150) as:

‘an engagement which a practitioner expresses a conclusion designed to enhance the degree of confidence of the intended users other than the responsible party about the outcome of the evaluation or measurement of a subject matter against criteria’.

A financial statement audit is by far the most common type of assurance engagement. However, there is a wide range of other types of information to be attested to by external auditors. The International Federation of Accountants (IFAC) identifies assurance services beyond financial statement audit in three areas: (1) information and data, e.g., forecasts and non-financial information including environmental and social reports; (2) systems and process performance, e.g., efficiency, quality, risk management, and ISO certification; (3) and stakeholder behavior, e.g., ethics and integrity of individuals, governance, enforcement of codes of conduct and legal compliance (Knechel et al., 2006). Among them, ICAR is an important assurance service in the area of system and process performance, which is also the main interest of this study.

The nature of the attest function is essentially the same, regardless of the subject matter being examined. Generally, the external auditor may report directly on the subject matter or on management’s assertion about the subject matter. In the case of ICAR, the subject matter of this engagement is internal control, which is the responsibility of management. Management may make an assertion that the company’s internal control conforms to some reasonable criteria for effective internal control and is adequate and effective, and hire an external auditor to attest to this assertion. The external auditor gathers and
evaluates evidence that enables him/her to provide assurance that the subject matter conforms to the reasonable criteria used by management to evaluate its internal control. Then the external auditor issues a report summarizing the findings, which may be presented alone or it may be accompanied by management’s assertion and/or a description of the subject matter. In addition, a description of the criteria used must be presented if it is not otherwise generally available to the users of the external auditor’s report.

**Voluntary assurance under the traditional financial statement context**

Only a small number of empirical studies have examined the demand drivers for voluntary adoption of assurance under the traditional financial statement context. It is largely because the assurance of financial reports has been mandated by law in most developed market economies. Chow (1982) was one of the first major studies to examine why US listed firms voluntarily had independent audits in the 1920s before such audits were required by federal securities laws. Blackwell et al. (1998) investigate the association between cost of debt and voluntary audit using private firms in the US. Carey et al. (2000) investigate the demand for voluntary external auditing and internal auditing by family businesses in Australia. Among these studies, agency theory has provided a resilient and popular framework for explaining the demand for external auditing (Carey et al., 2000). These studies suggest that firms may elect to conduct such audits to reduce information asymmetry and mitigate agency problems (Chow, 1982, Carey et al., 2000, Blackwell et al., 1998) so as to gain loans (Alee and Yohn, 2009) and cheaper debt finance (Blackwell et al., 1998), etc. Lennox and Pittman (2011), using UK private firm data, found that firms that continued to voluntarily present audited financial statements
when the mandatory audit requirement was lifted for such firms, attracted upgrades to their credit ratings, which indicates voluntary audits as a positive signal.

While important, the seminal agency research does not recognize that the contracting environment varies across countries, which in turn will influence the nature of contracts in place and the related demand for governance mechanisms (La Porta et al. 2000), i.e., voluntary assurance. Francis et al. (2011) adopt a different institutional perspective and examine the demand for voluntary assurance of financial information on a cross-country comparative basis. They document that both firm-specific contracting incentives and country-level institutional characteristics are significant in explaining voluntary assurance services. However, much of the extant evidence on voluntary assurance has centered on financial statement audits of private firms and provides limited insight into the motivation for assurance of other non-financial statement related information, particularly voluntary ICAR.

**Voluntary assurance of non-financial statement related information**

While firms may undertake independent audits of information due to mandated legislative requirements such as the annual financial statement audit, there are instances when firms may elect to voluntarily provide assurance on other information within their annual reports. With a consistent concern that traditional financial reports do not adequately represent the multiple dimensions of corporate value today, there has been a growing tendency for companies to issue general-purpose, stand-alone nonfinancial reports in the area of environmental management and sustainability (Simnett et al., 2009). This emerging trend in reporting is accompanied by the increasing popularity of assurance of such reports, which is considered to improve the credibility and transparency of disclosed environmental and social information. Despite the growing
popularity of the adoption of assurance services for sustainability, academic research on the determinants of these novel forms of non-financial assurance services has been scarce, with only two exceptions (Kolk and Perego, 2010, Simnett et al., 2009) using cross-country comparative studies. From an institutional perspective, they find that the national legal environment and its quality are significantly associated with the voluntary assurance on sustainability reports.

While indicative, prior studies of voluntary assurance not only paid little attention to internal control, and important non-financial statement related information, but also have largely been conducted from a developed nation context, where the institutional arrangements are strong and investor reactions are closely linked with publically available information. In developing countries, the role and impact of assurance information on financial statement users’ reactions are still unclear. Thus, firms are not likely to invest in additional monitoring costs, i.e. assurance voluntarily. Yet, the rapidly burgeoning industries and markets in developing countries may necessitate such voluntary assurance and disclosure of it with expanding risks and pressure on good governance. Given the scant empirical evidence in this area, it would thus appear timely to assess voluntary assurance of internal control in the developing countries.

### 3.4 Internal Control Studies Specific to the Chinese Environment

Internal control in China began to attract substantial attention around 2000, mainly due to political and social-economic reasons (Li and Nie, 2007). The concept of internal control was initially introduced to China in the mid-1980s. Prior to 1978, there was no market-oriented competition among enterprises in China whereby under the central planned economy, the price of commodities and the volume of production were all under the tight control of the Chinese government. Enterprises were the associates of the
government without autonomy and risk-awareness. Additionally, unlike in the developed countries where internal control is an explicit routinized governance mechanism and has been developed over a long period, internal control in China is a new issue following the Chinese government’s implementation of the economic reform and opening up policy from the late 1970s. Since 2000, Chinese internal control research has also grown rapidly.

The study by Li and Nie (2007) provides some important insights into internal control studies in China from 1985 to 2005. Figure 3.3 shows the trend of internal control research specific to the Chinese environment during this period. They suggest that the internal control research covers a number of topics, which can be identified as three research streams. The first stream is to introduce and clarify the definition and scope of internal control (Wu et al., 2000, Yan and Yang, 2001, Zhu, 2001, Liu and Zhang, 2002). The second stream is to investigate the association between corporate governance and internal control from the theoretical perspective (Feng, 2000, Wang, 2001, Fang, 2002, Cheng, 2003, Cheng, 2004, Yang and Hu, 2004, Li, 2005). The third stream focuses on the examination of the establishment of internal control standards (Chen, 2001, Liu, 2001, Gao and Wang, 2005), as well as the implementation of internal control in enterprises (Gong, 2004, Zhang and Zhang, 2004, Zhu et al., 2004). These three main research streams are depicted in Figure 3.4.

Much of the Chinese internal control research remain mainly qualitative and descriptive, focusing on the conceptual identification and the exploration of a theoretical framework. Although the third stream has started to investigate the practical implementation issues of internal controls, the research findings may not be generalizable, as these studies are
conducted by case study of the specific internal control issues in specific enterprises or specific industries.

**Figure 3. 3 Internal Control Research in China**

![Graph showing Internal Control Research in China](image)

Source: Li and Nie (2007)
Since around 2005, considerable attention has been given to internal control in China. As discussed in Chapter 2, an important stage of internal control regulation reforms was launched, with the promulgation of *SSE Guidelines*, *SZSE Guidelines* and *Basic Standards*, which marks the regulatory transformation from recommending to requiring Chinese listed firms to establish an internal control system (Chen and Li, 2008). The regulatory authority put emphasis on the provision of internal control reports and recommended an assurance statement to accompany such reports. Against this background, a number of empirical studies (Cui and Liu, 2013, Fang and Sun, 2007, Fang et al., 2009, Yang and Wang, 2008, Yang and Chen, 2009, Cai, 2005, Wan and Xiao, 2008, Dong et al., 2012, Hong et al., 2014) have examined internal control information disclosure of Chinese listed companies.

These studies revealed several problems in internal control reporting. First, Chinese listed firms lack initiative to disclose internal control reports (Yang and Chen, 2009, Yang and Wang, 2008) and internal control weaknesses (Dong et al., 2012). Internal
control reports, particularly internal control weaknesses disclosure, are formalistic (Dong et al., 2012). Chinese listed firms have great discretion on the content and the extent of internal control reports (Yang and Wang, 2008). In addition, the information quality of internal control reports disclosed by Chinese listed firms is poor and lack relevance and reliability (Cui and Liu, 2013, Hong et al., 2014). More specially, Chinese listed firms not only lack criteria for identification of internal control weaknesses, but also cannot accurately classify the severity of internal control weaknesses (Feng and He, 2014) and tend to understate the severity of discovered internal control weaknesses. Thus, the internal control effectiveness based on firms’ self-evaluations is less reliable and the inter-firm consistency of these self-reported classifications of control weaknesses is problematic.

Internal control reporting is subject to concerns regarding the completeness and credibility of the information that is being provided, and thus obtaining third-party assurance is arguably seen as a valuable tool for addressing these concerns (Holder-Webb et al., 2009, Simnett et al., 2009). Very little is currently known about voluntary ICAR, with the exception of some descriptive research findings. When examining internal control information disclosure of A-share firms listed on the main board of the Shanghai Stock Exchange in 2006, Yang and Wang (2008) noted that 35 firms voluntarily adopted ICAR and disclosed ICAR reports. Independent assurance is costly and the identification of violations during ICAR can lead to potential litigation risks. So the question is what drives firms to adopt voluntary ICAR and whether voluntary ICAR will influence financial reporting quality. Given scant empirical evidence to date in this area, further research on the drivers and effects of voluntary ICAR is warranted, and studying firms in China is also justified as they operate in a suitable low-regulation environment and there is a database to study voluntary ICAR.
3.5 Summary

This chapter has reviewed prior research on internal control and voluntary assurance. It is found that both these two areas of literature have ignored voluntary ICAR and have been conducted disproportionately in the developed countries. Given these limitations and the significant variance of internal control regulations around the world, two specific research questions of this study are raised to be examined in the Chinese context: (1) what are the determinants of voluntary ICAR? (2) Is there any significant effect of voluntary ICAR on financial reporting quality?
CHAPTER 4
DETERMINANTS OF VOLUNTARY ICAR

4.1 Introduction

This chapter presents a conceptual framework for the study of the determinants of voluntary ICAR. Drawing from the literature review presented in the earlier chapter, and guided by several distinct yet inter-related theories, several hypotheses are developed in this chapter. Section 4.2 presents an overview of four theoretical perspectives, namely information economics theory, agency theory, loss of control theory and institutional theory, as an explanatory framework for why firms seek assurance. Section 4.3 more specifically develops the arguments for the demand and value of voluntary ICAR, which further leads to the development of hypotheses of voluntary ICAR for testing within the Chinese market context in section 4.4. Section 4.5 provides a summary of the chapter.

4.2 Theoretical Perspectives - Demand for Assurance

Demand for assurance can be understood from a number of theoretical perspectives, namely information economics theory, agency theory, loss of control theory and institutional theory. In the following subsections, a review of each theoretical perspective is provided and the conceptual framework for this study is formulated.

Information economics theory

The contributions of the external auditor are twofold from the point of view of information economic theory. First, an auditor’s appointment is to enhance credibility
of information produced by management. Second, higher quality firms may appoint auditors voluntarily as a signal to differentiate themselves from others in the market.

Information economics theory is founded on micro-economic theory. It proposes that information and information systems affect economic decisions and ultimately the economy (Zhang, 1996). It is commonly accepted that reliable information aids society in allocating resources in an efficient manner. From a macro-economic perspective, a primary goal is to allocate limited capital resources to the industries, the geographic areas and the organizational entities that are shown to be capable of using the resources to the best advantage (Whittington and Pany, 2007). However, due to the separation of ownership and management at the firm level, management owns the private information which is unavailable for outsiders. Thus, any information asymmetry may conceal waste and inefficiency and prevent an efficient allocation of economic resources (Whittington and Pany, 2007).

**Assurance: to add credibility to disclosed information**

Information economic theory maintains one of the potential contributions that an external audit report offers is credibility to information (Arens et al., 2005, Ettredge et al., 1994, Simnett et al., 2009, Whittington and Pany, 2007). Credibility means that the information can be believed; that is, it can be relied upon by outsiders, such as shareholders, creditors, government regulators, customers and other interested stakeholders. These stakeholders use the information to make various economic decisions. Economic decisions are made upon conditions of uncertainty; there is always a risk that the decision-maker will select the wrong alternative and incur a significant loss based on inaccurate information (Whittington and Pany, 2007), that is, information
risk. The credibility enriched information by auditors actually helps to reduce the decision-makers’ risk (Arens et al., 2005).

The information on subject matter or the assertion of subject matter prepared by management and transmitted to outsiders without first being attested by independent auditors, leaves a credibility gap. In reporting on its own administration of the business, management can hardly be expected to be entirely impartial and unbiased (Arens et al., 2005). Independent auditors have no material personal or financial interest in the business; their reports can be expected to be impartial and free from bias (Whittington and Pany, 2007). Secondly, unattested information on subject matter may have been honestly, but carelessly prepared, due to accidental errors, or management lack the expertise and knowledge about the subject matter (Whittington and Pany, 2007, Arens et al., 2005). Finally, there is the possibility that unattested information on subject matter has been deliberately falsified in order to conceal fraud as a means of misleading the outsiders (Arens et al., 2005, Whittington and Pany, 2007).

For all these reasons (accidental errors, lack of expertise and knowledge, unintentional bias and deliberate falsification), information or assertions on subject matter provided by management alone may not meet the standard criteria. Attestation of subject matter provides users with assurance that the above information does not materially depart from criteria. Prior research on voluntary assurance (Chow, 1982, Blackwell et al., 1998, Park and Brorson, 2005, Simnett et al., 2009, Kolk and Perego, 2010) suggests that a company’s decision to seek assurance is driven by its incentives to improve the credibility and transparency of the information disclosed.
**Assurance: to signal presence of superior governance**

Within information economic theory, a specific line of rationale is signalling theory. It proposes that auditor engagement is voluntarily deployed by firms to signal their superior quality in the market with information asymmetry.

Signalling theory takes root in the idea of information asymmetry and was initially developed by Spence (1973) to interpret the behaviour in the job market. In his seminal paper, Spence (1973) proposes that two parties could get around the problem of asymmetric information by having one party (job applicant) send a signal that would reveal some relevant information to the other party (employer). The other party would then interpret the signal and adjust his/her purchasing behaviour accordingly, usually by offering a higher price than if he/she had not received the signal. Although the theory is developed in the labour market, Morris (1987) generalizes that signalling is a common phenomenon applicable to any market with information asymmetry. According to signalling theory, it is initially assumed that the sellers possess more inside information relative to the buyer. Due to the lack of unobservable inside information, buyers usually value all the products at the same price which is a weighted average of their general perceptions. As a result, the sellers with superior quality will incur an opportunity loss while the sellers below the average quality will make an opportunity gain. In this case, the direct consequence is to drive the sellers with superior quality to leave the market unless they can communicate their superior quality to buyers and thus increase its price. This communication is achieved by signalling. As better quality sellers signal, buyers will adjust and reassess the price accordingly. The best sellers then try to screen themselves from others - an iterative process which continues as long as the increase of price obtained exceeds the signalling costs (Morris, 1987). Signaling theory indicates
that information asymmetry can be reduced by the party with more information signaling to others. However, to be effective, the signal must not be easily copied by poor quality sellers.

In capital markets, there are a number of ways that firms deploy to signal their superior quality through accounting policy choice and voluntary information disclosure, as well as voluntary auditor engagement and selection. Signalling theory predicts that auditors will be appointed voluntarily by higher quality firms in order to discriminate themselves from others in the market. Bandyopadhyay et al. (2007) examine the association between voluntary assurance on interim financial statements and earnings quality, and demonstrate the signalling role of voluntary assurance. They suggest that when there is no mandated requirement for audit or assurance, firms that choose to voluntarily engage auditors will probably purchase the highest quality review from their auditors, in order to signal quality to the market and distinguish themselves from other firms. However, when assurance is required by regulatory authorities, all firms will likely purchase the lowest level of review from their external auditors in order to satisfy the minimum regulatory requirements. Similarly, Bar-Yosef and Livnat (1984) investigate the voluntary auditor selection process and document that management who are more optimistic about their future cash flows tend to engage larger audit firms. Generally, higher profitability, reputable external auditors and an unqualified audit opinion are used by researchers to represent higher quality firms (Clarkson et al., 1994, Jog and McConomy, 2003, Fang et al., 2009). In this sense, the audit can be a remedy for problems of ex ante contractual asymmetry, signalling the audited business as being of high quality (Arruñada, 1999).
Agency theory

*Agency theory considers assurance as a mechanism to monitor/bond the performance of contracting parties, to reduce information asymmetry and mitigate agency problems.*

Agency theory evolved from the concept of separation of ownership from management in modern firms. Agency theory was initiated by Berle and Means (1932), who first described the separation of ownership and control due to the wide disbursement of firm share ownership. Jensen and Meckling (1976) are credited with the systemic use of principal-agent relations to characterise the problem of governing the relationship between shareholders and managers. Agency relationship, defined by Jensen and Meckling (1976), arises when the principal (shareholders or debt holders) delegates some authority to the agent (management) to perform some service on behalf of the principal. If both parties in the relationship are utility maximizers, there is good rationale to believe that the agent will not always act in the best interest of the principal but will work based on self-interest, thereby creating the agency problem. As a result, in most agency relationships, the principal and the agent will incur positive monitoring and bonding costs, known as agency costs (Jensen and Meckling, 1976).

Agency theory has been most concerned with describing the governance mechanisms that solve the agency problem. An important proposition of agency theory is that information systems curb agent opportunism (Eisenhardt, 1989). Auditing, as a component of the information system, is generally understood in terms of agency theory as a mechanism to monitor/bond the performance of contracting parties, to reduce information asymmetry and mitigate agency problems (Watts and Zimmerman, 1983, Jensen and Meckling, 1976, Francis et al., 2005a, Watts and Zimmerman, 1976). An audit provides an independent check on the work of the agent and on the information
provided by the agent, and therefore serves a fundamental purpose in assuring confidence and reinforcing trust in the contractual relationship between the principal and the agent. By performing the attestation function, auditors play a significant role in a firm’s monitoring system. In this way, independent audits, as a necessary mechanism for proper functioning of contractual relations, are an essential component of the corporate governance mosaic (Liu, 2007). Furthermore, an audit is valuable because it reduces the agency costs by assuring the credibility of client financial statements, thereby allowing more precise and efficient contracts to be based on the audited financial statements (Watts and Zimmerman, 1986). Prior research (e.g., Francis and Wilson, 1988, Chow and Rice, 1982, Watts and Zimmerman, 1986) argues that, as agency costs increase, the demand for higher-quality audits rises. Thus, auditing/assurance is used to safeguard contractual conduct usually in the context of “moral hazard”, in which the audit/assurance contributes to making the degree of contractual performance observable ex post and therefore provides an incentive for it (Arruñada, 1999).

**Loss of control theory**

*Assurance from a loss of control theory viewpoint is assumed to help monitor the potential loss of control due to the internal agency problem across sub-units and sub-managers, and thus augments the need for internal control.*

In addition to the external agency problem deriving from the separation of ownership and management, firms are also subject to problems of moral hazard “internal” to the operation of the firm, attributed to organizational design, such as the multi-level hierarchy (Abdel-Khalik, 1993). The risk of moral hazard and opportunism will arise from the reduced observability in hierarchies (Williamson, 1967, Williamson, 1975, Williamson and Ouchi, 1981). Generally, the manager can control an operation primarily
by means of direct supervision and personal observation in a small company with one level of hierarchy. However, as the company grows larger, its organizational structure begins to take a pyramid shape. Delegation becomes necessary because bounded rationality and natural limits on one’s attention span make firsthand knowledge of action of all subordinates increasingly unfeasible; authority is then delegated down the chain of command and multilayered hierarchies evolve. Thus the moral hazard and opportunism are characterized by certain actions of employees such as shirking, cutting corners, consuming organization resources, or perpetrating fraud (Abdel-Khalik, 1993)

Additionally, multilayer hierarchy in an organization creates the communication problems which will result in loss of control at the top (Abdel-Khalik, 1993, Downs, 1967, Evans, 1975). As indicated above, observability of subordinates’ actions decreases as the chain of command gets longer. It is more likely that the communication will get distorted in an organization with a longer chain of command (Abdel-Khalik, 1993). In particular, communication down the chain of command transits through several filters and is subject to summarization, misinterpretation and possible intentional manipulation (Williamson and Ouchi, 1981). Further, Christensen (1981) observed that the top manager is restrained in communicating certain information down the chain, as it may be misused by subordinates for shirking.

It is suggested by Williamson and Ouchi (1981) that enhancing internal control mechanisms is one possible remedy for the costly consequences of unobservability of subordinates’ behavior, that is, to “organize transactions in such a way as to economize on bounded rationality while simultaneously safeguarding those transactions against the hazard of opportunism”. However, the results of the study by Armour and Teece (1978) are mixed in this regard, which raises the question: why can’t organizational loss of
control be remedied by internal control? Several plausible explanations can be made in this regard. Matuz et al. (1980) argues that the development of internal control systems has been slow and corporate investment in internal auditing has been generally insignificant, especially prior to the enactment of the Foreign Corrupt Practices Act 1977. Maher (1981) embraces the same view as Matuz et al. (1980) and further comments on the great diversity of existing internal control systems among companies, that is, internal control systems vary greatly in adequacy, quality and sophistication. In addition, researchers such as Williamson (1975), Williamson and Ouchi (1981) and Perrow (1981), query the effectiveness of internal control systems in large organizations. Finally, an internal control system is a component of organization and is subject to the same communication problems in the hierarchical organization.

The loss of control and the failure of internal control systems necessitate the need for monitoring systems from outside the boundaries in the form of external audits. As Abdel-Khalik (1993) observed, loss-of-control theory has been developed for the purpose of understanding bureaucratic organizational design, while the role of demand for auditing in that theory has not been explored. Meanwhile, the qualitative responses to this effect in interviews with 20 owners/managers of private companies conducted by Abdel-Khalik (1993) also suggest that one of the two main reasons for external audits is to augment internal controls. Indeed, a primary function of external audits is to evaluate the quality and adequacy of internal control systems. In addition to relying on professional standards, managers also request external auditors to provide an independent evaluation because “if a person is within the system, he/she can see its operation differently than if he/she were on the outside looking in” (Katz and Kahn, 1966). Drawing upon loss of control theory, Abdel-Khalik (1993) empirically test the
impact of firm size on the demand for assurance and provide evidence that larger firms are more likely to demand voluntary assurance.

**Institutional theory**

*Institutional theory proposes that assurance is used to achieve legitimacy and improve access to resources in the market place.*

Unlike the afore-mentioned theories emphasizing the importance of individual self-interest economic motives, institutional theory, originally developed by Meyer and Rowan (1977), instead focuses on institutional factors or pressures that lie beyond the organizational boundary (Hoffman, 1999). Firms are viewed in terms of institutional theory as operating within a nexus of norms, values and assumptions about what constitutes appropriate or acceptable economic behavior (Oliver, 1997). According to institutional theory, interacting organizations are linked by symbiotic relations that can create institutional pressures limiting the set of rational choices organizations can use in demonstrating legitimacy to the public (Carpenter and Feroz, 1992). Firms are subject to rules and regulations, not just on efficiency grounds, but also to enhance legitimacy, resources and survival capacities (DiMaggio and Powell 1983). The pressures to achieve legitimacy help initiate isomorphism, a process that forces one unit in a population to resemble other units that face the same set of environmental conditions (Deegan, 2010, DiMaggio and Powell, 1983). Institutional isomorphism promotes the success and survival of firms (Meyer and Rowan, 1977).

Institutional theory argues that institutional environments, i.e., national environments, can significantly affect many aspects of organizations, especially through the distinct institutional, legal, political and cultural features of a country. North suggests that a
country’s institutional endowment is characterized by the legislative and executive institutions, judicial institutions, administrative capabilities, informal norms and the character of the contending social interests (North, 1990). The institutional approach proposes that the adoption of organizational practices is governed by regulative, normative and cognitive aspects of the institutional environment (Scott, 1995), which impact the potential costs and benefits of the adoption of organizational practices, and therefore explains the differences in adoptions (Delmas, 2002).

In the context of corporate governance, a number of studies (La Porta et al., 1998, La Porta et al., 1999) which are representative of institutional theory on corporate governance, indicate that governance structures are fundamentally endogenous to the legal system and other institutions that facilitate contracting. Institutional theory applies to a variety of situations including the choice of auditing and assurance practices. Using cross-country comparative analysis, recent studies (Simnett et al., 2009, Durnev and Kim, 2005, Doidge et al., 2007, Francis et al., 2011, Kolk and Perego, 2010, Choi and Wong, 2007, Fan and Wong, 2005) have noted that national legal environments (e.g., type of legal system, quality of legal environment and enforcement) are key determinants of voluntary audit and assurance selection. Francis et al. (2011) empirically examine the impact of both firm-specific contracting incentives and country-level institutional characteristics on the voluntary demand for assurance services of financial information. Based on a World Bank sample of 3,829 private entities from 62 widely diverse countries, Francis et al. (2011) provide evidence that a decision on voluntary assurance is to some extent endogenous to broader country-level institutions. In a similar vein, in the field of non-financial assurance services, Simnett et al. (2009), and Kolk and Perego (2010) respectively investigate the demand for corporate social responsibility (CSR) report assurance by using different samples. Simnett et al. (2009) find that overall,
a stakeholder orientation at the country level appears to be the most significant factor explaining CSR report assurance choice. Kolk and Perego (2010) report that firms from countries with a common law legal system, countries with weaker legal enforcement, and countries with higher institutional pressures for corporate sustainability, are all more likely to attain assurance on their CSR reports.

**Conceptual framework**

The above discussion indicates that all of the afore-mentioned theories provide distinct yet related rationalisations for assurance and why firms elect to provide governance reports accompanied by assurance. In developing a conceptual framework for this study, I draw from these different theories which in turn aids in identifying key variables that may determine the adoption of assurance for internal control reports of firms. Nevertheless, it is important to make apparent some basic overlaps in assumptions among the different theories.

Firstly, information economics can be viewed as a fundamental theory which shares the notion that reliable information aids society in allocating resources in an efficient manner and an external auditor contributes to enhancing information credibility with the other perspectives. Without credible information, it becomes difficult to address internal and external agency conflicts, or transfer signals and provide legitimation to institutional environments. Prior research suggests a firm’s decision to have voluntary assurance is driven by its incentives to improve the credibility and transparency of the information it discloses (Chow, 1982). In addition, according to Morris (1987) there is considerable overlap between agency theory and signalling theory and that it is possible to combine them to yield predictions about accounting choices, such as voluntary audit selection. Indeed, he concludes (p. 52) ‘the prediction of accounting choices can at least be
improved by adding together the predictions from each theory’. Similarly, agency theory and loss of control theory share the recognition of agency relationship and the derived agency conflicts, and thus both suggest the monitoring role of external audit on addressing agency conflicts.

It seems initially there is competition between institutional theory and the three aforementioned theories, namely, agency theory, signalling theory and loss of control theory, as the former focuses on influential institutional factors or pressures within which firms operate, while the latter put more emphasis on a firm’s economic incentives. However, in a more general sense, there are two levels to the views regarding a firm’s incentives to adopt better governance structures (including voluntary assurance). One is at the firm level, which argues that governance structures are driven primarily by a firms’ agency and contracting costs; and the other view is that governance structures are fundamentally endogenous to broader country or national level factors such as the legal system and other institutions that facilitate private contracting (Francis et al., 2005a). Several recent studies (Simnett et al., 2009, Durnev and Kim, 2005, Doidge et al., 2007, Francis et al., 2011, Kolk and Perego, 2010, Choi and Wong, 2007, Fan and Wong, 2005) have recognized the importance of both firm-specific economic factors and endogenous country characteristics in explaining the determinants for the demand for independent audit and assurance, offering a more integrated model for examining voluntary assurance selection.

This study proposes a comprehensive conceptual framework, drawing upon the aforementioned theories, namely information economics, agency theory, loss of control theory and institutional theory, to investigate the demand for voluntary ICAR in the context of China. It is expected that both firm-level economic incentives and regional-
level institutional features impact the potential costs and benefits and demand for ICAR. The former three theories are deployed to explain firm-level economic incentives and the last one is used to interpret regional-level institutional pressures on firms. Although the predominant economic-based view is that contracting costs and information asymmetry determine a firm’s governance structure with respect to voluntary auditing around the world, including China, evidence shows that governance structures are to some extent endogenous to broader country-level institutions and that firm-specific incentives do not entirely explain variation in governance structures (Francis et al., 2005a).

The use of multiple theories can strengthen the explanations behind ICAR decisions in an emerging capital market, since a single theory may not fully explain these practices given the specific social and institutional features of that market (Lopes and Rodrigues, 2007, Lundholm and Van Winkle, 2006, Naser et al., 2006, Hassan, 2009). Further, the formulation of a conceptual framework thus takes consideration of the institutional background within China. As discussed in Chapter 2, China is a transitional country where the market-oriented institutions have witnessed significant progress but the legal system and other institutions are generally weak and have developed unevenly across regions within China. The specific institutional conditions in China make voluntary adoption of ICAR an empirical issue.

### 4.3 Demand for and Value of Voluntary ICAR

With the improvement and refinement of the Chinese market-oriented institutional environment, a number of economic incentives are proposed to motivate firms to conduct voluntary ICAR. From the contract perspective in light of the agency theory, voluntary ICAR is adopted as a bonding/monitoring mechanism to address the agency
conflicts and information asymmetry. From the information perspective, voluntary ICAR is of benefit to increase the information credibility, reduce the information uncertainty risk and transfer the signal. In addition, voluntary ICAR is suggestive by the loss of control theory to address the potential loss and failure of internal control within organisations.

While China has witnessed the significant improvement of its market-oriented institutions, it also exhibits great variation in legal and other institutions across various regions, due to geographic reasons and the decentralization of the political and economic system since 1978 (Wei, 1999). Arguably, governance structures are endogenous to the legal system and other institutions that facilitate contracting (La Porta et al., 1999, La Porta et al., 2000, La Porta et al., 1998, Doidge et al., 2007, Durnev and Kim, 2005), to either complement strong institutions (Doidge et al., 2007) or substitute for weak institutions (Durnev and Kim, 2005). Thus, it is expected that the unbalanced regional institutional environment within China influences a firm’s selection of voluntary ICAR.

In sum, firms seeking ICAR are driven by multiple incentives. Since independent assurance incurs additional costs, it is argued that the choice to have internal control reports assured is more likely to achieve greater benefits, in terms of:

(1) facilitating contracts through enhancing information credibility and reducing agency costs;

(2) compensating potential loss of control and transmitting signals; and

(3) achieving legitimacy under institutional influences, either substitution or compensation.
Enhancing information credibility gap and reducing agency costs

Subsequent to a series of high-profile corporate collapses, internal control has been emphasized as a critical corporate governance mechanism to address the agency problem and information asymmetry (COSO 2004). It is asserted that a sound internal control system contributes to the protection of investors’ interest by promoting and providing assurance on the reliability of financial reporting, and by addressing the boards’ attention on the timely identification, evaluation and management of risks that may compromise the attainment of corporate objectives (Michelon et al., 2009). Despite its relevance, internal control is an internal mechanism within an organization which may not be observed directly by outside investors (Deumes and Knechel, 2008). In the absence of credible information on internal control and its quality, investors will thus take this into account when placing claims on the firm (Jensen and Meckling, 1976). Arguably, to address the issue of absence, internal control reporting and internal control assurance have become alternative monitoring/bonding mechanisms to address the efficiency loss of information asymmetry and agency problems.

While internal control reporting to some degree contributes to mitigation of information asymmetry and the agency problem, internal control reporting without testing by independent auditors leaves a credibility gap, which in turn will exacerbate agency conflicts. As suggested by information economics theory, internal control report alone may be less credible due to deliberate falsification and unintentional bias or errors, while ICAR is sought to increase credibility and transparency (Arens et al., 2005). In particular, prior research finds that management has more discretion in disclosing internal control reports and ICWs (Ashbaugh-Skaife et al., 2007). For example, the content and extent of internal control reports varies across firms, as the framework for evaluating internal
control is lacking or less specified, which allows room for judgment and flexibility on measurement and reporting (Bronson et al., 2006, Deumes and Knechel, 2008, McMullen et al., 1996). In addition, Ashbaugh-Skaife et al. (2007) argue the incentives for discovering and disclosing ICWs vary across firms due to two reasons. First, prior to Section 404, the procedures firms must use to evaluate controls and procedures are not specified. Therefore, differences in the effort firms make to discover ICWs could give rise to a variation in ICD disclosure. Second, as the disclosure of significant deficiencies is not required and there is ambiguity in the definitions of material weaknesses and significant deficiencies, firms would have some latitude in disclosure by the way they classify the ICWs (material weaknesses versus significant deficiencies). Thus, the inter-firm consistency of these self-reported classifications of control weaknesses is problematic. In addition to management’s discretion on disclosure, internal control reports may be subject to accidental errors, or be carelessly prepared due to a lack of management expertise and knowledge about internal control (Whittington and Pany, 2007, Arens et al., 2005). For all these reasons, internal control reporting profiled by firms alone may not credibly inform investors of whether an internal control system is in place and operating effectively. Nevertheless, attestation of internal control by independent auditors may provide investors with more assurance in this regard.

In other words, ICAR may increase the transparency and credibility of both internal control information and financial reporting, contributing to building investors’ confidence not only in financial reporting, but also in the fundamental mechanisms and controls underlying the process of financial reporting production and business operations. In the absence of this monitoring mechanism, the outside investors may expect a higher level of business risks from insiders (management or controlling shareholders) and thus take them into account when considering their investments. To
address the agency problem, information asymmetry and to reduce the cost of capital, insiders will have the incentives to voluntarily introduce a bonding mechanism, namely ICAR, so as to facilitate implementation of contracts. Arguably, voluntary adoption of ICAR contributes to reducing the information credibility gap and facilitating contracts.

**Compensating loss of control and transmitting signals**

According to loss of control theory, a firm is subject to the problem of loss of control, when it grows larger and begins to take a multi-level hierarchic structure (Abdel-Khalik, 1993, Downs, 1967, Evans, 1975). While internal control to some degree can remedy the problem of loss of control within an organization (Williamson and Ouchi, 1981), several issues may also lead to the failure of internal control (Armour and Teece, 1978, Mautz et al., 1980, Maher, 1981, Williamson, 1975, Williamson and Ouchi, 1981, Perrow, 1981). As a firm develops faster, experiences structure-reorganization, or has more complex transactions, its internal control system will be possibly become outgrown and out-of-date. In addition, inadequate investment in an internal control system may worse the problem. Several recent internal control empirical studies also document that firms’ operating characteristics are significantly associated with the quality of their internal control systems, such as firm size, financial health, rapid growth and transaction complexity. For example, Doyle et al. (2007a) found that it is more likely that material internal control weaknesses (ICW) exist in firms which tend to be smaller, younger, financially weaker, more complex, growing rapidly or undergoing a restructure. Ashbaugh-Skaife et al. (2007) documents that firms disclosing internal control deficiencies have more complex operations, recent organizational changes, greater accounting risks and have fewer resources available for internal control. These firm characteristics are referred to as the internal control risk factors within the organization,
which in turn will influence a firm’s decision on voluntary assurance of internal control. When internal control risks are higher, a firm will have more incentive to augment internal controls and inform outsiders that their internal control system is in place and operates effectively through a more credible system of ICAR. The potential loss of control and failure of an internal control system necessitates the need for a monitoring system from outside the organization, in the form of ICAR by external auditors. In addition, voluntary external auditor engagement is one of ways that firms often deploy to signal their superior quality in capital markets (Bandyopadhyay et al., 2007), thus reducing the information asymmetry (Spence, 1973). On the other hand, higher risks imply more potential occurrence of internal control weaknesses, which may discourage a firm from undertaking voluntary ICAR to acknowledge its responsibility for internal control. Arguably, voluntary adoption of ICAR contributes to a compensating loss of control and transferring signals to outsiders.

**Achieving legitimacy under institutional influences**

Although the role of assurance is primarily explained by firm-level economic incentives from the agency problem and information asymmetry, the contracting environment that varies across regions and countries will in turn influence the contracts in place and the demand for voluntary ICAR. Assurance is a critical monitoring mechanism that generally functions to imbue legitimacy and signal the presence of higher quality corporate governance to the market. Oliver (1991) adds that seeking social legitimacy, eventually leads to economic gains. Arguably, issues such as legal protections and the level of economic and financial development, affect the costs and benefits that firms incur to bond them to improved governance, which in turn will influence a firm’s incentive to adopt better governance mechanisms (Fan and Wong 2005; Doidge et al.
Theoretically, there exist two competing views regarding the relationship between institutions and firms’ incentives to adopt better governance mechanisms based on cross-country analysis: the complement view and the substitution view (Doidge et al., 2007, Durnev and Kim, 2005).

The complement viewpoint argues and documents that the payoffs of a firm’s private investment in better governance mechanisms are lower in countries with weak investor protection or poor economic and financial development (Doidge et al., 2007). This is related to three possible reasons. First, the governance mechanisms may not be available due to prohibitively expensive costs. Second, the governance mechanisms may lack credibility because of the lack of transparency by institutions (Fan and Wong, 2005). Third, even when the governance mechanisms are affordable and credible, firms will not necessarily obtain enough funding from the underdeveloped markets. This implies that weak institutions limit a firm’s incentive to adopt better governance mechanisms. However, in the countries with strong investor protection and a well-developed economy and financial markets, firms are more likely to invest in better corporate governance to access funding on better terms.

Alternatively, the substitution view contends and finds that a firm’s governance mechanisms play a substitute effect for absent or weak country-level institutions that constrain the behavior of contracting parties. Conversely, in countries with a stronger legal system and other institutions enhancing good governance, a firm has less to gain from a better governance because existing country-level institutions impose constraints on contracting parties and may therefore provide sufficient protection (Durnev and Kim, 2005). It is well recognized that investor protection is crucial to develop a strong capital market and formal legal and other institutions are effective mechanisms to offer this
protection (La Porta et al., 2000). However, the formal legal and other institutions are not the only means. It is argued that when the formal institutions are weak, then to attract investment, firms may have incentives to develop functional alternatives to assure investors’ interests are protected, and as such, entrepreneurs may voluntarily “bond” themselves (Cai, 2007).

Although mixed arguments exist, the common point shared in both views is that institutions have an impact on firms’ decisions on adopting better governance mechanisms, including voluntary ICAR. Arguably, this is particularly the case in China. As discussed in Chapter 2, the market institutions in China are far from sophisticated and have developed unevenly across regions, featuring strong government intervention and weak legal enforcement. Extending these two competing views, it is assumed that that a firm’s selection of voluntary ICAR is possibly a cost-benefit response to the uneven regional-level institutions in China.

4.4 Determinants of Voluntary ICAR

Determinants of voluntary ICAR applied in this study are divided into two groups: firm-level economic incentives and regional-level institutional features. Drawing on recent international accounting and finance literature that examined the choice of auditing and assurance practices on a cross-country basis (Simnett et al., 2009, Durnev and Kim, 2005, Doidge et al., 2007, Francis et al., 2011, Kolk and Perego, 2010, Choi and Wong, 2007, Fan and Wong, 2005), it is posited that both firm-level economic incentives and regional-level institutional features will be significant determinants of the demand of voluntary ICAR in a focused-country study within the Chinese context.
Firm-level economic incentives are further modeled as a function of an ownership structure, corporate governance mechanisms and firm operating characteristics. A similar line of reasoning and empirical explanation can be derived from the accounting studies that examined the determinants of voluntary internal control reporting (Bronson et al., 2006, Deumes and Knechel, 2008, Michelon et al., 2009) and internal control weaknesses disclosure (Naiker and Sharma, 2009, Bryan and Lilien, 2005, Ge and McVay, 2005, Krishnan, 2005, Ashbaugh-Skaife et al., 2007, Goh, 2007, Doyle et al., 2007a, Doyle et al., 2007b, Goh, 2009).

The choice of the selected determinants for this study takes into account findings from prior research, as well as constraints concerning the availability of empirical data. The following sections have a focus on prior literature on determinants of voluntary assurance and determinants of internal control reporting and internal control weaknesses disclosure. Each of these determinants will be discussed and testable hypotheses developed in turn.

**Firm-level economic incentives**

**Ownership structure**

Ownership structure has been widely used as a proxy for the agency costs that arise from agency conflicts and information asymmetry. A firm’s ownership structure affects its level of agency costs. In light of agency theory, prior studies have documented that agency costs of equity and agency costs of debt are critical to a voluntary auditing decision (Chow, 1982, Abdel-Khalik, 1993, Blackwell et al., 1998, Carey et al., 2000); auditor selection (Francis and Wilson, 1988, Johnson and Lys, 1990, DeFond, 1992, Piot, 2001); and adoption of voluntary internal control reporting (Bronson et al., 2006,
Deumes and Knechel, 2008, Michelon et al., 2009). It is found that the higher of the agency costs, the more likely firms adopt voluntary assurance. Consistent with prior research, it is predicted firms with serious information and agency problems are more likely to adopt voluntary ICAR to enhance investors’ confidence in the credibility of internal control information disclosed and concomitantly to increase their trust in the level of a firm’s commitment to internal control.

**H1:** *Ceteris paribus,* the adoption of voluntary ICAR is positively associated with the degree of information and agency problems embedded in a firm’s ownership structure.

For the following analysis, this study uses five proxies for ownership structure: (1) cash flow rights; (2) divergence between voting rights and cash flow rights; (3) floating ratio; (4) institutional shareholding; and (5) leverage.

- **Cash flow rights, and Divergence between voting rights and cash flow rights**

Under a concentrated ownership structure, cash flow rights of the ultimate controlling shareholder are normally used to measure the degree of ownership, while voting rights of the ultimate controlling shareholder are used to proxy for the degree of control. In particular, the share of cash flow rights held by a large shareholder has a positive incentive effect, while the share of control rights held by a large shareholder has a negative entrenchment effect (Morck *et al.* 1988). Prior research on voluntary assurance (Chow, 1982, Abdel-Khalik, 1993, Blackwell *et al*., 1998, Carey *et al*., 2000) is dominated in the context with a diversified ownership structure and strong institutions of good investor protection. Nevertheless, this is not a universal case. It is found that except in those countries with better investor protection, public listed companies around the world are more likely to feature concentrated ownership, particularly in the
emerging countries with a weak legal environment (La Porta et al., 1999). A highly concentrated ownership with a large divergence between cash flow rights and control rights is more pronounced in the developing world, especially among the emerging countries in East Asia (La Porta et al., 1999, La Porta et al., 1998, Claessens et al., 2000), where the dominating agency conflicts exist between the controlling and the minority shareholders, rather than the unaccountable managers and outside shareholders (Claessens et al. 2002; Fan and Wong 2005).

Very few studies examine the demand for voluntary assurance and auditor selection under the concentrated ownership structure, in which agency problems arise from the entrenchment of the controlling shareholders. Fan and Wong (2005) document that firms with severe agency problems embedded in a firm with concentrated ownership (proxied by the entrenchment problem captured with controlling shareholders’ voting rights and the incentive effect measured by controlling shareholders’ cash flow rights) are more likely to appoint Big 5 auditors in East Asian countries. Wang and Zhou (2006) find a positive relationship in China between the selection of Big 4 and the higher agency costs of equity (measured with the voting rights and the wedge between voting rights and cash flow rights pertaining to the ultimate controlling shareholder).

As discussed in Chapter 2, Chinese listed companies are controlled by pyramids with a controlling owner sitting on the apex. Under the concentrated ownership structure, the agency conflicts primarily arise from the concerns of the entrenchment effect by the controlling shareholders. The controlling shareholders may inefficiently redistribute wealth from other investors (minority shareholders and creditors) to themselves through “tunneling” behaviors (Shleifer and Vishny, 1997), namely asset appropriation by large shareholders, which legally or illegally transfer assets and profits to themselves (Johnson
et al., 2000a). A high level of corporate control creates an entrenchment problem that allows controlling owners’ self-dealings to go unchallenged internally by the board of directors, or externally by the takeover market. In addition, with a high level of ownership concentration, firms tend to disclose less information because of their expropriation and rent-seeking incentives. The controlling shareholders under this circumstance have incentives to keep corporate information private to derive the opaqueness gains (Fan and Wong, 2002).

Via the use of pyramidal structures, control rights of the controlling shareholders often exceed their cash-flow rights (e.g., La Porta, Lo’pez-de-Silanes, and Shleifer, 1999; Claessens, Djankov, and Lang, 2000; Laeven and Levine, 2008, 2009; Gompers, Ishii, and Metrick, 2010). In such firms, the controlling shareholders have the ability to divert corporate wealth for private benefits without bearing the full financial consequences and, therefore, have strong incentives to engage in tunneling and other moral hazard activities (Shleifer and Vishny, 1997; Johnson, La Porta, Lo’pez-de-Silanes, and Shleifer, 2000). Bebchuk et al. (2000) suggest that the separation of control from ownership can create large agency costs, which are an order of magnitude larger than the costs associated with controlling shareholders who have majority cash-flow stakes in their firms. This entrenchment problem can come at a price to the controlling owners and their firms: investors anticipate the problem; hence, they discount the share prices and raise the difficulty for the firms to issue equities in the future (Claessens et al. 2002; La Porta et al. 2002; Pittman and Fortin 2004). In order to hold investors, the controlling shareholders may voluntarily impose the governance constraint of adopting ICAR. When controlling shareholders’ control rights exceed their ownership rights, they have an incentive to expropriate firm resources, as their private benefits exceed their costs. Furthermore, expropriation is more likely when the disparity between control and
ownership is large and when their position is secure (Joh, 2003).

In addition to the entrenchment effect, concentrated ownership also has an incentive effect (Shleifer and Vishny 1997). Because of a greater cash-flow stake in the firm, a controlling shareholder diverts less and will thus have more incentive to practise better governance, to facilitate the transactions among the contracting parties (Jensen and Meckling 1976). The concentrated ownership also provides the controlling shareholders with enough power and control to do so. In a similar vein, the positive relationship between higher concentration of cash flow rights and the practice of better governance is predicted and documented by Durnev and Kim (2005).

Given the incentive effect, it is also reasonable to expect the controlling shareholders in Chinese listed firms to have a strong incentive to purchase ICAR, particularly after the non-tradable share (NTS) reform. First, the NTS reform is expected to reduce the controlling shareholder’s incentive for tunneling in firms because they can now sell their shares at market price after the lock-up period expires, which effectively ties the share price closer to the wealth of the controlling shareholder. A number of recent studies (Liao et al., 2008, Wang and Yao, 2011) have confirmed that the tunneling activities of controlling shareholders decreased significantly after the NTS reform. So now the controlling shareholder cares more about the share price and possible punishment from the capital market (Campello et al., 2014, Liu and Tian, 2012), so as to focus on the improvement of long-term business performance. Second, since controlling shareholders are unable to engage in short-run speculation and their holdings are highly concentrated, they are likely to have a stronger incentive and ability to exercise effective corporate governance (Grossman and Hart, 1980). The literature on corporate governance emphasizes that effective governance can also be exerted from within the firm via large owners, as is the case in the German model (Mayer, 1994).
As Chinese listed firms feature a pyramid-like concentrated ownership, in the following analysis voting rights of the ultimate controlling shareholder is used as a proxy for the degree of control, and cash flow rights as a measure of the degree of ownership. Bebchuk et al. (2000) suggest that the separation of control from ownership can create large agency costs, which are an order of magnitude larger than the costs associated with controlling shareholders who have a majority cash-flow stakes in their firms. Thus, to disentangle entrenchment and incentive effects, this study measures the divergence between the voting rights and cash flow rights as a surrogate for the agency costs of equity. The larger difference suggests higher agency costs and an entrenchment effect. The cash flow rights are used to proxy for incentive effect.

Therefore, consistent with prior research, a positive relation between the cash flow rights and the demand for voluntary ICAR is expected, and a positive association is predicted for the correlation between the divergence between voting rights and cash flow rights and the demand for voluntary ICAR.

**H1a: Ceteris paribus**, the adoption of voluntary ICAR is positively related to the cash flow rights of the ultimate controlling shareholder.

**H1b: Ceteris paribus**, the adoption of voluntary ICAR is positively related to the degree of the disparity of control and ownership pertaining to the ultimate controlling shareholder.

- **Floating ratio**

Floating ratio, the proportion of shares that are tradable, captures the level of conflicts between non-tradable and tradable shareholders, which are a special representation of the conflicts between the controlling shareholders and the minority shareholders in
China. As a problematic legacy of the early Chinese experiment of shareholding reform, A-shares of Chinese listed companies were classified as tradable and non-tradable shares. This is referred to as a split-stock. This distorted arrangement directly resulted in interest conflicts between non-tradable shareholders and tradable shareholders. This in turn exaggerated the agency conflicts between the controlling shareholders and the minority shareholders, as the majority of shares were non-tradable shares, which were in the hands of the controlling shareholders. Accompanying the split-stocks were the extensive insider trading and insider control and the entrenchment behaviors of non-tradable controlling shareholders and the speculative transactions of small and medium tradable shareholders (Wu, 2004). To address the negotiability problem, the CSRC launched the non-tradable share (NTS) reform in April 2005. With the completion of the NTS reform, the interests of the controlling shareholders and the minority shareholders were more likely to be aligned, as the shares in the hands of the controlling shareholders become tradable. Additionally the controlling shareholders become much prone to capital market influence and thus may have more incentives to practise better governance. Because the timetable for firms to implement NTS reform was different, and the full negotiability of shares was conditioned and required to be phased in over a period of time, floating ratio varies for firms. For the above reason, it is predicted that firms with higher floating ratio are more likely to adopt voluntary ICAR.

**H1c:** *Ceteris paribus*, the adoption of voluntary ICAR is positively associated with a firm’s floating ratio.

- **Institutional shareholding**

Institutional investors, a specific type of block-holders, are generally regarded as playing an active monitoring role, because of their larger voting rights (Roberts and Milgrom, 1992) and their privileged access to information on the firms’ operation (Schadewitz and
Blevins, 1998). In a study examining voluntary management reports on internal control in the US, Bronson et al. (2006) found a positive relationship between institutional shareholding and the issuance of voluntary internal control reports.

As discussed in Chapter 2, institutional investors in China have witnessed rapid and vigorous development since 2000 and increasingly taken more stakes in listed companies. In particular, with entry into the WTO, foreign institutions were allowed to invest in the Chinese capital market as a Qualified Foreign Institutional Investor (QFII). Having a greater cash-flow stake in the firm, institutional investors will have more incentive to play a more active monitoring role, requiring firms to invest in internal control. In addition, it is accepted that institutional investors can reduce the information asymmetry and help increase the voice of minority investors in listed firms’ corporate decisions. In particular, mutual funds can play an important governance role in countries with poor minority investor protection such as China, as mutual funds can mitigate free-rider problems by pooling diffused minority shareholders (Yang et al., 2011a). Thus, it is expected that institutional investors will motivate firms to adopt voluntary ICAR.

**H1d: Ceteris paribus**, the adoption of voluntary ICAR is positively associated with the level of a firm’s institutional shareholding.

- **Leverage**

The last proxy for ownership structure deals with the level of financial leverage. Whereas the above proxies are related to information and agency problems between controlling shareholders and minority shareholders, financial leverage is related to agency problems between shareholders and debt holders. The seminal agency research argues that agency costs of debt are positively associated with the voluntary adoption of financial audits. A higher level of financial leverage increases agency conflicts, as shareholders have greater incentives to transfer wealth from the debt holders (Jensen and
Meckling, 1976) and thus increases the likelihood that the organization will demand an audit. Chow (1982) examines why US listed firms voluntarily had independent audits in the 1920s before such audits were required by federal securities laws. He deploys leverage and the number of accounting-based debt covenants as the proxy of agency costs and found that leverage and accounting-based debt covenants are significant explanatory factors for the demand for auditing. Blackwell et al. (1998) investigated the association between the cost of debt and voluntary audit using private firms in the US and document that firms undertaking voluntary auditing pay lower interest rates than firms who do not, which suggests that the level of debt is a major factor in determining the voluntary audit. Carey et al. (2000) investigate the demand for voluntary external auditing and internal auditing by family businesses in Australia and lend support to the positive relation between firm debt and voluntary demand for external auditing. In a similar vein, Deumes and Knechel (2008) investigated managers’ economic incentives for voluntarily reporting on risk management and internal control using a sample of publicly traded firms in the Netherlands in the late 1990s, and they found a positive relationship between the extent of voluntary internal control disclosure and financial leverage.

A higher degree of financial leverage will lead to the increase of interest conflicts, as the shareholders may transfer wealth from debt holders by taking excessive risks (Jensen and Meckling 1976). This is particularly the case in Chinese listed firms, where control rights of the dominated shareholders far exceed their cash flow rights through a pyramid structure (La Porta et al., 1999, Claessens et al., 2000, Laeven and Levine, 2009). The controlling shareholders with excess control rights have the ability to transfer wealth for private benefit without bearing the full financial consequences and therefore have strong motives to engage in tunneling and other moral hazard activities (Shleifer and Vishny,
1997, Johnson et al., 2000b). Many of these activities increase the default risks. Liu and Tian (2012) document that the controlling shareholders of Chinese listed firms borrow excess debt for tunneling through inter-governance loans and related party transactions, instead of investing in positive net present value (NPV) projects. In anticipation of the credit risks, the potential debt holders would allow for these expected losses in pricing the credit (either bonds or bank loans) (Myers, 1977, Jensen and Meckling, 1976). If shareholders contract to limit their own ability to transfer wealth from debt holders (bondholders or banks), they would receive a higher price for the bonds (Myers, 1977, Jensen and Meckling, 1976) and cheaper loans (Blackwell et al., 1998), and thus creates the incentives for voluntary auditing. Empirical evidence indicates a positive association between level of debt and demand for external auditing (Blackwell et al., 1998, Carey et al., 2000, Chow, 1982).

In China, bank loans are the dominant form of credit due to the lack of an efficient and integrated corporate bond market (Yang et al., 2011a) and China’s banking system is still dominated by state owned banks (Berger et al., 2009, Firth et al., 2008). Researcher suggests banks provide effective monitoring to borrowers and thus enhance the latter’s firm value. Bank monitoring plays an important role in controlling shareholders’ tunneling activities, especially in firms with high excess control rights (Lin et al., 2011, Lin et al., 2012). Consequently, it is expected that firms with higher level of bank loans are more likely to adopt voluntary ICAR.

**H1e: Ceteris paribus**, the adoption of voluntary ICAR is positively associated with the level of debt in a firm’s capital structure.

**Corporate governance mechanisms**

According to agency theory, corporate governance mechanisms reduce agency problems
between the principal and the agent (Jensen and Meckling, 1976). To address agency problem and information asymmetry, various monitoring/bonding governance mechanisms are designed and built up. ICAR is a costly mechanism and the cost may vary across firms. Although voluntary ICAR contributes to reducing the efficiency loss of information asymmetry and agency problems, the adoption of voluntary assurance is a cost-benefit response.

Theoretically, there exist two possible relationships between internal control monitoring mechanisms (internal control reporting and internal control assurance) and other corporate governance mechanisms in place. One normal view regards that the adoption of voluntary assurance is a cost-effective response to agency costs (Watts and Zimmerman, 1976, DeAngelo, 1981). This is in the same vein of the proposition by Williamson (1983), who argues a substituted relationship among various governance mechanisms. Unlike Williamson (1983) and Watts and Zimmerman (1976), Roe (2005) hypothesizes that the interaction of different governance mechanisms is either complementary or substituted.

Empirically, prior research on voluntary internal control reporting and internal control weaknesses disclosure also provides mixed evidence. One branch of the research finds that the better corporate governance, such as a diligent and independent board, a high quality audit committee, a high quality external auditor (i.e., Big 4 or industry leading auditor), CFO with financial accounting experience can significantly promote the probability of internal control reporting and internal control weaknesses disclosure (Bryan and Lilien, 2005, Ge and McVay, 2005, Krishnan, 2005, Ashbaugh-Skaife et al., 2007, Goh, 2007, Goh, 2009, Doyle et al., 2007a, Doyle et al., 2007b, Naiker and Sharma, 2009, Stephens, 2008). Conversely, another branch of research documents that internal control disclosure and its level of disclosure is a substitute for corporate governance
mechanisms in place, such as the proportion of independent directors sitting on the board and the proportion of accounting expert members of the audit committee (Michelon et al., 2009).

Following this line, it is predicted that the adoption of voluntary ICAR is significantly interactive with a firm’s corporate governance mechanisms in place.

**H2:** *Ceteris paribus*, the adoption of voluntary ICAR is significantly associated with a firm’s corporate governance mechanisms in place.

Taking account of findings from prior research, as well as constraints concerning the availability of empirical data, this study uses four proxies for corporative governance mechanisms in place: (1) cross-listing status; (2) external auditor type; (3) the board of directors; and (4) the board of supervisors. The relationships between these corporative governance mechanisms and voluntary ICAR are developed as follows.

- **Cross-listing status**

Listing status has been considered as an alternative corporate governance mechanism by previous research examining voluntary internal control disclosure (Michelon et al., 2009, Deumes and Knechel, 2008). As foreign exchanges may have stricter requirements regarding ICAR, particularly listing in the US due to the SOX 2002, cross-listing in the US may influence a firm’s decision on voluntary ICAR in the Chinese capital market. To satisfy listing rules in the US, cross-listing firms may be more conscious of internal control and document compliance with internal control criteria, which implies a relative higher quality of internal control. On one hand, cross-listing firms are more likely to adopt voluntary ICAR to signal its high quality. On the other hand, crossing-listing plays a stronger monitoring role on internal control which in turn makes voluntary ICAR less
necessary. Based on the mixed argument, no direction is predicted between cross-listing and the adoption of voluntary ICAR.

**H2a:** *Ceteris paribus,* the adoption of voluntary ICAR is significantly associated with a firm’s cross-listing status in the US.

- **External auditor type**

External independent auditors play an important oversight role in corporate governance. However, the quality of external auditors is differentiated. Prior research on internal control weaknesses suggest that the discovery and the disclosure of internal control weaknesses is positively associated with the appointment of the Big 6 dominating audit suppliers (Ge and McVay, 2005, Ashbaugh-Skaife et al., 2007, Bedard et al., 2009) and industry leading auditors (Stephens, 2008). However, Francis and Wilson (1988) and DeFond (1992) respectively documented that high quality independent audits may complement or substitute for other monitoring mechanisms. Extending this argument, on one hand, voluntary ICAR may be less necessary if the financial statements are audited by a high quality external auditor, as the high quality financial statement audit already includes systematic examination and review of internal controls. On the other hand, the independent review of internal control by a high quality external auditor may increase outsiders’ perception of the credibility of internal control information, increasing the value of voluntary ICAR. Based on the mixed argument, no direction is predicted.

**H2b:** *Ceteris paribus,* the adoption of voluntary ICAR is significantly associated with a firm’s external auditor type.
Board of directors and board of supervisors

According to the Chinese enterprise internal control regulatory framework discussed in Chapter 2, the board of directors (BoD) is responsible for the adequacy and effectiveness of a firm’s internal control system; as the monitoring role player, the board of supervisors (BoS) has the duty to review and express their opinions on annual internal control reports. As a result, the effectiveness of the BoD and the BoS is predicted to be positively associated with the occurrence of voluntary ICAR. Firms with a more effective BoD and BoS are more likely to undertake voluntary ICAR to acknowledge their responsibility. Alternatively, more effective BoD and BoS are more capable to establish and maintain a sound internal control system and internal control information provided by firms becomes more credible, which makes voluntary ICAR less necessary. Based on the mixed argument, no direction is predicted.

**H2c**: *Ceteris paribus*, the adoption of voluntary ICAR is significantly associated with the efficacy of the BoD.

**H2d**: *Ceteris paribus*, the adoption of voluntary ICAR is significantly associated with the efficacy of the BoS.

**Firm operating characteristics**

In light of loss of control theory and signal theory, the potential loss and failure of control necessitates firms to augment internal control and inform outsiders that their internal control system is in place and operates effectively through a more credible ICAR from external auditors. The potential loss and failure of internal control arises when a firm experiences operational changes, has complex transactions and lacks enough investment in internal control (Ashbaugh-Skaife et al., 2007, Doyle et al., 2007a, Leone, 2007).
These firm operating characteristics, such as firm size, financial health, rapid growth and accounting risks, are documented to be significantly associated with the existence and disclosure of internal control weaknesses (Bronson et al., 2006, Ashbaugh-Skaife et al., 2007, Doyle et al., 2007a, Ogneva et al., 2007, Deumes and Knechel, 2008). These firm operating characteristics, referred as the internal control risk factors within the organization, in turn will influence a firm’s decision on voluntary assurance of internal control. Thus, it is expected that the adoption of voluntary ICAR is significantly associated with a firm’s operating characteristics.

**H3:** *Ceteris paribus*, the adoption of voluntary ICAR is significantly associated with a firm’s operating characteristics.

Drawing upon findings from previous research, this study captures five firm operating characteristics, including (1) firm size; (2) financial health; (3) rapid growth; (4) accounting risks represented by the level of inventories and receivables; and (5) audit opinion. The relationships between these firm operating characteristics and voluntary ICAR are developed as follows.

- **Firm size**

Firm size can proxy for many influences (Ball and Foster, 1982). Firm size has consistently been found to be a driver of voluntary assurance, and several studies document a significantly positive relation between firm size and the demand for voluntary assurance (Chow, 1982, Abdel-Khalik, 1993, Carey et al., 2000, Francis et al., 2011). Firm size is directly related to the complexity of the firm. Larger firms have more complex operating, financing and investing activities, and therefore have a greater need for an external audit/review to facilitate monitoring by both external and internal parties. From a loss of control theory perspective, it is possibly much harder to control larger
firms due to problems of moral hazard internal to these firms (Williamson, 1975, Williamson and Ouchi, 1981, Abdel-Khalik, 1993, Williamson, 1967). In addition, larger firms tend to be more complex and involved in a large number and variety of transactions, which can probably result in the loss of control and the failure of internal control. These attributes increase internal control risk and would make it more likely for firms to conduct ICAR to address the absence and failure of internal control. More importantly, larger firms may be more able to do so, because they have more resources to invest in internal control system, to make sure the appropriate internal controls are in place and operating effectively. Additionally, a larger firm is more likely to enjoy the economy of scale when investing in ICAR. In light of loss of control theory, Abdel-Khalik (1993) argues the demand for assurance is an effective within-company control mechanism to compensate the loss of control induced by organizational design and the resultant loss of observability of subordinate behavior. Consistent with his “organizational design” hypothesis, larger companies are found more likely to voluntarily demand assurance. Similarly, Carey et al. (2000) also find that voluntary demand for assurance is associated with a larger firm’s potential loss-of-control when examining family business in Australia. Thus, it is expected there is a positive association between firm size and the adoption of voluntary ICAR.

**H3a: Ceteris paribus**, the adoption of voluntary ICAR is positively associated with firm size.

- **Financial health**

Financial health is directly related with a firm’s internal control quality. Poorly performing firms simply may not be able to adequately invest time and/or money in proper controls, while good performing firms may have more available time and
resources to invest in developing and implementing internal control system. Krishnan (2005) found that the existence of a loss is positively related to reporting an internal control problem in audit-change firms. Alternatively, a well performing firm implies a lower internal control risk and outsiders may be thus less concerned about the internal controls in these firms (Deumes and Knechel, 2008), which make voluntary ICAR less necessary. Consequently, no direction is predicted between firms’ financial health and the adoption for voluntary ICAR.

**H3b:** *Ceteris paribus*, the adoption of voluntary ICAR is significantly associated with a firm’s financial health.

- **Firm’s rapid growth**

A quickly growing firm may outgrow internal controls it has in place (Ashbaugh-Skaife et al., 2007) and may require time to establish new procedures. For example, quickly growing firms are more likely to have systems that fail to keep pace with increases in customer demand or entry into new markets. Furthermore, growing firms are more likely to encounter staffing issues as the scope and complexity of their operations expand. This increases internal control risk and would drive firms to undertake voluntary ICAR. On the other hand, a quickly growing firm has more potential for internal control weaknesses, which may discourage a firm from undertaking voluntary ICAR to acknowledge its responsibility on internal control.

**H3c:** *Ceteris paribus*, the adoption of voluntary ICAR is significantly associated with a firm’s rapid growth.

- **Accounting risks – Level of inventory and receivables**

A high level of inventory and receivables may also increase a firm’s internal control risk,
as this may expose firms to greater accounting risks. Firms with more inventory may face increased internal control risks related to the proper measurement and recording of inventory, misreporting due to theft, and timely recognition of inventory obsolescence. And this is same case with the recognition, measurement and reporting of high level of receivables. Prior studies also indicate that restatements are most often related to inventories (Simunic, 1980) and receivables (Simunic, 1980, Palmrose and Scholz, 2004). Again, this may increase or decrease the likelihood of voluntary assurance. Thus a significant association is predicted between accounting risks and the adoption of voluntary ICAR.

**H3d: Ceteris paribus**, the adoption of voluntary ICAR is significantly associated with a firm’s accounting risks represented in the level of inventory and receivables.

- **Audit opinion**

Unqualified audit opinions on financial statements are generally used by researchers to represent higher quality firms (Clarkson et al., 1994, Jog and McConomy, 2003, Fang et al., 2009). If a firm receives an unqualified opinion, it is more likely for the firm to undertake voluntary ICAR to signal its higher quality. Alternatively, unqualified opinion implies lower internal control risk, which makes ICAR less necessary. Thus, no direction is predicted.

**H3e: Ceteris paribus**, the adoption of voluntary ICAR is significantly associated with a firm’s unqualified audit opinion.
Regional-level institutional features

A recent line of international auditing research examining the auditor’s governance function in cross-country comparisons argues that the national legal environment and its quality affect the provision of auditing and assurance services (Choi and Wong, 2007, Fan and Wong, 2005). Two competing predictions from this stream of literature can be posited. On the one hand, Ball (2001) suggests that in countries without a strong legal infrastructure, the role of accounting and auditing in contracting is minimal and other institutional mechanisms become more important. By extension, the role of assurance services could be hindered in a country with a weak legal environment, due to a lack of credibility surrounding the resulting information. On the other hand, findings by Durnev and Kim (2005) and Choi and Wong (2007) indicate that governance mechanisms, such as having an independent audit or assurance service, can serve as a substitute for absent or weak country-level institutions that constrain the behavior of contracting parties. The argument emerging from these studies is that the voluntary demand for auditing is greater in countries with weaker legal regimes because auditing serves as a substitute for the absence of other institutions that facilitate private contracting.

Recent studies examining cross-country differences of the assurance services on sustainability reports (Kolk and Perego 2009; Simnett et al. 2009) and those of the assurance services on voluntary accounting information (Francis et al., 2011), have lent support to the role played by the institutional environment at country level. Simnett et al. (2009) seek to identify the factors associated with the decision of voluntarily adoption of assurance on sustainability reports by using a sample of 2113 companies from 31 countries that produced sustainability reports during the period of 2002 to 2004. They document that the country-related factor (legal environment) is a significant explanatory
factor for the purchase of voluntary assurance. Contrary to the predicted substitution role, they find that companies in the stronger legal system are more likely to adopt voluntary assurance. In a very similar study, Kolk and Perego (2010) focus on a set of country-level institutional factors to examine the demand drivers of voluntary assurance on sustainability reports among an international panel of 212 Fortune Global 250 companies for the years 1999, 2002 and 2005. They find that companies domiciled in countries with stakeholder-oriented environments and weaker governance enforcement regimes are more likely to adopt voluntary assurance on sustainability reports, lending support to the substitute role. Francis et al. (2011) examine the demand for voluntary auditing of private firms in 62 countries. They find that the country-level institutions are significant explanatory factors for voluntary assurance services. In particular, they document that the voluntary improvement of a firms’ governance mechanisms, i.e. voluntary assurance of financial reporting, serve as a substitute for weak institutions.

Therefore, this study builds on these two competing views and examine whether the unbalanced regional-level institutions in a single country basis, i.e. China, influence a firm’s selection for voluntary assurance of internal controls, if so and how. As discussed above, the institutional development across regions within China exhibits great divergence. The uneven development across regions mainly reflects the varied level of the regional markets liberalization, the degree of government intervention and the extent of legal enforcement. The more developed the regional markets, the lower the level of government intervention and the stronger legal enforcement.

In line of the above argument, two potential influences are proposed for the uneven regional institutions on a firm’s selection for voluntary ICAR: substitution or complement. On one hand, firms domiciled in the regions with weaker market-oriented
institutions are more likely to purchase ICAR to increase user confidence in the credibility of their internal control reports. The demand for assurance is expected to be lower in regions with stronger legal environments because there are more protection mechanisms in place in these environments (Choi and Wong, 2007). In addition, when litigation risks are sufficiently low in the presence of weak enforcement mechanisms, auditing services may become more affordable since the benefits of auditors of acquiescing to clients outweigh the potential penalties. On the other hand, firms located in the regions with strong market-support institutions are more likely to adopt voluntary ICAR. Market liberalization and less government intervention imply fierce competition. To survive and compete for resources, firms have to invest in good internal control to address the business risks in a timely manner, which creates the demand for voluntary ICAR. Meanwhile, the better legal enforcement facilitates the contract between contracting parties, contributing to a firm’s easy access to resources and on better terms, which in turn justifies the investment in ICAR. However, firms domiciled in regions with poor institutions are reluctant to adopt voluntary ICAR. The regions with poor institutions are disadvantaged in the regional competition for resource across China. Based on the mixed argument, this study argues that firms’ selection for voluntary ICAR is possibly a cost-benefit response to the unbalanced regional-level institutions in China. No direction is predicted.

**H4: Ceteris paribus**, the adoption of voluntary ICAR is significantly associated with the quality of regional-level institutions under which a firm domiciles, proxied by regional marketization index.
Conceptual Schema

Figure 4.1 represents the conceptual framework and Figure 4.2 provides the conceptual schema which graphically illustrates the key relationships to be tested in this study.

As shown in Figure 4.1, drawing upon the theoretical perspectives of information economics, agency theory, loss of control theory and institutional theory, it is postulated in this study that the voluntary adoption of ICAR is associated with firm-level incentives and regional-level institutions. Three associations ($H1$, $H2$, and $H3$) are derived between three components of firm-level incentives (i.e., ownership structure, corporate governance mechanisms, and firm operating characteristics) and the voluntary adoption of ICAR. One association ($H4$) is expected between regional-level institutions and the voluntary adoption of ICAR. The individual hypotheses are further suggested between the identified key determinants and the voluntary adoption of ICAR ($H1a$ to $H1e$, $H2a$ to $H2d$, and $H3a$ to $H3e$). The specific relationships are illustrated in Figure 4.2.
Figure 4.1 Conceptual Framework: Determinants of Voluntary ICAR

Research Question

Determinants for voluntary internal control assurance

Theoretical perspectives

Firm-level Economic Incentives

Regional-level Institutions

Enhancing information credibility
Reducing agency costs
Compensating loss of control
Transferring signal
Achieving legitimacy

Determinants & Hypotheses

H1: Ownership structure
H2: CG mechanisms
H3: Firm operating characteristics
H4: Regional-level institutions
Figure 4.2 Conceptual Schema: Determinants of Voluntary ICAR

**Determinants**

**Ownership Structure (H1)**
- Cash flow rights (H1a)
- Variance between voting rights and cash flow rights (H1b)
- Floating Ratio (H1c)
- Institutional Shareholding (H1d)
- Leverage (H1e)

**Corporate Governance (H2)**
- Cross-listing Status (H2a)
- External Auditor Type (H2b)
- BoD (H2c)
- BoS (H2d)

**Firm Operating Characteristics (H3)**
- Firm Size (H3a)
- Financial Health (H3b)
- Rapid Growth (H3c)
- Level of Receivables & Inventories (H3d)
- Audit Opinion (H3e)

**Regional-Level Institutions (H4)**
- Marketization Index

Voluntary ICAR
4.5 Summary

This chapter formulates the conceptual framework and develops hypotheses related to the determinants of voluntary ICAR. Given the specific institutions in China, this study takes a social-economic perspective and utilizes multiple theories, namely information economics theory, agency theory, loss of control theory and institutional theory to strengthen the explanations. It is proposed that a firm’s decision on voluntary ICAR is the joint function of firm-level economic incentives and regional-level institutional features. As independent assurance is a costly mechanism, it can be argued that firms that adopt ICAR will be those for which the net organizational benefits are greater. ICAR confers several benefits: (1) enhancing credibility of internal control reports firm disclosed and reducing agency costs; (2) compensating potential loss of control and transfer signal; and (3) achieving legitimacy within uneven institutional environment. Based on the conceptual framework, the key determinants of voluntary ICAR are identified and hypotheses are developed accordingly.
CHAPTER 5
EFFECT OF VOLUNTARY ICAR ON
ACCRUAL QUALITY

5.1 Introduction

This chapter develops the argument of the effect of voluntary ICAR on accrual quality. Section 5.2 reviews prior research on the association between internal control quality (proxied by internal control weaknesses) and accrual quality and is followed by a review of previous literature on the measurement of accrual quality in section 5.3. Hypotheses are then developed in section 5.4. Section 5.5 provides summary of the chapter.

5.2 Internal Control Quality and Accrual Quality

One objective of internal control is to achieve reasonable assurance regarding the reliability of financial reporting (COSO, 1992). Thus, good internal control is expected to result in more reliable financial information through preventing and/or detecting errors or fraud that could result in a misstatement of the financial statements (Doyle et al., 2007a). It is also argued that ICAR is of benefit in improving internal control quality, either through increasing management’s consciousness of internal control, or through enhancing the audit effort on attestation (Bédard, 2006b).

As Dechow and Dichev (2002) discussed, the poor quality of accruals is associated with both the difficulty in estimating accrual accounts and managerial opportunism. Both of these roles have been investigated in the existing literature. The former refers to the unintentional errors occurring in accrual estimation because it is difficult to predict an uncertain future (e.g., longer operating cycles), or simply because there are insufficient
controls in place to detect errors, while the latter means that management could intentionally use “discretionary accruals” to bias accruals through earnings management. Therefore, a good internal control environment has the potential to reduce the risks of error or management opportunism (Bédard, 2006b).

Although the reliability of financial reporting is claimed to be a function of the effectiveness of a firm’s internal control (Kinney, 2000, Donaldson, 2005, PCAOB, 2004), the lack of internal control data has generally precluded an empirical investigation and thus the literature on accrual quality had been relatively silent on the matter of internal control over financial reporting (Doyle et al., 2007b). Since the enactment of SOX which provides direct internal control information, a number of studies (Ashbaugh-Skaife et al., 2008, Bédard, 2006a, Bédard, 2006b, Chan et al., 2007, Doyle et al., 2007b, Hogan and Wilkins, 2005) have respectively examined the relation between internal control quality (proxied by internal control weaknesses) and accrual quality under the US regulatory environment employing varying time periods, accruals quality proxies and types of deficiencies. Generally, these studies find consistent evidence that material internal control weaknesses are associated with lower accrual quality. In particular, an internal control problem is concluded as the root cause of the lower accruals quality (Ashbaugh-Skaife et al., 2008, Bédard, 2006b, Doyle et al., 2007b). This section focuses on the review of these studies and the main findings are summarized in Table 5.1.

Deploying the Dechow and Dichev (2002) model and the modified Jones model (Dechow et al., 1995), Hogan and Wilkins (2005) find no difference in the former accrual noise between internal control weaknesses firms and control firms, but only a modest difference in the latter absolute abnormal total accruals. Based on Hogan and Wilkins
(2005), researchers have conducted further research on the association between internal control quality and accrual quality, exclusively under the Section 302 or Section 404 regime of SOX. Bédard (2006a) investigated the association between internal control weaknesses and accrual quality under Section 302 regime of SOX between August 29, 2002 and November 15, 2004 by using the modified Jones model. The findings suggest that there is no difference in the absolute value of unexpected total accruals between firms with internal control deficiencies and in control firms in the two years prior to and post to the disclosure of internal control deficiencies. However, in the disclosure year, firms with internal control deficiencies exhibit larger absolute abnormal accruals relative to control firms. Conversely, Chan et al. (2007) document the relation under the requirement of Section 404 of SOX with the Jones model (1991). According to Chan et al. (2007), firms with material internal control weaknesses exhibit a mild increase in positive and absolute abnormal accruals relative to control firms. The results indicate that Section 404 of SOX has the potential benefit of reducing the opportunity of intentional and unintentional accounting errors, since the findings of ineffective internal controls by auditors under Section 404 may cause firms to improve their internal controls.

Further, Bedard (2006b) extends the investigation under both Section 302 and Section 404 internal control requirements of SOX. The findings suggest that the SOX Act on internal control requirements (both Section 302 and Section 404) resulted in an

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7 According to SOX in the US, there are two landmark sections: Section 302 and Section 404. Section 302, effective August 29, 2002, requires a firm’s CEO and CFO certify in periodic SEC filings about the effectiveness of their internal control based on their evaluation. In contrast, Section 404 not only mandates that annual reports filed with the SEC contain management’s assessment of the effectiveness of internal control over financial reporting as of the fiscal year-end, but also require the auditor of its financial statements to independently test this assessment and publicly report on control effectiveness (the latter effect for larger firms for fiscal year end ending on or after 15th November 2004). Thus, Section 404 is much stricter and costly relative to Section 302. Evidence from the United States on the effect of auditor involvement in assessing internal control over financial reporting. International Journal of Auditing, 13, 105-125.. Section 302 is more similar to regulations in other countries, in that reliance is placed on company management to perform controls assessment, without the independent auditor testing of controls.
improved earnings quality, although it is found that firms with internal control weaknesses under Section 302 exhibit a larger magnitude of unexpected accruals when comparing Section 302 and Section 404. In particular, for companies reporting effective internal control in their Section 404 reports, a decrease in the magnitude of unexpected accruals is found in the year of their first report. This result suggests that because of the Section 404 formal internal control assessment process, firms improved their internal control and/or auditors increased their audit effort, resulting in management booking smaller accruals for events and transactions occurring in that year.

Similarly, Doyle et al. (2007b) examine the association under both Section 302 and Section 404 using a sample of companies that disclosed material weaknesses in internal control over the financial reporting period from August 2002 to November 2005. They find that firms with material internal control weaknesses under Section 302 (versus those under Section 404) are more strongly associated with lower accrual quality compared to control firms. On average, material internal control weaknesses disclosed under Section 404 regime are not associated with lower accrual quality. However, when broken down into account-level versus company-level weaknesses, company-level Section 404 weaknesses are associated with poor accrual quality. Unlike Bédard (2006a, 2006b), Doyle et al. (2007b) focus on using the modified Dechow and Dichev (2002) model by McNichols (2002) and Francis et al. (2005b), to measure the extent of the accruals mapping into past, current and future cash flows. To validate the results, they also apply other common proxies for accrual quality: discretionary accruals (Jones, 1991); average accruals quality (Dechow and Dichev, 2002); historical restatements (Anderson and Yohn, 2002); and earnings persistence (Schipper and Vincent, 2003). For each of these measures, the results are robust.
All the five studies reviewed above are restricted to cross-sectional tests of difference in accrual quality between firms with internal control weaknesses and firms without these weaknesses. Accordingly, as in all cross-sectional designs, there are potential concerns of endogeneity, self-selection and correlated omitted variables, which limit the ability to draw a strong casual inference from the results. Doyle et al. (2007b) recognize the self-selection problem and deploy two methods to address it: the Heckman (1979) two stage approach and propensity score matching (LaLonde, 1986). However, they also indicate their limitation to infer causality between internal control problems and accrual quality.

Thus, taking account of these limitations of cross-sectional analysis, Ashbaugh-Skaife et al. (2008) investigated the effect of internal control deficiencies and their remediation on accrual quality through cross-sectional and intertemporal change tests. Their main contribution is to incorporate SOX Section 404 opinion into their research design as an instrument variable to control the endogeneity, self-selection and correlated omitted variables problems. As the Section 404 opinion is an unambiguous signal from an independent third-party about the effectiveness of a firm’s internal control, it can be used to identify the sequence of existence, improvement or deterioration of internal control to conduct within-firm and across-firm testing of the effects of changes in the effectiveness of internal controls. This can be done over time in ways that minimize competing explanations for observed differences in accrual quality. Thus their results provide stronger causal linkages between internal control weaknesses and accrual quality.

According to Ashbaugh-Skaife et al. (2008), the quality of internal control affects the quality of accruals. They find that firms reporting internal control deficiencies have lower quality accruals relative to firms not reporting internal control problems. It is also documented that internal control weaknesses are more likely to lead to unintentional
errors that add noise to accruals than intentional misstatements that bias earnings upward. Additionally, firms with remediation of previously reported internal control deficiencies exhibit an increase in accrual quality relative to firms that do not remediate their control problems. Finally, changes in accrual quality exhibit consistent with changes in internal control quality in successive years.
Table 5.1 Literature on the Association between Internal Control Quality and Accrual Quality

<table>
<thead>
<tr>
<th>Findings</th>
<th>Under Section 302</th>
<th>Under Section 404</th>
<th>Section 302 vs. Section 404</th>
<th>internal control problems are the root cause of the lower accrual quality</th>
<th>Regime</th>
<th>Accrual quality model</th>
<th>Control for problems of cross-sectional analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bédard 2006a</td>
<td>✓</td>
<td></td>
<td>N/A</td>
<td>Section 302</td>
<td>Modified Jones (1991) model</td>
<td></td>
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<tr>
<td>Chan et al. 2007</td>
<td></td>
<td>✓</td>
<td>N/A</td>
<td>Section 404</td>
<td>Jones (1991) model</td>
<td></td>
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</tr>
<tr>
<td>Bédard 2006b</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Section 302</td>
<td>Jones (1991) model</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Doyle et al. 2007 | ✓ | ✓ | ✓ | Section 302 | * Modified Dechow and Dichev (2002) model  
* Jones (1991) model  
* Historical restatements (Anderson & Yohn 2002)  
* Earnings persistence (Schipper & Vincent 2003)  
* Heckman (1979) two stage approach  
* Propensity score matching (Lalonde 1986)  
* Introduce Section 404 opinion as an instrument variable |
| Ashbaugh-Skaife et al. 2008 | ✓ | ✓ | N/A | Section 302 | * Modified Dechow and Dichev (2002) model  
* Modified Jones (1991) model |
5.3 Measurement of accrual quality

Accounting researchers have developed various models to measure accrual quality. There are two types of most commonly used models: discretionary accrual models and accrual estimation error model.

**Discretionary model specifications**

The discretionary models include the Healy model (Healy, 1985), the DeAngelo model (DeAngelo et al., 1996), the industry model (Dechow et al., 1995), the Jones model (Jones, 1991) and the Modified Jones model. Each model provides a different estimate of firm-specific non-discretionary accruals. The difference between total accruals and estimated non-discretionary accruals provides the researcher with an estimate of firm-specific discretionary accruals.

Although there are the five models, the ramifications of the study conducted by Dechow and Sloan (1995), who test both the specification and power of each of the five discretionary accrual models, suggests that a researcher must be careful when choosing the model. In this study, they find that (1) all models are well specified for random samples of all firm-years; (2) all models over-reject for high performers (commit Type I errors in that they find earnings management even when there is no earnings management); (3) all models perform low power tests for discretionary accruals of plausible magnitudes; and (4) the Modified Jones model produces the most powerful tests of earnings management (Lynch, 2008). Kothari et al. (2005) attempt to correct for the fact that all the five discretionary accrual models over reject for high-performance firms. The results indicate that the Jones model is the best specified model when firms
are matched on Return on Assets (ROA) and that it is vital to include an intercept in the use of Jones and Modified Jones models.

As the Jones model and the modified Jones model are best specified and produce more powerful tests, here the review is focusing on the specifications of these two discretionary accruals models. The Jones model and the modified Jones model are measured respectively in the following regression (1) and (2):

\[
\frac{TA_{it}}{ASSETS_{it-1}} = \alpha_0 + \alpha_1 \left( \frac{1}{ASSETS_{it-1}} \right) + \alpha_2 \frac{\Delta SALES_{it}}{ASSETS_{it-1}} + \alpha_3 \frac{PPE_{it}}{ASSETS_{it-1}} + \epsilon_{it} \quad \text{--- (1)}
\]

\[
\frac{TA_{it}}{ASSETS_{it-1}} = \alpha_0 + \alpha_1 \left( \frac{1}{ASSETS_{it-1}} \right) + \alpha_2 \frac{\Delta SALES_{it} - \Delta REV_{it}}{ASSETS_{it-1}} + \alpha_3 \frac{PPE_{it}}{ASSETS_{it-1}} + \epsilon_{it} \quad \text{--- (2)}
\]

where

- \( TA_{it} \) = total accruals from firm \( i \) in year \( t \);
- \( \Delta SALES_{it} \) = change in sales revenue for firm \( i \) from year \( t-1 \) to year \( t \);
- \( \Delta REV_{it} \) = change in receivable for firm \( i \) from year \( t-1 \) to year \( t \);
- \( PPE_{it} \) = gross property, plant and equipment for firm \( i \) at year \( t \); and
- \( \alpha_0, \alpha_1 \ldots \alpha_3 \) = firm specific estimates of parameters.

Discretionary accruals are defined as the regression residuals from the above equation. The larger the residuals are, the lower the accrual quality is.

**Accrual estimation error model specifications**

The accrual estimation error model is developed by Dechow and Dichev (2002). This measure defines the quality of accruals as the extent to which they map into past, current and future cash flows. According to Dechow and Dichev (2002), accrual quality is measured by estimating the following regression by industry and year:
\[
\Delta WC_{it} = \beta_0 + \beta_1 CFO_{it-1} + \beta_2 CFO_{it} + \beta_3 CFO_{it+1} + \epsilon_{it}
\]

where

\[
\Delta WC_{it} = \text{the change in working capital for firm } i \text{ in year } t;
\]

\[
CFO_{it-1} = \text{cash flow from operation for firm } i \text{ in year } t-1;
\]

\[
CFO_{it} = \text{cash flow from operation for firm } i \text{ in year } t;
\]

\[
CFO_{it+1} = \text{cash flow from operation for firm } i \text{ in year } t+1;
\]

\[
\beta_0, \beta_1 \ldots \beta_5 = \text{firm specific estimates of parameters.}
\]

The residuals from the regression measure the extent to which current accruals (\(\Delta WC\)) do not effectively map into past, current and future cash flows (\(CFO\)).

In addition, McNichols (2002) and Francis et al. (2005b) have modified this model by including the current year change in sales and the current year level of property, plant and equipment. The inclusion of these two variables links the Dechow and Dichev (2002) measure to the Jones (1991) model of discretionary accruals (Doyle et al., 2007b). Thus, the modified Dechow and Dichev (2002) model is measured as following regression:

\[
\Delta WC_{it} = \beta_0 + \beta_1 CFO_{it-1} + \beta_2 CFO_{it} + \beta_3 CFO_{it+1} + \beta_4 \Delta SALES_{it} + \beta_5 PPE_{it} + \epsilon_{it}
\]

where

\[
\Delta SALES_{it} = \text{change in sales revenue for firm } i \text{ from year } t-1 \text{ to year } t \text{ and deflated by total assets at year } t-1;
\]

\[
PPE_{it} = \text{gross property, plant and equipment for firm } i \text{ at year } t \text{ deflated by total assets at year } t-1;
\]

and all other variables are as previously defined.

5.4 Effect of Voluntary ICAR on Accrual Quality
Voluntary ICAR and accrual quality

Accrual quality is the function of the effectiveness of a firm’s internal control system. Some empirical research has also documented the negative relationship between a poor internal control environment and accrual quality (Doyle et al., 2007b, Ashbaugh-Skaife et al., 2008, Chan et al., 2007). On the contrary, with an adequate and effective internal control system, a firm is more capable to determine reliable accrual estimates, reducing the unintentional accrual noises (e.g., by ensuring the qualified personnel to calculate the accrual estimates and having appropriate procedures in place such as reconciliation and review). In addition, a sound internal control system reasonably confines the insiders (managers and the controlling shareholders) to override controls and make their techniques of intentional biased accrual estimates ineffective (e.g. through duty separation). Thus, a sound internal control environment has the potential to reduce both the intentional (earnings management) and unintentional accrual errors (poor accrual estimation), resulting in a higher accrual quality.

In addition, ICAR by external auditors may contribute to the improvement of internal controls. These expected results are often achieved by two possible means. On one hand, in order to satisfy the independent auditor, the company may take some steps towards documenting compliance with a certain level of internal controls which are acceptable to the auditor. This enables companies to be more conscious of internal controls, to improve the internal control quality, so as to mitigate financial reporting frauds or errors. On the other hand, in order to avoid the litigation risk and reputation risk if misreported, the auditor may adjust their risk assessment by either adjusting the attestation thresholds or extending more efforts when conducting ICAR. This enables the auditor to detect and identify significant internal control weaknesses embodied within a firm’s internal
control system, which in turn drives the firm to remedy these weaknesses and constrain the intentional frauds or unintentional errors. Following the line of inference, it is posited that the involvement of auditors in ICAR is associated with higher accrual quality. Some previous research conducted in the US also lends the support for this positive effect of auditors’ involvement in internal control. For example, Chan et al. (2007) document the relation under the requirement of Section 404 of SOX with the Jones model (1991). According to Chan et al. (2007), firms with material internal control weaknesses exhibit a mild increase of positive and absolute abnormal accruals relative to control firms. The results indicate that Section 404 of SOX mandating auditors’ attestation on internal controls has the potential benefit of reducing the opportunity of intentional and unintentional accounting errors, since the findings of ineffective internal controls by auditors under Section 404 drive firms to improve their internal controls. Further, Bédard (2006b) extends the comparative investigation under both Section 302 and Section 404 internal control requirements of SOX. It is found that firms with material internal control weaknesses under Section 302 exhibit a larger magnitude of unexpected accruals when comparing Section 302 and Section 404. In particular, for companies reporting effective internal control in their Section 404 reports, a decrease in the magnitude of unexpected accruals is found in the year of their first report. This result suggests that because of the Section 404 formal ICAR process, firms improved their internal control and/or auditors increased their audit effort, resulting in management booking smaller accruals for event and transactions occurring in that year.

Internal control quality within Chinese listed firms is subject to the concerns regarding its adequacy and effectiveness, which may in turn distort financial reporting quality. The concern with respect to weak internal controls in Chinese listed companies has been confirmed by Deloitte, which has successively conducted a series of surveys on internal
controls within Chinese listed companies since 2007. It is reported by Deloitte (2007) that the establishment of an internal control system is still not common and varies among Chinese listed companies. Further, Deloitte (2007) finds that within the listed companies being surveyed, only 20 per cent of firms believe their internal control systems comply with regulations comprehensively; 55 per cent of firms comply partly; while 25 per cent of firms do not comply at all. Even worse, nearly 80 per cent of firms are not sure whether they are capable of finding and identifying internal control weaknesses and 73 per cent of firms are unable to evaluate the effectiveness of their internal control system (Deloitte, 2007). Although it is expected that auditor’s involvement in ICAR will lead to a higher accrual quality, probably in the long turn, conversely, based on the status of internal controls within Chinese listed firms, another possibility is that ICAR may result in a lower accrual quality. It is because both the firms and the independent auditors reasonably exhibit more consciousness and prudence when evaluating internal controls, given the uncertainty regarding internal control quality and the potential litigation risks, which may intensify their search for misestimated and manipulated accruals, thereby resulting in more write-downs and adjustments of previous accruals. This point of view is confirmed by Hogan and Wilkins (2005) when they investigated the association between internal control weaknesses and accrual quality in the US.

Based on the above argument, ICAR may contribute to improving the quality of internal control by identifying andremedying internal control weaknesses, which in turn may either constrain the intentional frauds or unintentional errors and thus result in the improvement of accrual quality, or possibly adjust and write down more previous misestimated and/or manipulated accruals and thereby induce a lower accrual quality. Based on the two possibilities, it is expected that firms with voluntary ICAR significantly exhibit different accrual quality relative to firms without voluntary ICAR.
**H5:** *Ceteris paribus*, firms with voluntary ICAR exhibit significantly different accrual quality relative to firms without voluntary ICAR.

**Accrual quality and firm characteristics**

Prior research on accrual quality documents a number of firm characteristics that affect accrual quality (Dechow et al., 1995, Becker et al., 1998, Francis et al., 1999, Dechow and Dichev, 2002, Francis et al., 2004, Kothari et al., 2005). These firm characteristics include firm size, profitability, rapid growth, operation volatility, operation complexity and accounting conservatism.

Additionally, there is evidence that these firm characteristics are associated with the existence of internal control weaknesses, that is, firms with internal control weaknesses tend to be smaller, younger, less profitable, more complex, growing rapidly, or undergoing restructuring or mergers and/or acquisitions (Doyle et al., 2007b, Hogan and Wilkins, 2005, Bédard, 2006b, Ashbaugh-Skaife et al., 2008). Following this line, some papers have incorporated these innate firm characteristics to capture their effect on accrual quality when examining the association between internal control weaknesses and accrual quality. Consistent with prior research, the impacts of these innate firm characteristics are controlled to examine the effect of voluntary ICAR on accrual quality.

**Firm Size and Profitability**

Firm size has been documented having a strong correlation with accrual quality, but there are two competing arguments. Dechow and Dichev (2002) argue that larger firms have more stable and predictable operations and thus tend to have higher accrual quality,
while Ashbaugh et al. (2003) find that the magnitude of discretionary accruals reported by larger firms is systematically higher indicating lower accrual quality. Apart from firm size, it is reported that accrual quality is negatively related to loss incidence. In other words, losses are indicative of lower accrual quality (Dechow and Dichev, 2002). Because losses indicate severe negative shocks in the firms’ operating environment, in response to such shocks, accruals are likely to involve substantial estimation errors. In addition, prior research also identify that larger absolute abnormal accruals tend to be reported when firms are facing financial distress (DeAngelo et al., 1994, Dechow et al., 1995, McNichols, 2002, Kothari et al., 2005).

**Growth and volatility**

Prior research has also identified rapidly growing firms are more likely to have noisier accruals or larger abnormal accruals. In particular, the volatility of firm’s operations is systemically related to the propensity to make estimation errors in accruals (Dechow and Dichev, 2002). Cash flow volatility and sales volatility are commonly used to proxy for the effects of the volatility of operations on accrual quality.

**Complexity**

It is posited that firms with the more complex operations are more likely to have noisier accruals or larger abnormal accruals due to measurement problems. Alternatively, firms
with more complex operations often have more diversified operations that may result in higher accrual quality, due to improvement in accrual estimation resulting from less volatile operation. Based on the above assumption, the number of segments and whether the firm has foreign sales are applied to capture the effects by scholars (Ashbaugh-Skaife et al., 2008). Firms with more complex operations often have a much longer operating cycle. Dechow (1994) suggests that the longer a firm’s operating cycle, the more variable the firms’ working capital environment.

**Accounting conservatism**

Accounting conservatism is also documented as an attribute of accounting earnings in previous studies (Basu, 1997). However, two different views are raised regarding the impact of accounting conservatism on accrual quality. One argues that accounting conservatism may result in the variance of accruals due to more timely recognition of loss than gains (Ball and Shivakumar, 2006). On the contrary, another states that accounting conservatism contributes to the improvement of accrual quality, as only the more verifiable information is recorded and reported (Roychowdhury and Watts, 2007).

**Conceptual Schema**

Figure 5.1 provides the conceptual schema which graphically illustrates the outcome of voluntary ICAR on accrual quality. An association \((H5)\) is expected between voluntary ICAR and accrual quality but no direction is predicted.

**Figure 5.1 Conceptual Schema: Effect of Voluntary ICAR on Accrual Quality**
5.5 Summary

This chapter develops the argument regarding the effect of voluntary ICAR on financial reporting quality in terms of accrual quality. Accrual quality is the function of the effectiveness of a firm’s internal control system. It is asserted that the auditor’s attestation on internal control contributes to the improvement of internal controls. However, internal control is still in its infancy in China and most firms are developing internal control from a low base. It makes the positive relationship between voluntary ICAR and accrual quality an empirical issue. Thus it is argued that voluntary ICAR has an influence on accrual quality of those firms seeking assurance, but no direction is predicted.
CHAPTER 6
RESEARCH METHOD

6.1 Introduction

This chapter describes the research method and begins with the justification of data collection and sample selection. Section 6.3 and Section 6.4 respectively explain the statistical tests and models utilized to test hypotheses for the two primary research questions in this study. The related measures of variables are detailed. A summary is provided at the end of this chapter.

6.2 Data Collection and Sample Selection

This section outlines the methodology applied in selecting the sample, source documentation and time period.

Sample selection

The initial sample is comprised of all the A-share companies listed on the main board of the Shanghai Stock Exchanges (SSE) and the Shenzhen Stock Exchange (SZSE). To be included in the sample, the following filtering criteria are applied: (1) consistent with prior research, financial and banking and insurance are excluded from the sample as such firms are regulated by specific regulatory policies (Lin and Rao, 2009, Fang and Dai, 2012a, Li, 2013); (2) firms which have had Special Treatment (ST) by the China Securities Regulatory Commission (CSRC) are also removed from the sample as such firms experienced extraordinary financial distress (Lin and Rao, 2009, Li, 2013); and (3)
firms with missing necessary data to run research models which will be described in section 6.3 are excluded; A more detailed sample selection process is presented within the descriptive statistics in Chapter Seven.

Source documentation

The data used in this study comes mainly from the China Stock Market & Accounting Research (CSMAR) database. As indicated in prior studies, the CSMAR is the most important and most widely used database on the Chinese capital market at present. To make sure of the accuracy of data, RESSET database, annual reports publicly available on the websites of SSE and SZSE are also cross-referenced. In particular, some data which is not available in CSMAR is collected from the following sources:

- **Annual reports**: information about voluntary ICAR is manually collected from the annual reports by searching with key words “internal control” and “internal control assurance”. Generally, this information was disclosed in the “Corporate Governance Structure” section within annual report, or a separate internal control assurance report accompanied with the annual report.

- **RESSET database**: data regarding the status of cross-listing and institutional shareholding are extracted from the RESSET database.


- **NERI Index of Marketization of China’s Provinces 2009 Report**: marketization indices capturing regional-level institutions are retrieved from National Economic Institute of China (NERI) marketization indices compiled by Fan et al. (2009).
Testing period selection

A three-year period from 2007 to 2009 is selected as the research period in this study for the following reasons.

First, this selection mainly relies on the consideration of the internal control policies and regulations within this period. From the discussion of the internal control regulatory framework in Chapter Two, it is known that two stock exchanges, SSE and SZSE, respectively issued *Guidelines of Internal Controls for Public Companies listed on the Shanghai Stock Exchange*, and *Guidelines of Internal Controls for Public Companies listed on the Shenzhen Stock Exchange* in June and September of 2006 and took effect from 1 July 2006 and 1 July 2007. The issuance and implementation of both guidelines is a landmark of the regulatory transformation from recommending to clearly requiring Chinese listed companies to establish an internal control system (Chen and Li, 2008). Year 2007 is selected as the starting point, since the companies listed on the main board of both SSE and SZSE are subject to internal control regulations. Following the two guidelines, *Enterprise Internal Control Basic Standard* was jointly promulgated by six government agencies on June 28th 2008 and took effect since 1 July 2009, which is a conceptual framework aiming at standardization of the various coexisted internal control policies and regulations. One important characteristic of the internal control policy since 2007 is that ICAR is at the discretion of Chinese listed companies, rather than a mandatory requirement. So the time period after 2007 provides a unique opportunity to examine the determinants and effects of voluntary ICAR. The decision of Year 2009 as the ending time period is based on the following considerations. The Enterprise Internal Control Regulatory
Framework was formally issued on April 26\textsuperscript{th} 2010, represented in the promulgation of Implementation Guidelines. According to the Enterprise Internal Control Regulatory Framework, the mandatory requirements of ICAR started to be implemented in Chinese listed companies under different categories and groups from 2011. Although the requirement on ICAR seems to be voluntary in Year 2010, it has the potential compound effect from the forthcoming regulations. As a result, the testing period is decided as a three-year period from 2007 to 2009.

Second, the selection of 2007 as the starting point is also because most public firms (1298 firms, accounting for 98 per cent) listed on the SSE and SZSE successfully completed non-tradable share (NTS) reform by the end of 2007. As discussed in Chapter Two, NTS reform results in the changes of a firm’s ownership structure and further influences its corporate governance. According to this study’s hypotheses, ownership structure and corporate governance are expected to have significant impact on firms’ decision on ICAR. As most firms had completed NTS reform by the end of 2007, the samples selected from Year 2007 are on the same basis with comparable ownership structure and corporate governance. In other words, samples post to the NTS reform were collected.

### 6.3 Research Design: Determinants of Voluntary ICAR

This section describes the tests performed to examine the first research question of this study, namely the determinants of voluntary ICAR.
Logistic regression model

To examine the determinants for voluntary ICAR as predicted in H1 to H4, a logistic regression model is deployed. Since the early 1980s, a logistic regression model has been widely applied in social science to explain or predict the occurrence of an observed event, which is normally with dichotomous outcomes (Hosmer and Lemeshow, 2000, Agresti, 2003, Peng et al., 2002). The selection of logistic regression is because when describing and testing hypotheses about a relationship between a categorical outcome variable and one or more categorical or continuous predictor variables, logistic regression is better suited than either ordinary least square (OLS) or linear discriminant function analysis, due to its subjection to the strict statistic assumptions (Cabrera, 1994), although this kind of research question was traditionally examined by OLS regression or linear discriminant function analysis (Peng et al., 2002). Thus, based upon the conceptual framework developed in Chapter Four in this study, a dummy variable indicating whether a listed firm adopted voluntary ICAR is regressed on the following two sets of variables: (1) a group of variables capturing firm-level incentives, respectively proxy for agency conflicts and information asymmetry embedded in ownership structure, corporate governance mechanisms and firm operating characteristics; and (2) a group of variables capturing regional-level institutional features. Finally, the dummy variables controlling for years and industries are also included. The binary logistic regression is presented as follows:

---

8 Cabrera (1994) proposes that both OLS and linear discriminant function analysis are less than ideal for addressing dichotomous outcome due to their strict statistic assumptions, e.g., linearity, normality and continuity for the former and multivariate normality with equal variances and covariances for the latter.
More specially, in accordance with the conceptual schema described in Figure 4.2 of Chapter 4, the hypotheses regarding the determinants of voluntary ICAR are tested with the following pooled cross-sectional logistic regression model:

\[
Prob(\text{ICAR} = 1) = \alpha_0 + \alpha_1 \text{CFRIGHT} + \alpha_2 \text{VCVAR} + \\
\alpha_3 \text{FLOATRATIO} + \alpha_4 \text{INSHARE} + \alpha_5 \text{LEVERAGE} + \alpha_6 \text{CROSSLIST} + \alpha_7 \text{EA\_TYPE} + \\
\alpha_8 \text{B\_SIZE} + \alpha_9 \text{B\_MEET} + \alpha_{10} \text{IN\_DI} + \alpha_{11} \text{CEO\_DU} + \alpha_{12} \text{S\_SIZE} + \alpha_{13} \text{S\_MEET} + \\
\alpha_{14} \text{SIZE} + \alpha_{15} \text{LOSS} + \alpha_{16} \text{AGROWTH} + \alpha_{17} \text{REVRAINT} + \alpha_{18} \text{INVRATI} + \\
\alpha_{19} \text{EA\_OPINION} + \alpha_{20} \text{MRKINDEX} + \text{fixed effect} + \varepsilon
\]

where,

- \text{ICAR} = 1\text{ if a firm undertook voluntary ICAR; 0 otherwise}
- \text{CFRIGHT} = \text{percentage of cash flow rights possessed by the largest ultimate owner}
- \text{VCVAR} = \text{the difference between percentage of voting rights and percentage of cash flow rights possessed by the largest ultimate owner}
- \text{FLOATRATIO} = \text{ratio of unlimited tradable shares to total shares}
- \text{INSHARE} = \text{percentage of shareholdings by institutional investors}
- \text{LEVERAGE} = \text{ratio of debt to total assets}
- \text{CROSSLIST} = 1\text{ if cross-listed in the US, 0 otherwise}
- \text{EA\_TYPE} = 1\text{ if the external audit firm is Big4; 2 if Top 10 domestic audit firms; 3 otherwise}
- \text{B\_SIZE} = \text{number of the directors in the board at the end of year } t
- \text{IN\_DI} = \text{ratio of independent directors to the total number of directors in the board at the end of year } t
- \text{CEO\_DU} = 1\text{ if CEO and the chairman of board is not separated, 0 otherwise}
- \text{B\_MEET} = \text{number of annual meetings held by the board}
- \text{S\_SIZE} = \text{number of the supervisors in the board at the end of year } t
- \text{S\_MEET} = \text{number of annual meetings held by the board}
- \text{SIZE} = \text{the natural log of firm total assets at the end of year } t
AGROWTH = The growth rate in total assets for year $t$ to year $t-1$
LOSS = 1 if there was a net loss at the end of year $t$; 0 otherwise
RECRATIO = ratio of account receivable to total assets at the end of year $t$
INVRATIO = ratio of inventory to total assets at the end of year $t$
EA_OPINION = 1 if the external audit opinion over financial reporting is unqualified; 0 otherwise
MRKINDEX = total market liberalization index
fixed effect = dummy variables controlling for fixed effects of industries and calendar years
$\varepsilon$ = an error term

**Dependent variable: Voluntary internal control assurance**

According to Chinese internal control policies which have been reviewed in Chapter Two, Chinese listed companies were recommended to appoint external auditors to attest and offer an opinion on their internal control reports; when the listed companies undertake voluntary ICAR, they should disclose the internal control assurance reports within their annual reports. Thus, voluntary internal control assurance (ICAR) is defined as a dummy variable, which is equal to 1 if a listed company either included the internal control assurance report or disclosed internal control assurance opinion in “Corporate Governance Structure” section within its annual report, and equals to 0 if no internal control assurance report nor its opinion disclosed.

**Independent variables: Firm-level economic incentives**

This section discusses the measurement of the explanatory variables employed in the voluntary ICAR model, in order to find out the factors which have an influence on an individual listed firm’s decision on ICAR.

Firm-level incentives are predicted to be the important determinants for firm’s selection for voluntary ICAR in Chapter Four. They can be classified into three groups: (1)
ownership structure; (2) corporate governance mechanisms; and (3) firm-operating characteristics. The following subsections will detail the measurement of the variables related to each group.

**Ownership structure**

It is expected in Chapter Four that a firm’s decision to adopt voluntary ICAR is positively associated with its agency problems embedded in a firm’s capital structure (H1). To capture the information and agency problems embedded in a firm’s capital structure, five variables are deployed, namely, cash flow rights (CFRIGHT), variance between voting rights and cash flow rights (VCVAR), floating ratio (FLOATRATIO), institutional shareholding (INSHARE) and leverage (LEVERAGE).

- **CFRIGHT** and **VCVAR** are deployed to measure the agency conflicts between the controlling shareholder and the minority shareholders. Cash flow rights of the ultimate controlling shareholder are used as a proxy for the degree of control and voting rights as a measure of the degree of ownership. To disentangle entrenchment and incentive effects, cash flow rights are used to proxy for incentive effect, the divergence between voting rights and cash flow rights as a surrogate for the agency costs of equity. The larger difference suggests higher agency costs and an entrenchment effect. Data on cash flow rights and voting rights of controlling shareholder are obtained from CSMAR database. This database traces the complex ownership structure and identifies the ultimate controlling shareholder in accordance with the definition of Administration on the Take-over of Listed Companies issued by the Chinese Securities Regulatory Commission (CSRC). All the cash flow rights and voting rights are calculated on the basis of the procedures developed by La Porta et al. (1999). For a given firm, the cash flow rights of the
ultimate shareholder are equal to the sum of the products of the ownership stakes of affiliated firms from each control chain identified; the voting rights are the ownership stake on the weakest line along the control chains connecting the ultimate shareholder and the firm.

- **FLOATRATIO** is deployed to proxy for the agency conflicts between tradable and non-tradable shareholders. It is measured as the proportion of shares that are tradable to the total shares. Because the timetable for individual firm to implement non-tradable share (NTS) reform was different and the negotiability of non-tradable shares was subject to the ‘lock-up’ requirement, float ratio varies for different firms in the sample period examined in this study.

- **INSHARE** is measured with the percentage of shares held by institutional investors, to capture the active monitoring role played by institutional investors, a specific type of block holders.

- **Leverage** is measured with the ratio of debt to total assets, to capture the agency problems between shareholders and debtors.

**Corporate governance mechanisms**

It is predicted that the adoption of voluntary ICAR is significantly related with the strength of a firm’s corporate governance mechanisms (H2). Four corporate governance mechanisms are examined, namely cross-listing status, external auditors, the board of directors (BoD) and the board of supervisors (BoS). As a result, there are two external governance variables, cross-listing in the US (**CROSSLIST**) and external auditor type (**EA_TYPE**).

- **CROSSLIST**: As discussed in Chapter Four, it is supposed that the stricter requirements on ICAR pursuant to SOX 2002 in the exchanges of the US would
influence firms’ decision on ICAR in the Chinese capital market. Cross-listing status is measured as a dummy variable that is equal to 1 if a firm’s shares are cross-listed in the US and 0 otherwise.

- **EA_TYPE:** High quality independent audit is suggested to play an important monitoring role, which in turn may increase or decrease firms’ incentives to adopt ICAR. Thus, audit quality is measured with auditor type, which is an indicator variable that is equal to 1 if the external auditor is BIG 4, 2 for TOP 10 domestic auditing firms, and 3 for others. It is believed that BIG 4 and TOP 10 domestic auditing firms provide higher audit quality than other domestic auditing firms.

The internal corporate governance mechanism within a firm consists of various types of organizational arrangements or procedures to balance the power and responsibilities among the firm’s shareholders, directors, the management and the employees. Among them, the ownership structure, the board of directors (BoD), the board of supervisors (BoS) and the duality of the BoD chairman and the CEO are of great importance in determining the effectiveness of internal corporate governance mechanism, especially for the listed firms in China (Liu and Sun, 2005, Sheng, 2004). The ownership structure has been addressed in the former section. Thus, I put focus on the board of directors and the board of supervisors.

It is argued that the dual-board structure may have additional advantages over a unitary board structure, particularly in China where the external monitoring devices, such as the market regulation and surveillance systems have not been well developed. The BoS is concerned with the firm’s strategy and stakeholder interests, but does not interfere in the operational management. So, the existence of BoS would provide a basis for managerial autonomy, as well as for monitoring by stakeholders (Chen, 2005). The BoS is entitled
to exercise supervision over the work of the BoD, the performance of the management and the business financial affairs. Such two-tier board system with co-existence of the BoD and the BoS, in fact, has become the backbone of corporate governance in the Chinese listed firms since the mid-1990s.

Prior research suggests that whether the BoD is effective depends on its structural composition (size, independence) and operational composition (diligence). Thus, the efficacy of the board of directors is captured with four variables including board size (B_SIZE), board meetings (B_MEET), independent directors (IN_DI) and CEO-duality (CEO_DU). B_MEET is used to proxy for board diligence; IN_DI and CEO_DU are used to proxy for board independence.

- B_SIZE is measured with the number of board members at the year-end;
- B_MEET is measured with the number of board meetings in year $t$
- IN_DI is calculated with the ratio of the number of independent directors to total directors at the year-end; and
- CEO_DU is a dummy variable that equals to 1 if the role of CEO and the chairman of board is not separated at the year end, and 0 otherwise.

In an event study, Dahya et al. (2003) found that investors considered the BoS to be important in corporate governance in China. Chen (2005) found that there is a positive association between the size of BoS and the level of corporate governance. More members in a BoS will enhance its monitoring role. Hence, I use board size (S_SIZE) and board meetings (S_MEET) to proxy for the monitoring strength of BoS.

- S_SIZE is measured with the number of board members at the year-end; and
- S_MEET is measured with the number of board meetings in year $t$.  

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Firm operating characteristics

There is evidence that a firm’s operating characteristics are significantly associated with the quality of its internal control system, such as firm size, financial health, rapid growth and transaction complexity (Bronson et al., 2006, Deumes and Knechel, 2008, Doyle et al., 2007a, Ashbaugh-Skaife et al., 2007). These internal control risk factors within the organization are predicted to be associated with firm’s decision on voluntary assurance of internal control (H3). Therefore, the following six variables are deployed for H3a to H3e:

- Firm Size (SIZE) is measured with log of total assets at the year-end;
- Financial health (LOSS) is a dummy variable equals to 1 if there was a net loss at the year end and 0 otherwise;
- Total asset growth (AGROWTH), proxy for rapid growth, is measured with the growth rate in total assets from year $t-1$ to year $t$;
- Inventory ratio (INVRATIO) and account receivable ratio (RECRATIO) are deployed to proxy for accounting risk. INVRATIO is measured with the ratio of inventory to total assets at the year-end; while RECRATIO is measured with the ratio of account receivables to total assets at the year-end; and
- Audit opinions on financial statements (EA_OPINION) is a dummy variable equals to 1 if a firm received an unqualified audit opinion and 0 otherwise.

Independent variables: Regional-level institutional features

In order to examine the impact of the institutional variance across regions within China on a firm’s selection of voluntary ICAR (H4), following Wang et al. (2008) and Du and Xiu (2009), the National Economic Institute of China (NERI) marketization indices for
31 provinces, autonomous regions and municipalities compiled by Fan et al. (2009), are used to proxy for the regional-level institutional features. These marketization indices are regarded as the reasonable measures of the market and legal conditions of China’s diverse regions in the process of transition toward market economy (Fan et al., 2005). This set of indices have been developed to measure the extent of marketization on the basis of five aspects: i) the roles played by the government and the market in resource allocation; ii) the share of non-state-owned economy to the local economy; iii) the extent of product market development; iv) the extent of the factor market development, such as capital, labor markets; and v) the quality of market intermediaries and legal environment. As these indices are relatively stable for various regions and all years (Du and Xiu, 2009), the indices in 2007 are used in this study. There are four variables. First, the total marketization index (MARINDEX) is utilized to capture the overall regional-level institutional variance across regions, measuring its influence on firms’ selection for voluntary ICAR. The higher the value, the more developed of the institutions. Then to examine the specific influences of unbalanced institutions on the demand for voluntary ICAR, three of the five aspects of marketization index are selected: (1) GMINDEX, measuring the degree of government intervention; (2) FMINDEX, capturing the strength of the regional factor markets and the mechanisms of resources allocation, covering the development of financial markets, foreign direct investment, labor mobility and etc.; (3) LEGINDEX, measuring the quality of legal environment. A higher index value indicates stronger legal protection, more economic liberalization and freedom, and higher level of economic and financial development.

The definitions and measures of variables are summarized in Table 6.1.
Table 6. Definition and Measurement of Variables (Determinants for voluntary ICAR)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Prediction sign</th>
<th>Definition and measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent variable</strong></td>
<td></td>
<td>ICAR equals to 1 if a firm undertook voluntary internal control assurance; 0 otherwise</td>
</tr>
<tr>
<td><strong>Independent variables</strong></td>
<td></td>
<td><strong>H1. Agency conflicts embedded in ownership structure</strong></td>
</tr>
<tr>
<td>CRIGHT</td>
<td>+</td>
<td>the cash flow rights held by the controlling shareholder</td>
</tr>
<tr>
<td>VCVAR</td>
<td>+</td>
<td>the difference between voting rights and cash flow rights of the controlling shareholder</td>
</tr>
<tr>
<td>FLOATRATIO</td>
<td>+</td>
<td>the ratio of unlimited negotiable shares to total shares</td>
</tr>
<tr>
<td>INSHARE</td>
<td>+</td>
<td>the percentage of institutional shares</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>+</td>
<td>the ratio of debt to total assets</td>
</tr>
<tr>
<td><strong>H2. Corporate governance mechanisms</strong></td>
<td></td>
<td>1. External monitoring roles</td>
</tr>
<tr>
<td>CROSSLIST</td>
<td>?</td>
<td>equals to 1 if cross-listed in the US, 0 otherwise</td>
</tr>
<tr>
<td>EA_TYPE</td>
<td>?</td>
<td>equals to 1 if the external audit firm is Big4; equals to 2 if Top 10 domestic audit firms; 3 otherwise</td>
</tr>
<tr>
<td><strong>2. Board of directors</strong></td>
<td></td>
<td>B_SIZE</td>
</tr>
<tr>
<td>IN_DI</td>
<td>?</td>
<td>the ratio of independent directors to the total number of directors in the board at the end of year $t$</td>
</tr>
<tr>
<td>CEO_DU</td>
<td>?</td>
<td>equals to 1 if CEO and the chairman of board is not separated, 0 otherwise</td>
</tr>
<tr>
<td>B_MEET</td>
<td>?</td>
<td>the number of annual meetings held by the board</td>
</tr>
<tr>
<td><strong>3. Board of supervisors</strong></td>
<td></td>
<td>S_SIZE</td>
</tr>
<tr>
<td>S_MEET</td>
<td>?</td>
<td>the number of annual meetings held by the board</td>
</tr>
<tr>
<td><strong>H3. Firm operating characteristics</strong></td>
<td></td>
<td>SIZE</td>
</tr>
<tr>
<td>AGROWTH</td>
<td>?</td>
<td>the growth rate in total assets for year $t$ to year $t-1$</td>
</tr>
<tr>
<td>LOSS</td>
<td>?</td>
<td>equals to 1 if there was a net loss at the end of year $t$; 0 otherwise</td>
</tr>
<tr>
<td>RECRATIO</td>
<td>?</td>
<td>the ratio of account receivable to total assets at the end of year $t$</td>
</tr>
<tr>
<td>INV_RATIO</td>
<td>?</td>
<td>the ratio of inventory to total assets at the end of year $t$</td>
</tr>
<tr>
<td>EA_OPINION</td>
<td>?</td>
<td>equals to 1 if the external audit opinion over financial reporting is unqualified; 0 otherwise</td>
</tr>
<tr>
<td><strong>H4. Regional-level institutional features</strong></td>
<td></td>
<td>MRKINDEX</td>
</tr>
<tr>
<td>GMINDEX</td>
<td>?</td>
<td>government intervention index from NERI index</td>
</tr>
<tr>
<td>FMINDEX</td>
<td>?</td>
<td>factor markets development index from NERI index</td>
</tr>
<tr>
<td>LEGINDEX</td>
<td>?</td>
<td>legal environment index from NERI index</td>
</tr>
<tr>
<td><strong>Control variables</strong></td>
<td></td>
<td>YEAR dummy variable for Year 2007-2009</td>
</tr>
<tr>
<td>INDUSTRY</td>
<td></td>
<td>dummy variable for industry</td>
</tr>
</tbody>
</table>
6.4 Research Design: Effect of Voluntary ICAR on Accrual Quality

In addition to identifying the determinants of voluntary ICAR, this study is also interested in the association of voluntary ICAR and firms’ accrual quality. This section describes the tests that will be performed to examine whether the voluntary ICAR influences firms’ accrual quality (H5).

Empirical models

Ordinary least squares model

The possible impact of voluntary ICAR on accrual quality (H5) is tested by regressing accrual quality on a dummy variable for voluntary ICAR/non-voluntary ICAR and other control variables proxy for innate firm characteristics that affect accrual quality. Consistent with previous research on accrual quality, the ordinary least squares (OLS) model is examined as follows. It is possible that accrual quality varies among industries and years, so the dummies for industry and year are also included.

\[ |AQ| = \beta_0 + \beta_{1ICAR} + \beta_{2SIZE} + \beta_{3SGROWTH} + \beta_{4CFO} + \beta_{5LOSS} \]

\[ + \beta_{6OPERATECYCLE} + \beta_{7ZSCORE} + \beta_{8BM} \]

\[ + \beta_{9-27INDUSTRY} + \beta_{28-29YEAR} + \varepsilon \]

Where,

| \( |AQ| \) | = the absolute value of accruals measured with accrual quality model ICAR | = 1 if a firm undertook voluntary internal control assurance; 0 otherwise SIZE | = the natural log of firm total assets at the end of year \( t \) SGROWTH | = the growth rate in sales for year \( t-1 \) to year \( t \) CFO | = cash flow from operations in year \( t \) scaled by average total assets LOSS | = 1 if there was a net loss at the end of year \( t \); 0 otherwise
OPERATECYCLE = the natural log of \([360 \times \text{average account receivable}) / \text{sales} + (360 \times \text{average inventory}) / \text{cost of sales}\) in year \(t\)

\(Z\_\text{SCORE}\) = default risk of a firm in year \(t\) estimated following Altman (1968)

\(BM\) = the book-to-market value ratio of a firm in year \(t\)

\(\text{INDUSTRY}\) = dummy variable for industry

\(\text{YEAR}\) = dummy variable for Year 2007-2009

**Two-stage treatment effect model**

The above OLS model is subject to the concerns that it possibly misleads the estimates of the effect of voluntary ICAR on accrual quality, due to the ignorance of self-selection bias. Under the voluntary policy setting, the adoption of ICAR is on the discretion of the individual firm. It is possible that a firm self-selects the voluntary ICAR based on the consideration of its individual-level heterogeneity, observable and unobservable. Noted from the above OLS regression, some innate firm characteristics are included, which may to some extent control for some observable individual-level differences between firms with and without adoption of ICAR. Nevertheless, it is still possible that the potential bias may arise from some sort of omitted variables, either unobservable or uncontrolled differences between the two groups. If it is the case, the firm-year observations with voluntary ICAR and without voluntary ICAR may be non-randomly distributed in the observed sample. Thus a potential self-selection bias due to non-randomly participation may be introduced and result in the biased coefficients from OLS regression, and thereby may not uncover the true effect of voluntary ICAR on accrual quality (Wooldridge, 2009, p.239-240). To be more prudent, following Bandyopadhyay et al.(2007), a two-stage treatment effects model (TEM) is deployed to control the potential self-selection endogeneity bias (Maddala, 1983, Greene and Zhang, 2003, STATA, 2000, Heckman, 1979). The first stage investigates the likelihood of a firm’s selection for voluntary ICAR, which is exactly the first research question to be addressed
in this study. Based on the first stage regression, the inverse Mill’s ratio (Heckman, 1979, Leuz and Verrecchia, 2000) is calculated. Then the second stage replicates OLS regression by including the Mill’s ratio as a regressor to control the potential self-selection bias. More details will be discussed in the following.

In the first stage, a probit regression of firm’s decision-making for voluntary ICAR is estimated by the following model which was designed in section 5.3. From the first-stage regression, the inverse Mill’s ratio (Heckman, 1979, Leuz and Verrecchia, 2000) is calculated.

\[
\text{Prob}(\text{ICAR} = 1) = \alpha_0 + \alpha_1 \text{CFRIGHT} + \alpha_2 \text{VCVAR} \\
+ \alpha_3 \text{FLOATRATIO} + \alpha_4 \text{INSHARE} + \alpha_5 \text{LEVERAGE} \\
+ \alpha_6 \text{CROSSLIST} + \alpha_7 \text{EA_TYPE} \\
+ \alpha_8 \text{B_SIZE} + \alpha_9 \text{B_MEET} + \alpha_{10} \text{IN\_DI} + \alpha_{11} \text{CEO\_DU} \\
+ \alpha_{12} \text{S_SIZE} + \alpha_{13} \text{S_MEET} + \alpha_{14} \text{SIZE} + \alpha_{15} \text{LOSS} \\
+ \alpha_{16} \text{AGROWTH} + \alpha_{17} \text{REVRATIO} + \alpha_{18} \text{INVRATIO} \\
+ \alpha_{19} \text{EA\_OPINION} + \alpha_{20} \text{MRKINDEX} + \text{fixed effect} + \epsilon
\]

Where:

- **ICAR** = 1 if a firm undertook voluntary internal control assurance; 0 otherwise
- **CFRIGHT** = percentage of cash flow rights possessed by the largest ultimate owner
- **VCVAR** = the difference between percentage of voting rights and percentage of cash flow rights possessed by the largest ultimate owner
- **FLOATRATIO** = ratio of unlimited tradable shares to total shares
- **INSHARE** = percentage of shareholdings by institutional investors
- **LEVERAGE** = ratio of debt to total assets
- **CROSSLIST** = 1 if cross-listed in the US, 0 otherwise
- **EA_TYPE** = 1 if the external audit firm is Big4; 2 if Top 10 domestic audit firms; 3 otherwise
- **B_SIZE** = number of the directors in the board at the end of year \( t \)
IN_DI = ratio of independent directors to the total number of directors in the board at
the end of year t
CEO_DU = 1 if CEO and the chairman of board is not separated, 0 otherwise
B_MEET = number of annual meetings held by the board
S_SIZE = number of the supervisors in the board at the end of year t
S_MEET = number of annual meetings held by the board
SIZE = the natural log of firm total assets at the end of year t
AGROWTH = The growth rate in total assets for year t to year t-1
LOSS = 1 if there was a net loss at the end of year t; 0 otherwise
RECRATIO = ratio of account receivable to total assets at the end of year t
INVRATIO = ratio of inventory to total assets at the end of year t
EA_OPINION = 1 if the external audit opinion over financial reporting is unqualified; 0
otherwise
MRKINDEX = total market liberalization index
fixed effect = dummy variables controlling for fixed effects of industries, and calendar
years
ε = an error term

In the second stage, the hypothesized effect of voluntary ICAR on accrual quality is
replicated with the above OLS regression model by including the inverse Mill’s ratio
calculated from the first stage, denoted as “Lambda”. The inclusion of the inverse Mill’s
ratio helps control for the self-selection bias. If the p-value for “Lambda” is significant,
it indicates the existence of self-selection bias and thereby suggests the corresponding
correction is necessary. To recap, the second stage OLS regression is as follows:

\[
|AQ| = \beta_0 + \beta_1ICAR + \beta_2SIZE + \beta_3GROWTH + \beta_4CFO + \beta_5LOSS
+ \beta_6OPERATECYCLE + \beta_7Z\_SCORE + \beta_8BM
+ \beta_9\_27INDUSTRY + \beta_{28\_29}YEAR + \beta_{30}\_Lambda + \epsilon
\]

Where,

\(|AQ|\) = the absolute value of accruals measured with accrual quality model
ICAR = 1 if a firm undertook voluntary internal control assurance; 0 otherwise
SIZE = the natural log of firm total assets at the end of year t
SGROWTH = the growth rate in sales for year t to year t-1
CFO = cash flow from operations in year t scaled by average total assets
LOSS = 1 if there was a net loss at the end of year t; 0 otherwise
OPERATECYCLE = the natural log of \([360 \times \text{average account receivable}) / \text{sales} + (360 \times \text{average inventory}) / \text{cost of sales}] \) in year t
Z_SCORE = default risk of a firm in year t estimated following Altman (1968)
BM = the book-to-market value ratio of a firm in year t
INDUSTRY = dummy variable for industry
YEAR = dummy variable for Year 2007-2009
Lambda = Inverse Mill’s Ratio to control for self-selection bias

**Dependent variable: accrual quality**

Accounting researchers have developed various models to measure accrual quality. It is argued that the accruals quality is associated with both the management opportunism and the difficulty in estimating accrual accounts (Dechow and Dichev, 2002). Management opportunism may result in management intentionally use the “discretionary accruals” to bias accruals through earnings management which may overpass or not be detected by inadequate and/or ineffective internal controls, while the difficulty in estimating accrual accounts may cause unintentional accrual errors, especially due to uncertain circumstances or loss of sufficient internal controls in place.

Based on the consideration that management opportunistic accruals are more pronounced and the discretionary accrual models are widely used for the proxy of accrual quality in China, the main test will deploy the discretionary accrual model to examine the possible association between voluntary ICAR and accrual quality. In addition, as accrual quality is also related to the difficulty in estimating accrual accounts
besides management opportunism, another two accounting estimation error models, namely Dechow and Dichev (2002) model and modified Dechow and Dichev (2002) model, will be used to conduct the robustness test.

Performance-matched Jones Model

Previous research has proposed five discretionary models: the Healy model (Healy, 1985), the DeAngelo model (DeAngelo et al., 1996), the industry model (Dechow et al., 1995), the Jones model (Jones, 1991) and the modified Jones model. Each model provides a different estimate of firm-specific non-discretionary accruals. Among these five models, it is documented that the Jones model and modified Jones model produce the most powerful tests of earnings management (Dechow et al., 1995, Lynch, 2008). In a similar vein, Kothari et al. (2005) also indicate that these two models are best specified when firms are matched with Return on Asset (ROA) and an intercept is included in the use of the models. In addition, the extant research examining the association between accrual quality and internal control weakness also widely deploys the Jones model and the modified Jones model to measure accrual quality, such as Bédard (2006a, Bédard, 2006b), Chan et al. (2007), Doyle et al. (2007b) and Ashbaugh-Skaife et al. (2008). While the Jones and the modified Jones model are both better specified compared to other estimates, it is noted the modified Jones model is prone to spuriously be concluded as earnings management, as all the credit sales are assumed to represent accrual manipulation under this model (Kothari et al., 2005). Following this line, this study thus estimates discretionary accruals primarily with performance-matched Jones model.

This study mainly focuses on the discretionary current accruals (CA_DISCRE). In theory, total accruals are composed of current accruals (also called working capital accruals) and noncurrent accruals (or long-term accruals). Relative to long-term accruals,
current accruals are more easily to be manipulated and biased by managers intentionally (Teoh et al., 1998). In the same vein, Jones (1999) proposes that current accruals are the more accurate bases for estimating discretionary behavior compared to total accruals, as the latter, in particular the portion of noncurrent accruals, is less likely to reflect year-specific discretion. Thus, the absolute value of $CA_{DISCRE}$ is deployed as the proxy for accrual quality in this study, which is measured as the regression residuals from the Jones model equation on a cross-sectional basis by industry and year. The larger the residuals are, the lower the accrual quality is.

To achieve a better specification, following Kothari et al. (2005), the $CA_{DISCRE}$ is measured with the Jones model in the following ordinary least square (OLS) regression, by including an intercept and a lagged Return on Asset ($ROA_{t-1}$). The reason for selecting the lagged $ROA_{t-1}$ instead of the current $ROA_t$ as the performance matching in the model is that applying $ROA_{t-1}$ may isolate the mechanical relationship between the earnings and the estimated discretionary accruals in the current period, so as to reduce the possibility of misspecification (Kothari et al., 2005)\(^9\).

\[
\frac{CA_{it}}{ASSETS_{it-1}} = \alpha_0 + \alpha_1 \left( \frac{1}{ASSETS_{it-1}} \right) + \alpha_2 \frac{\Delta SALES_{it}}{ASSETS_{it-1}} + ROA_{t-1} + \epsilon_{it} \tag{1}
\]

where $CA_{it}$ is the current accruals for firm $i$ in year $t$, it is measured with the equation: current accruals = $\Delta$(current assets - cash) - $\Delta$(current liabilities - short term debt - debt expired within one year). $ASSETS_{it-1}$ is the lagged total assets for firm $i$ in year $t-1$. $\Delta SALES_{it}$ is the change in sales revenue for firm $i$ from year $t-1$ to year $t$. $ROA_{t-1}$ is the lagged return on asset for firm $i$ in year $t-1$. If there are less than 10 firms in any given industry and year, then these observations pertaining to that industry and year will be

\(^9\) It is because that technically the earnings equals the sum of operating cash flow and accruals (Kothari et al. 2005)
Control variables: innate firm characteristics affecting accrual quality

Based on the conceptual scheme developed in Chapter 5, the innate firm characteristics documented by prior studies having effect on accrual quality are also captured. These firm characteristics include firm size, profitability, rapid growth, operation complexity, and accounting conservatism. There are seven control variables:

- Firm size (**SIZE**), measured with the natural log of total assets;
- Financial loss (**LOSS**), proxy for firm profitability, an indicator equals to 1 if a firm report financial loss and 0 otherwise;
- Z-Score (**Z_SCORE**), proxy for financial distress, calculated following Altman (1968);
- Rapid sales growth (**SGROWTH**), measured with sales growth rate;
- Cash flow from operation (**CFO**), proxy for operation volatility, measured with the value of cash flow from operation in current period deflated by average total assets;
- Operating cycle (**OPERATECYCLE**), proxy for operation complexity, calculated as the natural log of \( \frac{360 \times \text{average accounts receivable}}{\text{sales}} + \frac{360 \times \text{average inventory}}{\text{cost of sales}} \) in year t; and
- Book-to-market value (**BM**), proxy for accounting conservatism, lower BM values indicate more conservative accounting.

The definitions and measures of variables are summarized in Table 6.2.
### Table 6.2 Definition and Measurement of Variables (Accrual quality and voluntary ICAR)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Predict sign</th>
<th>Definition and measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent variable</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accrual quality (AQ)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>the absolute value of discretionary current accruals estimated with the Jones model (1991) modified by Kothari et al. (2005)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>the absolute value of current accruals estimation errors measured with the Dechow and Dichev (2002) model</td>
</tr>
<tr>
<td></td>
<td></td>
<td>the absolute value of current accruals estimated with the modified Dechow and Dichev (2002) model by Francis et al. (2005b)</td>
</tr>
<tr>
<td><strong>Test variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voluntary Internal Control Assurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICAR</td>
<td>?</td>
<td>an indicator variable that equals to 1 if a firm undertook voluntary internal control assurance, and 0 otherwise</td>
</tr>
<tr>
<td><strong>Control variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>?</td>
<td>the natural log of firm total assets at the end of year ( t )</td>
</tr>
<tr>
<td>LOSS</td>
<td>+</td>
<td>equals to 1 if there was a net loss at the end of year ( t ); 0 otherwise</td>
</tr>
<tr>
<td>Z_SCORE</td>
<td>-</td>
<td>default risk of a firm in year ( t ) estimated following Altman (1968)</td>
</tr>
<tr>
<td>SGROWTH</td>
<td>+</td>
<td>the growth rate in sales for year ( t ) to year ( t-1 )</td>
</tr>
<tr>
<td>CFO</td>
<td>-</td>
<td>cash flow from operations in year ( t ) scaled by average total assets</td>
</tr>
<tr>
<td>OPERATECYLE</td>
<td>+</td>
<td>the natural log of ( [(360\times \text{average account receivable})/\text{sales} + (360\times \text{average inventory})/\text{cost of sales}] ) in year ( t )</td>
</tr>
<tr>
<td>BM</td>
<td>?</td>
<td>the book-to-market value ratio of a firm in year ( t )</td>
</tr>
<tr>
<td>Lambda</td>
<td></td>
<td>Inverse Mill’s Ratio to control for self-selection bias</td>
</tr>
</tbody>
</table>

### 6.5 Summary

This chapter focuses on the research design of this study. It includes a justification of the sample selected, source documentation chosen and time period analyzed. Subsequently, the main empirical tests applied to the two research questions in this study are respectively discussed. Each is followed with the measures of the dependent and independent variables. The next chapter analyses the data by applying statistical techniques discussed in this chapter and presents the data analysis results.
CHAPTER 7
DATA ANALYSIS AND RESULTS

7.1 Introduction

This chapter conducts the data analysis and presents the results. Section 7.2 and section 7.3 respectively analyse and report the results regarding the determinants for voluntary ICAR and the effect of voluntary ICAR on accrual quality. For each question, basic descriptive statistics, multivariate results and robustness tests are successively presented and discussed. Finally, a summary is provided at the end of the chapter.

7.2 Empirical results: Determinants of Voluntary ICAR

Descriptive statistics and univariate analysis

This section begins by outlining the procedure of selecting the final sample. The descriptive statistics for continuous and dichotomous variables are subsequently presented and discussed. Finally, correlation analysis is performed and reported.

Sample selection and distribution

This subsection provides a detailed description of how the final sample is chosen for this study, followed by the discussion of sample distribution by year and industry. As outlined in Chapter Five, analysis of this study involves all A-share companies listed on the main board of the SSE and SZSE, excluding financial institutions and special treatment (ST) firms. Table 7.1 Panel A presents a summary of how the final sample is derived. Specifically, the initial sample comprises 3994 firm-year observations of A-
share companies listed on the main board of SSE and SZSE from 2007 to 2009. Consistent with prior research, 86 firm-year observations for financial institutions and 423 firm-year observations for ST firms are eliminated from the sample. Due to the unavailability of data on ownership, financial information and corporate governance, another 141, 31 and 61 firm-year observations are respectively excluded. After eliminating the above observations due to sample constraints or data unavailability, the final sample contains 3248 firm-year observations.

Panel B of Table 7.1 reports the sample distribution by year. Among the final sample, a total of 593 voluntary internal control assurance reports were published in the period examined, accounting for 18.3% of the sample size. The table shows that 144 of the 593 internal control assurance reports related to year 2007, 194 to year 2008 and 255 from year 2009. The proportion of firms undertaking ICAR is also gradually rising from 13.46% in 2007, to 17.64% in 2008, and to 23.65% in 2009.

Panel C of Table 7.1 presents the sample distribution by locations where the headquarters of listed firms are domiciled. The table shows the most represented locations are Shanghai (363 observations), Guangdong (327 observations), Jiangsu (223 observations), Beijing (223 observations) and Zhejiang (202 observations). Statistics indicate that the adoption of ICAR were most frequent in Beijing (137 observations), followed by Guangdong (42 observations), Shandong (36 observations), Jiangsu (35 observations) and Shanghai (31 observations). The proportion of firms undertaking ICAR is highest is Beijing (61.43%), followed by Yunnan (36.54%), Jilin (32.47%), Tianjin (26.47%) and Henan (25%). This table also displays the marketization index of 31 provinces, and a higher marketization index implies a better institutional environment. It is noted that the top 5 locations with the highest level of market-oriented institutions
are Shanghai (11.71), Zhejiang (11.39), Guangdong (11.04), Jiangsu (10.55) and Tianjin (9.76). It appears that firms domiciled in the locations with relatively poorer institutions tend to undertake voluntary ICAR.

Table 7.1 Sample Selection and Distribution (Determinants for voluntary ICAR)

Panel A: Development of sample

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total observations for A-share firms on the Main Board from CSMAR</td>
<td>1328</td>
<td>1330</td>
<td>1336</td>
<td>3994</td>
</tr>
<tr>
<td>Less observations for:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a). Firms in financial sector</td>
<td>28</td>
<td>28</td>
<td>30</td>
<td>86</td>
</tr>
<tr>
<td>b). Special treatment firms</td>
<td>154</td>
<td>138</td>
<td>131</td>
<td>423</td>
</tr>
<tr>
<td>c). Firms with unavailable ownership data</td>
<td>33</td>
<td>28</td>
<td>80</td>
<td>141</td>
</tr>
<tr>
<td>d). Firms with unavailable financial data</td>
<td>16</td>
<td>3</td>
<td>12</td>
<td>31</td>
</tr>
<tr>
<td>e). Firms without available corporate governance data</td>
<td>27</td>
<td>33</td>
<td>5</td>
<td>65</td>
</tr>
<tr>
<td>Total excluded due to sample constrains or data unavailability</td>
<td>258</td>
<td>230</td>
<td>258</td>
<td>746</td>
</tr>
<tr>
<td>Final sample</td>
<td>1072</td>
<td>1101</td>
<td>1079</td>
<td>3248</td>
</tr>
</tbody>
</table>

Panel B: Distribution of firms with or without voluntary ICAR by year

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of obs</th>
<th>ICAR=1</th>
<th>ICAR=0</th>
<th>Assured proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Frequency</td>
<td>Frequency</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>1070</td>
<td>144</td>
<td>926</td>
<td>13.46%</td>
</tr>
<tr>
<td>2008</td>
<td>1100</td>
<td>194</td>
<td>906</td>
<td>17.64%</td>
</tr>
<tr>
<td>2009</td>
<td>1078</td>
<td>255</td>
<td>823</td>
<td>23.65%</td>
</tr>
<tr>
<td>Total</td>
<td>3248</td>
<td>593</td>
<td>2655</td>
<td>18.26%</td>
</tr>
</tbody>
</table>
Panel C: Distribution of firms with and without ICAR by locations with marketization indices

<table>
<thead>
<tr>
<th>Location</th>
<th>No. of obs</th>
<th>ICAR=1 Freq</th>
<th>ICAR=0 Freq</th>
<th>Assured Proportion</th>
<th>MARINDEX</th>
<th>GMINDEX</th>
<th>FMINDEX</th>
<th>LEGINDEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beijing</td>
<td>223</td>
<td>86</td>
<td>137</td>
<td>61.40%</td>
<td>9.55</td>
<td>9.32</td>
<td>11.09</td>
<td>8.41</td>
</tr>
<tr>
<td>Yunnan</td>
<td>52</td>
<td>33</td>
<td>19</td>
<td>36.50%</td>
<td>6.15</td>
<td>8.07</td>
<td>4.74</td>
<td>4.63</td>
</tr>
<tr>
<td>Jilin</td>
<td>77</td>
<td>52</td>
<td>25</td>
<td>32.50%</td>
<td>6.93</td>
<td>8.31</td>
<td>3.10</td>
<td>5.37</td>
</tr>
<tr>
<td>Tianjin</td>
<td>68</td>
<td>50</td>
<td>18</td>
<td>26.50%</td>
<td>9.76</td>
<td>9.25</td>
<td>11.42</td>
<td>9.92</td>
</tr>
<tr>
<td>Henan</td>
<td>76</td>
<td>57</td>
<td>19</td>
<td>25.00%</td>
<td>7.42</td>
<td>8.54</td>
<td>4.14</td>
<td>4.99</td>
</tr>
<tr>
<td>Shanxi1</td>
<td>68</td>
<td>52</td>
<td>16</td>
<td>23.50%</td>
<td>6.23</td>
<td>6.96</td>
<td>3.77</td>
<td>4.78</td>
</tr>
<tr>
<td>Qinghai</td>
<td>17</td>
<td>13</td>
<td>4</td>
<td>23.50%</td>
<td>4.64</td>
<td>5.07</td>
<td>3.90</td>
<td>2.79</td>
</tr>
<tr>
<td>Guizhou</td>
<td>41</td>
<td>32</td>
<td>9</td>
<td>22.00%</td>
<td>5.57</td>
<td>6.62</td>
<td>3.07</td>
<td>3.76</td>
</tr>
<tr>
<td>Guangxi</td>
<td>56</td>
<td>44</td>
<td>12</td>
<td>21.40%</td>
<td>6.37</td>
<td>8.92</td>
<td>3.19</td>
<td>4.23</td>
</tr>
<tr>
<td>Shandong</td>
<td>178</td>
<td>142</td>
<td>36</td>
<td>20.20%</td>
<td>8.81</td>
<td>9.05</td>
<td>5.80</td>
<td>7.37</td>
</tr>
<tr>
<td>Hunan</td>
<td>97</td>
<td>79</td>
<td>18</td>
<td>18.60%</td>
<td>7.19</td>
<td>7.68</td>
<td>5.40</td>
<td>4.32</td>
</tr>
<tr>
<td>Gansu</td>
<td>44</td>
<td>36</td>
<td>8</td>
<td>18.20%</td>
<td>5.31</td>
<td>6.57</td>
<td>4.02</td>
<td>3.79</td>
</tr>
<tr>
<td>Anhui</td>
<td>122</td>
<td>100</td>
<td>22</td>
<td>18.00%</td>
<td>7.73</td>
<td>9.80</td>
<td>4.82</td>
<td>5.99</td>
</tr>
<tr>
<td>Hainan</td>
<td>41</td>
<td>34</td>
<td>7</td>
<td>17.10%</td>
<td>6.88</td>
<td>8.45</td>
<td>4.20</td>
<td>3.87</td>
</tr>
<tr>
<td>Chongqing</td>
<td>67</td>
<td>56</td>
<td>11</td>
<td>16.40%</td>
<td>8.10</td>
<td>8.81</td>
<td>7.17</td>
<td>5.61</td>
</tr>
<tr>
<td>Jiangsu</td>
<td>223</td>
<td>188</td>
<td>35</td>
<td>15.70%</td>
<td>10.55</td>
<td>10.60</td>
<td>7.87</td>
<td>11.50</td>
</tr>
<tr>
<td>Sichuan</td>
<td>144</td>
<td>122</td>
<td>22</td>
<td>15.30%</td>
<td>7.66</td>
<td>9.46</td>
<td>5.03</td>
<td>5.96</td>
</tr>
<tr>
<td>Hebei</td>
<td>78</td>
<td>67</td>
<td>11</td>
<td>14.10%</td>
<td>7.11</td>
<td>8.69</td>
<td>3.65</td>
<td>5.27</td>
</tr>
<tr>
<td>Guangdong</td>
<td>327</td>
<td>281</td>
<td>46</td>
<td>14.10%</td>
<td>11.04</td>
<td>10.65</td>
<td>9.02</td>
<td>12.59</td>
</tr>
<tr>
<td>Heilongjiang</td>
<td>62</td>
<td>54</td>
<td>8</td>
<td>12.90%</td>
<td>6.27</td>
<td>8.07</td>
<td>3.41</td>
<td>5.46</td>
</tr>
<tr>
<td>Hubei</td>
<td>150</td>
<td>132</td>
<td>18</td>
<td>12.00%</td>
<td>7.40</td>
<td>9.11</td>
<td>5.22</td>
<td>5.79</td>
</tr>
<tr>
<td>Fujian</td>
<td>100</td>
<td>88</td>
<td>12</td>
<td>12.00%</td>
<td>9.45</td>
<td>10.34</td>
<td>8.15</td>
<td>6.92</td>
</tr>
<tr>
<td>Xinjiang</td>
<td>67</td>
<td>59</td>
<td>8</td>
<td>11.90%</td>
<td>5.36</td>
<td>6.26</td>
<td>2.42</td>
<td>4.56</td>
</tr>
<tr>
<td>Liaoning</td>
<td>105</td>
<td>94</td>
<td>11</td>
<td>10.50%</td>
<td>8.66</td>
<td>8.67</td>
<td>8.14</td>
<td>7.23</td>
</tr>
<tr>
<td>Shanxi2</td>
<td>49</td>
<td>44</td>
<td>5</td>
<td>10.20%</td>
<td>5.36</td>
<td>7.13</td>
<td>3.97</td>
<td>4.99</td>
</tr>
<tr>
<td>Neimeng</td>
<td>42</td>
<td>38</td>
<td>4</td>
<td>9.50%</td>
<td>6.40</td>
<td>7.01</td>
<td>3.63</td>
<td>4.50</td>
</tr>
<tr>
<td>Jiangxi</td>
<td>64</td>
<td>58</td>
<td>6</td>
<td>9.40%</td>
<td>7.29</td>
<td>8.41</td>
<td>4.81</td>
<td>4.75</td>
</tr>
<tr>
<td>Shanghai</td>
<td>363</td>
<td>332</td>
<td>31</td>
<td>8.50%</td>
<td>11.71</td>
<td>10.27</td>
<td>11.93</td>
<td>16.61</td>
</tr>
<tr>
<td>Zhejiang</td>
<td>202</td>
<td>188</td>
<td>14</td>
<td>6.90%</td>
<td>11.39</td>
<td>10.12</td>
<td>9.24</td>
<td>13.89</td>
</tr>
<tr>
<td>Ningxia</td>
<td>29</td>
<td>28</td>
<td>1</td>
<td>3.40%</td>
<td>5.85</td>
<td>7.03</td>
<td>3.46</td>
<td>3.80</td>
</tr>
<tr>
<td>Xizang</td>
<td>16</td>
<td>16</td>
<td>0</td>
<td>0.00%</td>
<td>4.25</td>
<td>1.13</td>
<td>2.04</td>
<td>3.89</td>
</tr>
<tr>
<td>Total</td>
<td>3248</td>
<td>593</td>
<td>2655</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

165
Descriptive statistics of continuous variables

Table 7.2 presents descriptive statistics on the characteristics of firms with voluntary ICAR and the control firms without voluntary ICAR. Panel A reports descriptive statistics of the continuous variables. Summary statistics for the continuous variables include the mean, minimum, maximum and standard deviation. Two-tailed t-tests are used to compare the means of the continuous variables between ICAR and Non-ICAR firms. Univariate tests indicate that there are statistically significant differences between companies with voluntary ICAR and those without ICAR for most continuous variables.

With few exceptions, descriptive statistics of continuous variables in Panel A of Table 7.2 support the predictions about firm-level incentives of ICAR decision in this study. Firm-level incentives variables are broadly classified into three groups: (1) ownership structure; (2) alternative corporate governance mechanisms; and (3) firm operating characteristics. For ownership structure variables capturing information asymmetry and agency conflicts, as expected, it is found that assurance firms have a higher level of cashflow rights held by controlling shareholders (34.95 versus 30.07 percent, p<0.05), a higher level of leverage (4.68 versus 4.44 percent, p<0.10) and a higher level of institutional shareholding (19.28 versus 15.31 percent, p<0.10). Regarding alternative corporate governance mechanisms measures, assurance firms appear to have a larger BoD (9.63 versus 9.27, p<0.01), which meets more frequently (9.998 versus 9.37 percent, p<0.01) and a larger BoS (4.35 versus 4.07 percent, p<0.01). With respect to variables measuring firm operating characteristics, assurance firms tend to be larger in size (22.30 versus 21.69, p<0.01), have faster asset growth (27.64 versus 17.70 percent, p<0.01) and a lower receivable ratio (7.09 versus 7.70 percent, p<0.05).

The average total assets of firms with voluntary ICAR is RMB ¥20.8 billion, versus RMB ¥6.4 billion for firms without voluntary ICAR.
Descriptive statistics of continuous variables in Panel A of Table 7.2 also lend support to the prediction with respect to the influence of regional-level institutions on a firm’s ICAR decisions. It is found that assurance firms are located in provinces with poorer overall market-oriented institutions measured by MARINDEX (8.667 versus 8.868, p<0.05), stronger government intervention measured by GMINDEX (9.101 versus 9.198, p<0.1) and weaker legal environment measured by LGINDEX (7.953 versus 8.834, p<0.01), but more-developed factor markets measured by FMINDEX (7.421 versus 7.071, p<0.05).

Descriptive statistics of dichotomous variables

Table 7.2 Panel B reports the descriptive statistics of dichotomous variables. The values reported for the categorical variables show the proportion of treatment or control firms that possess the indicated characteristic. The chi-square is performed to test for difference in proportions between ICAR and non-ICAR firms.

Regarding alternative corporate governance mechanisms measures, it is found that firms being cross-listed in the US (CROSSLIST: 2.53 per cent versus 0.53 percent, p<0.01) and hiring TOP10 domestic auditors as the external auditor (TOP10: 43.51 versus 36.42 percent, p<0.01) are more likely to undertake voluntary ICAR. With respect to firm operating characteristics measures, assurance firms experience fewer occurrences of loss (LOSS: 6.58 versus 12.32 percent, p<0.01) and receive higher financial reporting quality (EA_OPINION: 99.16 versus 96.53 percent, p<0.05).

Correlation and collinearity analysis

The pair-wise correlations among firm-level variables are presented in Panel A of Table
where the upper right-hand portion of the table presents Pearson correlations and the lower left-hand portion presents the Spearman correlations. It is noted that the patterns of the two correlations are quite similar. A review of the coefficients in Panel A of Table 7.2 highlights a number of correlations. Consistent with the expectation, a number of firm-level variables are significantly associated with ICAR. First, with respect to ownership structure, the independent variable ICAR are significantly positively correlated to CFRIGHT and INSHARE (p<0.05). Second, a number of significantly positive correlations are noted among alternative corporate governance mechanisms measures. CROSSLIST, TOP10, B_SIZE, B_MEET, S_SIZE and S_MEET are significantly positively correlated to ICAR (p<0.05). Finally, regarding firm characteristics, ICAR is significantly positively correlated with SIZE, AGROWTH and EA_OPINION (p<0.05), and is significantly negative correlated with LOSS (p<0.05). The simple correlations provide preliminary evidence that firm-level incentives are related to the voluntary adoption of ICAR. Correlations among firm-level variables are relatively low, with the largest being -0.51 between CFRIGHT and VCVAR, thus suggesting that multicollinearity is not likely to be a serious concern in the estimation of the logistic regression model.

Panel B of Table 7.3 reports the correlation matrix among regional-level variables. A review of Panel B suggests that the negative correlations between ICAR and regional-level institutions, MARINDEX (p<0.10), GMINDEX (p<0.05) and LEGINDEX (p<0.10), meaning that firms are more likely to undertake voluntary ICAR if they domicile in regions with less developed market-oriented institutions, stronger government intervention and weaker legal environment. Large and significantly positive correlations are noted among the regional-level variables, with many in excess of 0.70. It is consistent with the evidence in prior studies that regions with more developed
market-oriented institutions have less government intervention, more developed factor markets and a stronger legal environment (Fan and Wang, 2009). The large correlations among regional-level variables indicate multicollinearity. Thus, the four regional-level variables will be included in the estimation of the logistic regression model respectively.

Panel C of Table 7.3 displays collinearity statistics. Multicollinearity is the extent to which independent variables are correlated with each other, and occurs when an independent variable is highly correlated with other independent variables (Hair et al. 2010). In this research, the variance inflation factor (VIF) or Tolerance (inverse of VIF) was used to check multicollinearity among the independent variables for the regression model. The cut-off level of VIF is set at 10 (Tolerance: 0.1), which is the commonly acceptable and typically suggested threshold level (Craney and Surles 2002; Hair et al. 2010; O’Brien 2007). If VIF is greater than 10, there is a high suspicion of multicollinearity. Thus, VIF should be less than 10 (or Tolerance >0.1) for all variables. Panel C of Table 7.3 shows all the VIF values are considerably lower than 10. Therefore, it indicates that there is no evidence of multicollinearity.

Overall, the results of correlation and collinearity tests reported in Table 7.3 provide preliminary evidence of a significant relationship between the ICAR decision and a number of variables proxy for firm-level incentives, including ownership structure (i.e., cashflow rights held by controlling shareholders), alternative effective corporate governance mechanisms (i.e, institutional shareholding, cross-listing, Top 10 domestic external auditors, BoD and BoS) and firm characteristics (i.e., firm size, financial health, rapid growth and financial reporting quality). The assurance decision also appears to be highly correlated with the explainable variables proxy for regional-level institutions.

In sum, the above univariate results provide preliminary support for hypotheses H1, H2,
H3 and H4. Univariate tests indicate that there are statistically significant differences between firms with voluntary ICAR and those without ICAR for a number of variables. In the next section, more formal tests on the hypotheses in this study will be conducted using multivariate logistic regression.
Table 7.2 Descriptive Statistics (Determinants for voluntary ICAR)

Panel A: Descriptive Statistics and t-test of means for Continuous Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>ICAR=1</th>
<th>N=593</th>
<th></th>
<th>ICAR=0</th>
<th>N=2655</th>
<th></th>
<th>t-stat</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Min</td>
<td>Max</td>
<td>Std. Dev</td>
<td>Mean</td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>CFRIGHT</td>
<td>34.946</td>
<td>1.250</td>
<td>86.710</td>
<td>17.877</td>
<td>30.073</td>
<td>0.250</td>
<td>84.000</td>
</tr>
<tr>
<td>VCVAR</td>
<td>6.030</td>
<td>0.000</td>
<td>44.477</td>
<td>9.108</td>
<td>6.251</td>
<td>0.000</td>
<td>42.347</td>
</tr>
<tr>
<td>INSHARE</td>
<td>19.281</td>
<td>0.000</td>
<td>90.414</td>
<td>17.762</td>
<td>15.308</td>
<td>0.000</td>
<td>88.236</td>
</tr>
<tr>
<td>FLOATRATIO</td>
<td>66.278</td>
<td>13.714</td>
<td>100.000</td>
<td>22.180</td>
<td>66.774</td>
<td>2.699</td>
<td>100.000</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>4.682</td>
<td>0.000</td>
<td>44.600</td>
<td>8.816</td>
<td>4.437</td>
<td>0.000</td>
<td>57.200</td>
</tr>
<tr>
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<td>9.632</td>
<td>4.000</td>
<td>18.000</td>
<td>2.132</td>
<td>9.273</td>
<td>2.000</td>
<td>18.000</td>
</tr>
<tr>
<td>IN_DI</td>
<td>36.238</td>
<td>9.091</td>
<td>71.429</td>
<td>5.599</td>
<td>36.053</td>
<td>14.286</td>
<td>66.667</td>
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<tr>
<td>B_MEET</td>
<td>9.998</td>
<td>3.000</td>
<td>36.000</td>
<td>4.402</td>
<td>9.369</td>
<td>1.000</td>
<td>34.000</td>
</tr>
<tr>
<td>S_SIZE</td>
<td>4.346</td>
<td>2.000</td>
<td>12.000</td>
<td>1.625</td>
<td>4.012</td>
<td>1.000</td>
<td>13.000</td>
</tr>
<tr>
<td>S_MEET</td>
<td>4.938</td>
<td>1.000</td>
<td>16.000</td>
<td>1.678</td>
<td>4.714</td>
<td>1.000</td>
<td>16.000</td>
</tr>
<tr>
<td>Total Assets</td>
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<td>134.5E+6</td>
<td>1.5E+12</td>
<td>95.4E+9</td>
<td>6.4E+9</td>
<td>1.4E+6</td>
<td>718.6E+9</td>
</tr>
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<td>RECRATIO</td>
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<td>7.696</td>
<td>0.000</td>
<td>36.410</td>
</tr>
<tr>
<td>INVRATIO</td>
<td>18.195</td>
<td>0.020</td>
<td>75.151</td>
<td>17.001</td>
<td>18.237</td>
<td>0.020</td>
<td>75.151</td>
</tr>
<tr>
<td>AGROWTH</td>
<td>27.638</td>
<td>-34.407</td>
<td>283.272</td>
<td>44.533</td>
<td>17.693</td>
<td>-34.407</td>
<td>283.272</td>
</tr>
<tr>
<td>GMINDEX</td>
<td>9.101</td>
<td>5.070</td>
<td>10.650</td>
<td>1.113</td>
<td>9.198</td>
<td>1.130</td>
<td>10.650</td>
</tr>
</tbody>
</table>

Panel B: Frequencies and Chi-square test for Dichotomous Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>ICAR=1</th>
<th>N=593</th>
<th>%</th>
<th>Firms Coded</th>
<th>ICAR=0</th>
<th>N=2655</th>
<th>%</th>
<th>Firms Coded</th>
<th>%</th>
<th>Firms Coded</th>
<th>Chi-square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crosslisted</td>
<td>15</td>
<td>2.53%</td>
<td>577</td>
<td>97.47%</td>
<td>14</td>
<td>0.53%</td>
<td>2641</td>
<td>99.47%</td>
<td>21.960***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Big4</td>
<td>46</td>
<td>7.78%</td>
<td>547</td>
<td>92.24%</td>
<td>183</td>
<td>6.89%</td>
<td>2472</td>
<td>93.11%</td>
<td>0.553</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top10</td>
<td>258</td>
<td>43.51%</td>
<td>335</td>
<td>56.49%</td>
<td>967</td>
<td>36.42%</td>
<td>1688</td>
<td>63.58%</td>
<td>10.360***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEO_DU</td>
<td>62</td>
<td>10.46%</td>
<td>531</td>
<td>89.54%</td>
<td>306</td>
<td>11.53%</td>
<td>2349</td>
<td>88.47%</td>
<td>0.553</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss</td>
<td>39</td>
<td>6.58%</td>
<td>554</td>
<td>93.42%</td>
<td>327</td>
<td>12.32%</td>
<td>2328</td>
<td>87.68%</td>
<td>15.971***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EA_Opinion</td>
<td>588</td>
<td>99.16%</td>
<td>5</td>
<td>0.84%</td>
<td>2563</td>
<td>96.53%</td>
<td>92</td>
<td>3.47%</td>
<td>11.502**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There are a maximum 593 voluntary ICAR firm-year observations and 2655 control firm observations. All variables are described in Table 6.1. With the exception of AGROWTH, RECRATIO, INVRATIO which are winsorized at 1% on the top and at the bottom, the rest variables are generally within reasonable range and are not winsorized. *, **, *** indicate significant at p<.10, p<.05 and p<.01, respectively based on two-tailed tests.
| Panel A: Pearson and Spearman Correlations among Firm-level incentives (N=3248) |
|---------------------------------|-----------------|
|                                | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  |
| ICAR                            | 1.00 | .109 | -.01 | .091 | -.009 | .082 | .011 | .071 | .014 | .013 | .067 | .096 | .053 | .060 | .013 | .056 | .191 | -.030 | -.001 | .093 | -.070 |
| CFRIGHT                         | .109 | 1.000 | .447 | .006 | -.398 | .127 | .039 | .070 | .032 | -.110 | .019 | .132 | .038 | .057 | .140 | .063 | .325 | -.100 | .020 | .172 | -.083 |
| VCVAR                           | -.033 | -510 | 1.000 | -.002 | .053 | -.020 | -.014 | -.027 | -.034 | .004 | .014 | -.068 | .019 | .013 | .028 | -.007 | .042 | -.089 | .003 | -.002 | -.019 |
| INSHARE                         | .113 | -.023 | -.008 | 1.000 | .002 | .047 | .047 | .070 | .030 | .021 | .045 | .051 | .047 | .035 | .103 | -.014 | .127 | .009 | -.021 | .052 | -.060 |
| FLOATRATIO                      | -.014 | -.407 | -.020 | .051 | 1.000 | -.065 | -.188 | -.067 | .013 | .070 | -.081 | -.058 | -.001 | -.010 | -.084 | .062 | -.119 | .047 | -.022 | -.227 | .051 |
| CROSSLIST                       | .082 | .011 | -.028 | .059 | -.069 | 1.000 | .023 | .091 | .003 | .013 | -.010 | .121 | -.008 | -.003 | .268 | -.040 | .254 | -.041 | -.053 | .011 | .008 |
| LEVERAGE                        | -.016 | .013 | -.008 | .031 | -.248 | -.030 | 1.000 | -.114 | -.006 | -.057 | -.119 | -.078 | .005 | .041 | -.092 | -.051 | .227 | -.194 | -.027 | .105 | -.021 |
| B_SIZE                          | .058 | .073 | -.071 | .109 | -.074 | .084 | .134 | 1.000 | -.248 | -.114 | -.026 | .347 | -.009 | -.008 | .159 | -.024 | .292 | -.062 | -.099 | .033 | -.040 |
| IN_DI                           | .017 | .012 | -.038 | .022 | -.024 | -.015 | .007 | -.261 | 1.000 | .035 | .031 | -.059 | -.017 | -.024 | -.046 | -.037 | .043 | .017 | .039 | .022 | .002 |
| CEO_DU                          | -.013 | -.111 | -.022 | .021 | -.070 | -.013 | -.049 | -.119 | .042 | 1.000 | -.022 | -.081 | -.023 | -.011 | -.042 | -.016 | -.109 | -.046 | .057 | .009 | .023 |
| B_MEET                          | .040 | -.011 | -.038 | .058 | -.099 | -.025 | .192 | -.049 | .036 | -.016 | .010 | .044 | .260 | -.003 | -.070 | -.043 | .146 | -.058 | -.126 | -.140 | -.039 |
| S_SIZE                          | .070 | .130 | -.129 | .066 | -.044 | .101 | .100 | .330 | .055 | -.089 | -.029 | 1.000 | .025 | .111 | .097 | .012 | .239 | -.082 | -.101 | .019 | .013 |
| S_MEET                          | .055 | .046 | .022 | .042 | -.001 | -.003 | -.007 | -.022 | .002 | .025 | .286 | .034 | 1.000 | .029 | .042 | .023 | .058 | .013 | .000 | .059 | -.030 |
| EA_OPION                        | .060 | .059 | -.008 | .046 | -.010 | .003 | -.040 | -.016 | -.024 | -.021 | -.015 | .021 | .039 | 1.000 | .034 | .002 | .132 | -.035 | .034 | .066 | .229 |
| BIG4                            | .013 | .131 | .015 | .115 | -.091 | .268 | .088 | .146 | .037 | -.042 | .063 | .094 | .055 | .034 | 1.000 | -.214 | .439 | .087 | .092 | .027 | -.026 |
| TOP10                           | .056 | .068 | -.028 | -.004 | .059 | -.040 | -.099 | .019 | -.033 | -.016 | -.034 | .018 | -.014 | .002 | 1.000 | .084 | .012 | -.008 | .036 | |
| S_SIZE                          | .176 | .259 | .070 | .176 | .104 | .140 | .239 | .261 | .033 | .107 | .140 | .238 | .077 | .107 | .343 | .026 | 1.000 | -.209 | -.022 | .253 | .151 |
| RECRATIO                        | -.027 | -.093 | .077 | -.020 | .055 | -.044 | -.137 | -.024 | -.019 | .044 | -.042 | -.070 | -.009 | -.013 | -.086 | .087 | -.207 | 1.000 | -.023 | -.078 | .014 |
| INVRATIO                        | -.015 | -.009 | .035 | -.010 | .009 | -.066 | -.028 | -.072 | .047 | -.035 | -.054 | -.097 | .010 | .024 | .119 | .050 | -.049 | .117 | 1.000 | .075 | -.057 |
| AGROWTH                         | .144 | .148 | -.008 | .156 | -.167 | .023 | .129 | .088 | .015 | -.029 | .167 | .070 | .074 | .123 | .078 | -.002 | .366 | -.114 | .042 | 1.000 | -.155 |
| LOSS                            | .070 | -.083 | -.003 | .085 | .051 | .008 | -.006 | -.032 | .017 | .023 | .035 | -.001 | -.027 | -.229 | -.026 | .036 | -.166 | .031 | -.052 | -.266 | 1.000 |

The right top is Pearson test and the left bottom is Spearman test. All variables are described in Table 6.1.

*, ** indicate correlation significant at the 0.05 level (2-tailed) and at the 0.01 level (2-tailed).
Panel B: Pearson and Spearman Correlations among Regional Institutions (N=3248)

<table>
<thead>
<tr>
<th></th>
<th>ICAR</th>
<th>MARINDEX</th>
<th>GMINDEX</th>
<th>FMINDEX</th>
<th>LEGINDEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICAR</td>
<td>1.000</td>
<td>-0.042*</td>
<td>-0.052**</td>
<td>0.028</td>
<td>-0.042*</td>
</tr>
<tr>
<td>MARINDEX</td>
<td>-0.042*</td>
<td>1.000</td>
<td>0.858**</td>
<td>0.923**</td>
<td>0.977**</td>
</tr>
<tr>
<td>GMINDEX</td>
<td>-0.052**</td>
<td>0.858**</td>
<td>1.000</td>
<td>0.712**</td>
<td>0.842**</td>
</tr>
<tr>
<td>FMINDEX</td>
<td>0.028</td>
<td>0.923**</td>
<td>0.712**</td>
<td>1.000</td>
<td>0.893**</td>
</tr>
<tr>
<td>LEGINDEX</td>
<td>-0.042*</td>
<td>0.977**</td>
<td>0.842**</td>
<td>0.893**</td>
<td>1.000</td>
</tr>
</tbody>
</table>

The right top is Pearson test and the left bottom is Spearman test. All variables are described in Table 6.1. *, ** indicate correlation significant at the 0.05 level (2-tailed) and at the 0.01 level (2-tailed).

Panel C: Collinearity Statistics (N=3248)

<table>
<thead>
<tr>
<th>Collinearity statistics</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCFRIGHT</td>
<td>.521</td>
<td>1.920</td>
</tr>
<tr>
<td>VCVAR</td>
<td>.701</td>
<td>1.427</td>
</tr>
<tr>
<td>INSHARE</td>
<td>.968</td>
<td>1.033</td>
</tr>
<tr>
<td>FLOTARATIO</td>
<td>.705</td>
<td>1.418</td>
</tr>
<tr>
<td>CROSSLIST</td>
<td>.891</td>
<td>1.123</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>.868</td>
<td>1.153</td>
</tr>
<tr>
<td>B_SIZE</td>
<td>.748</td>
<td>1.337</td>
</tr>
<tr>
<td>IN_DI</td>
<td>.907</td>
<td>1.103</td>
</tr>
<tr>
<td>CEO_DU</td>
<td>.965</td>
<td>1.036</td>
</tr>
<tr>
<td>B_MEET</td>
<td>.858</td>
<td>1.165</td>
</tr>
<tr>
<td>S_SIZE</td>
<td>.830</td>
<td>1.205</td>
</tr>
<tr>
<td>S_MEET</td>
<td>.918</td>
<td>1.089</td>
</tr>
<tr>
<td>EA_OPION</td>
<td>.930</td>
<td>1.076</td>
</tr>
<tr>
<td>BIG4</td>
<td>.713</td>
<td>1.402</td>
</tr>
<tr>
<td>TOP10</td>
<td>.907</td>
<td>1.103</td>
</tr>
<tr>
<td>SIZE</td>
<td>.556</td>
<td>1.800</td>
</tr>
<tr>
<td>RECRATIO</td>
<td>.917</td>
<td>1.091</td>
</tr>
<tr>
<td>INVRATIO</td>
<td>.946</td>
<td>1.057</td>
</tr>
<tr>
<td>AGROWTH</td>
<td>.921</td>
<td>1.086</td>
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<tr>
<td>LOSS</td>
<td>.912</td>
<td>1.097</td>
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<tr>
<td>MARINDEX</td>
<td>.925</td>
<td>1.081</td>
</tr>
</tbody>
</table>
Multivariate analysis of determinants for voluntary ICAR

Table 7.4 reports the results of logistic regression models estimated for the pooled sample period from 2007 to 2009, with fixed year and industry effects included. To mitigate the effects of extreme values in the regressions, the value of AGROWTH, INVRATIO and RECRATIO are winsorized at 1% on the top and 99% at the bottom. There are two models presented in Table 7.4. Model 1 reports the effect of firm-level incentives on voluntary ICAR alone. Model 2 presents an estimation using both the role of firm-specific economic incentives and regional institutional features on a firm’s selection for voluntary ICAR. In Model 2 the total marketization index (MARINDEX) is deployed to proxy for the overall regional institutional environment. To test the goodness of fitness of the model, both the model chi-square (model $\chi^2$) and the Hosmer-Lemeshow chi-square (Hosmer-Lemeshow $\chi^2$) are examined.

Voluntary ICAR: enhancing information credibility and reducing agency costs

According to the theoretical framework developed in Chapter 4, it is argued that voluntary ICAR contributes to enhance information credibility and reducing agency costs. In the absence of this monitoring mechanism, the outside investors may expect a higher level of business risks from the controlling shareholders and thus take them into account when considering their investments. To reduce the information credibility gap and the costs of capital derived from agency problem and information asymmetry, the controlling shareholders will have the incentives to voluntarily introduce a bonding mechanism, namely ICAR, so as to facilitate implementation of contracts. Based on this argument, two hypotheses are developed and examined with respect to ownership structure (H1) and corporate governance mechanisms.
Ownership structure

To test H1, five proxies for ownership structure are used to capture the degree of agency problem and information asymmetry: (1) cash flow rights (CFRIGHT); (2) divergence between voting rights and cash flow rights (VCVAR); (3) floating ratio (FLOATRATIO); (4) institutional shareholding (INSHARE); and (5) leverage (LEVERAGE).

Noted from the results of Model 1 in Table 7.4, the coefficients on CFRIGHT and VCVAR are significantly positively related with ICAR (coefficient of 0.009 and 0.012 with \( p < 0.05 \)). Firms with the ultimate controlling shareholder having higher cash flow stakes are more likely to adopt voluntary ICAR, indicating the incentive effect. Therefore, \( H1a \) is supported. Consistent with the prediction of \( H1b \), firms with a higher level of agency costs measured by the separation of control (voting rights) from ownership (cash flow rights) are more motivated to undertake voluntary ICAR to mitigate the agency problems between the controlling shareholder and the minority shareholders. In addition, the coefficients on INSHARE is significant and positive (coefficient of 0.009 with \( p < 0.01 \)), indicating that firms with more institutional shareholding are more likely to have internal control assured. \( H1d \) is supported. However, regarding \( H1c \) and \( H1e \), the coefficients on FLOATRATIO and LEVERAGE are positive but not significant. During the sample period, although the proportion of tradable shares increased after the non-tradable share reform, non-tradable shareholding remained predominant and non-tradable shareholders retained tight control over a firm (Yeh et al., 2009). This may be the possible explanation for the non-significance of FLOATRATIO. This non-significant result regarding LEVERAGE is consistent with Tian and Estrin (2007). As discussed in Chapter Four, bank loans are the dominant form of credit in China (Yang et al., 2011a), and China’s banking system is still dominated by
state owned banks (Berger et al., 2009, Firth et al., 2008). Although agency conflicts exist between the controlling shareholders and state-owned banks, it is doubtful of the effective monitoring role of state-owned banks in China, as the state usually sacrifices financial interests to social and political interests. Moreover, the soft budget constraint is the key obstacle preventing banks from providing significant monitoring to firms, since the state is still the ultimate owner of the major banks and most listed firms (Tian and Estrin, 2007).

- Corporate governance mechanisms

In order to test H2, two types of corporate governance mechanisms are considered to examine their interactions with firms’ assurance decisions: external governance mechanisms which include cross-listing status and external auditor type, and internal governance mechanisms consisting of BoD and BoS. For external governance mechanisms, the analysis shows a significant and positive coefficient of CROSSLIST. As expected in H2a, the probability of adopting ICAR is positively associated with a cross-listing of shares in the US. The finding is consistent with prior research on internal control disclosure (Deumes and Knechel, 2008, Michelon et al., 2009), suggesting the effect of stricter requirements from cross-listed exchanges on firms’ accounting choice. More interestingly, the coefficient of BIG4 is significant and negative, indicating the likelihood of an adoption of ICAR is lower for firms whose external auditors of their financial reporting are BIG4. Thus, H2b can be accepted. This result is consistent with Fang and Dai (2012b) who explain BIG4 are reluctant to accept ICAR engagements due to the consideration of the protection of their high reputation and the potential high risks associated with ICAR service. Turning to internal governance mechanisms, among the four characteristics proxied for the effectiveness of BoD, only one significant and
positive relation is found between B_MEET and ICAR. It implies that firms whose BoD
meets more often is more likely to have their internal control report assured compared
to firms in which the BoD meets less. Generally, the frequency of meetings of a BoD
indicates its activeness and enthusiasm (Liao et al., 2008). The finding suggests that it
is the functional mechanism of a BoD that influences a firm’s decision on ICAR, rather
than its structure. There is no statistically significant relationship between board
independence and ICAR, which indicates that under the weak investor protection in
countries like China, monitoring by independent directors is usually ineffective (La
Porta et al., 2000). Finally, the coefficient of S_SIZE is significantly positively
associated with ICAR at the 1 percent level, thus corroborating H2d since firms with a
larger BoS are more likely to adopt voluntary ICAR.

**Voluntary ICAR: compensating loss of control and transmitting signals**

According to the theoretical framework developed in Chapter 4, it is argued that
voluntary ICAR confers to compensate loss of control and transmitting signals. In light
of loss of control theory and signal theory, the potential loss and failure of control
necessitates firms to augment internal control and inform outsiders that their internal
control system is in place and operates effectively through a more credible ICAR from
external auditors. A firm may be subject to the potential failure and loss of control due
to the changes of firm operating characteristics, namely firm’s internal control risks
factors, such as firm size, financial health, rapid growth and accounting risks. These firm
operating characteristics (H3) in turn will influence a firm’s decision on voluntary
assurance of internal control.

To test H3, five variables are used to capture firm operating characteristics, including (1)
firm size (SIZE); (2) financial health (LOSS); (3) rapid growth (**AGROWTH**); (4)
accounting risks represented by the level of inventories and receivables (INVRATIO, RECRATIO); and (5) audit opinion (EA_OPINION). These firm operating characteristics can either increase the likelihood of voluntary ICAR because there is greater investor demand for information, or decrease the likelihood if it results in weaker internal controls to avoid to acknowledge its responsibility for internal control. First, the analysis shows a significant and positive coefficient of SIZE, suggesting larger firms are more likely to undertake voluntary ICAR. Thus H3a can be accepted and confirm larger firms are more able to invest in ICAR, either because they have more resources to invest, or because they are more likely to enjoy the economic scale when developing and implementing an internal control system. Further, the coefficient of LOSS is negative, suggesting that the likelihood of adopting ICAR is higher for firms that experience less occurrences of loss and thus H3b is supported. Finally, the coefficient of EA_OPINION is positive and significant. The results thus corroborate H3e, since firms with higher financial reporting quality are more likely to have their internal control report assured compared to firms with lower quality. The overall findings indicate the signaling effect of voluntary ICAR.

**Voluntary ICAR: Achieving legitimacy under institutional influences**

According to the theoretical framework developed in Chapter 4, it is argued that voluntary ICAR confers to imbue legitimacy and signal the presence of higher quality corporate governance to the market when the contracting institutional environments are divergent. As discussed in Chapter 4, two competing views are documented by prior studies, either complementary or supplementary. Following this line, it is supposed the quality of regional-level institutions (H4) is associated with firm’s decision on voluntary ICAR, and no direction predicted.
To test H4, the NERI marketization indices for 31 provinces, autonomous regions and municipalities compiled by Fan et al. (2009), are used to proxy for the quality of regional-level institutions. First, the total marketization index (MARINDEX) is utilized to capture the overall regional-level institutional variance across regions. Subsequently, three specific sub-aspects of marketization index are respectively investigated to capture their influence. They are (1) index measuring the degree of government intervention (GMINDEX); (2) index capturing the strength of the regional factor markets and the mechanisms of resources allocation, covering the development of financial markets, foreign direct investment, labor mobility and etc. (FMINDEX); (3) index measuring the quality of legal environment (LEGINDEX).

To test whether the institutional environment has an impact on a firm’s decision on voluntary ICAR, Model 2 in Table 7.4 initially includes MARINDEX in the regression, capturing the overall institutional variance across regions. It is found that the coefficient on MARINDEX is negative and significant, suggesting that firms domiciled in regions with weak market institutions are more likely to select voluntary ICAR. H4 is supported. In addition, the inclusion of an institutional variable does not affect the inference regarding the association between the adoption of voluntary ICAR and firm-level incentives measures reported in Model 1.

The goodness of fitness of the model is also examined. In model 1, the model $\chi^2$ is significant with a p-value at 0.000 and the Hosmer-Lemeshow $\chi^2$ is not significant with p-value at 0.807. In model 2, the former is significant while the latter is non-significant. Both the above $\chi^2$ tests in Model 1 and Model 2 indicate that the independent variables can explain the significant part of a firm’s selection for voluntary ICAR. The Pseudo R$^2$ is respectively at 0.137 and 0.141 in Model 1 and Model 2, and the classification
accuracy is respectively 81.9 percent and 82.1 percent. These findings suggest that the combined model using both firm-specific economic factors and regional-level institutional features clearly has greater explanatory power than the firm model alone.

In addition, the influence of three important aspects of regional institutional variances on demand by firms for voluntary ICAR is further examined. As the three indices are highly correlated, they are included in the estimation of the logistic regression model respectively. Table 7.5 presents the results by respectively including GMINDEX, FMINDEX and LEGINDEX in Model 3 to Model 5, in addition to firm-specific economic factors. It is found that the coefficients on GMINDEX and LEGINDEX are significantly negative to ICAR, indicating that firms located in regions with a higher degree government intervention, or a lower level of legal enforcement environment are more likely to have internal control assured. No significant relationship between FMINDEX and ICAR is found. Consistent with Model 1 and Model 2, the coefficients on CFRIGHT, VCVAR and INSHARE are significantly positive. Turning to alternative corporative governance mechanisms, the coefficients on CROSSLIST, B_MEET and S_SIZE are also significantly positive, but BIG4 is significantly negatively related. Meanwhile, for firm operating characteristics, SIZE and EA_OPINION are significantly positively associated with ICAR, and LOSS is significantly negatively related. The coefficients on firm-level incentive measures are similar to those reported in Table 7.4. All the model $\chi^2$ in Model 3 to Model 5 are significant, while the Hosmer-Lemeshow $\chi^2$ are all non-significant, suggesting these three Models respectively provide significant explanations of a firm’s decision on voluntary ICAR. The Pseudo $R^2$ is respectively at 0.139, 0.139 and 0.151, and the classification accuracy is respectively 81.9 percent, 82.0 percent and 82.1 percent.
Table 7.4 Logistic Regression of the Probability of Voluntary ICAR

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
</tr>
</thead>
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<tr>
<td></td>
<td>B</td>
<td>Exp(B)</td>
<td>Wald</td>
<td>B</td>
</tr>
<tr>
<td>INTERCEPT</td>
<td>-11.802</td>
<td>.000</td>
<td>80.063***</td>
<td>-11.442</td>
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<tr>
<td><strong>Firm-level incentives</strong></td>
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<td></td>
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</tr>
<tr>
<td>CFRIGHT</td>
<td>.009</td>
<td>1.009</td>
<td>5.038**</td>
<td>.010</td>
</tr>
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<td>VCVAR</td>
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<td>1.012</td>
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<td>LEVERAGE</td>
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<td>.009</td>
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**Regional-level institutions**

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*** indicate significant at p<.10, p<.05 and p<.01 respectively based on two-tailed tests, except for CFRIGHT, VCVAR, FLOATRATIO, INSHARE, LEVERAGE, and SIZE which are based on one-tailed tests. AGROWTH, INVRATIO and RECRATIO are winsorized at 1% on the top and the bottom. Industry and Year dummy variables are not reported for expositional convenience. All variables are described in Table 5.1.
Table 7.5 Logistic Regression of the Probability of Voluntary ICAR (supplemental analysis)

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<th>Model 5</th>
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<tr>
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</tr>
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<td>3248</td>
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<td>82%</td>
<td>82.10%</td>
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* ** *** indicate significant at p<.10, p<.05 and p<.01 respectively based on two-tailed tests, except for CFRIGHT, VCVAR, FLOATRATIO, INSHARE, LEVERAGE, and SIZE which are based on one-tailed tests. AGROWTH, INVRATIO and RECRATIO are winsorized at 1% on the top and the bottom. Industry and Year dummy variables are not reported for expositional convenience. All variables are described in Table 6.1.
Sensitivity analysis

Since inferences from the tests of the above predictions might be affected by data and model specifications, a number of sensitivity tests are performed to determine the robustness of the primary findings.

Sensitivity analysis with subsample excluding firms cross-listed in the US

Due to the concern whether the decisions on ICAR by overseas cross-listed firms are truly voluntary, the analysis is repeated with a restricted sample excluding firms being cross-listed in the US. As discussed in Chapter Three, the requirement of mandatory ICAR started to be implemented in overseas cross-listed firms from 2011. This raises the question of whether those overseas cross-listed firms which adopted ICAR in the sample during the observation period may be driven by the expected forthcoming mandatory requirement, instead of by a firm’s discretion. In particular, firms being cross-listed in the US that are subject to mandatory internal control auditing regulation under Section 404 of SOX might directly disclose their internal control auditing report from the US without extra costs in the Chinese market. To address the issue, a repeated analysis is performed with a subset of a sample excluding firms being cross-listed in the US. The restricted sample consists of 3219 firm-year observations. The logistic regression model in the main test is replicated with the restricted sample and the results are respectively reported in Table 7.6 and Table 7.7. For comparison, Table 7.6 reports two examinations in the same format as Table 7.4. Model 1 reports the effect of firm-level incentives on voluntary ICAR alone. Model 2 presents an estimation using both the firm-specific economic incentives and the total marketization index (MARINDEX) proxy for regional institutional features. Similarly, Table 7.7 displays the analysis by
respectively including GMINDEX, FMINDEX and LEGINDEX in Model 3 to Model 5, in addition to firm-specific economic factors.

Overall, the results remain qualitatively unchanged, indicating the robustness of the primary findings reported in Table 7.4 and Table 7.5. Specially, ownership structure, including CFRIGHT, VCVAR and INSHARE, are significantly positively related with ICAR. Turning to alternative corporative governance mechanisms, the coefficients on B_MEET and S_SIZE are also significantly positive, while the coefficient on BIG4 is significantly negative. Meanwhile, firm operating characteristics, including SIZE and EA_OPINION, is significantly positively associated with ICAR, while LOSS is negatively related. With respect to regional institutions, the coefficients on MARINDEX, GMINDEX and LEGINDEX are significantly negative to ICAR.
Table 7.6 Logistic Regression of the Probability of Voluntary ICAR (restricted sample)

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* *, **, *** indicate significant at p<.10, p<.05 and p<.01 respectively based on two-tailed tests, except for CFRIGHT, VCVAR, FLOATRATIO, INSHARE, LEVERAGE, and SIZE which are based on one-tailed tests.
AGROWTH, INVRATIO and RECRATIO are winsorized at 1%.
Industry and Year dummy variables are not reported for expositional convenience.
All variables are described in Table 6.1.
Table 7.7 Logistic Regression of the Probability of Voluntary ICAR

(supplemental analysis with restricted sample)

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***, ** indicate significant at p<.01, p<.05 and p<.01 respectively based on two-tailed tests, except for CFRINGHT, VCVAR, FLOATRATIO, INSHARE, LEVERAGE, and SIZE which are based on one-tailed tests.
AGROWTH, INVVRATIO and RECRATIO are winsorized at 1%.
Industry and Year dummy variables are not reported for expository convenience.
All variables are described in Table 6.1.
**Sensitivity analysis with different measures**

Although the chances of dramatic institutional changes are small in the relatively short (three years) sample period, marketization is a dynamic process and there could be possible institutional changes during the three-year time period in regions across China. To control for this, following Li (2013), the regional-level institutional features are measured with the average provinces marketization index over 2007-2009. The results are reported in Table 7.8. In addition to firm-specific economic factors, MARINDEX, GMINDEX, FMINDEX and LEGINDEX are respectively included in Model 1, Model 2, Model 3 and Model 4.

The results are generally qualitatively similar, indicating that our main conclusions are not driven by the dynamic development of regional institutions over the observation period. Specially, the findings with respect to firm-level economic factors are consistent with all those reported in Table 7.4 and Table 7.5. For the regional-level institutional variables of our interest, the coefficients on MARINDEX, GMINDEX and LEGINDEX are significantly negative to ICAR.
Table 7.8 Logistic Regression of the Probability of Voluntary ICAR (alternative measures of marketization index)

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<th>Model 2</th>
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## Regional-level institutions

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<th>Model 4</th>
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* * * indicate significant at p<.10, p<.05 and p<.01 respectively based on two-tailed tests, except for CFRIGHT, VCVAR, FLOATRATIO, INSHARE, LEVERAGE, and SIZE which are based on one-tailed tests.

AGROWTH, INVRATIO and RECRATIO are winsorized at 1% on the top and the bottom.

Industry and Year dummy variables are not reported for expositional convenience.

All variables are described in Table 6.1.
In addition, a number of other analyses are performed and reported in Table 7.9. First, rather than using a dummy variable LOSS, a firm’s financial health is measured as a continuous variable with return on assets (ROA) in the regression analyses. The coefficient of ROA is positively significant, indicating firms with better financial performance are more capable to invest time and resources in ICAR. The empirical results using this variable (Model 1) are consistent with the primary results in Table 7.4.

Second, violation (VIOLATE) and refinance (REFINANCE) are included as additional independent variables in the regression analysis. Violation refers to a firm which violated the rules and regulations regarding a firm’s operation and its information disclosure and has been questioned and enforced by market regulators in the recent past. Violation is viewed as an additional internal control risk factor, which may increase or decrease a firm’s incentive to adopt ICAR. On one hand, violation indicates the existence of internal control weaknesses, which implies poor internal control quality and hence discourages a firm from undertaking voluntary ICAR to acknowledge its responsibility on internal control. On the other hand, violation indicates higher risks and increases the demand for internal control information from outside investors. In order to satisfying the increasing information demand and to avoid incurring regulatory penalties in the near future, the controlling shareholders and management of firms with past violations will have a strong incentive to adopt voluntary ICAR. When a firm has a nontrivial demand for external equity capital to fund its future investment, the controlling shareholders may voluntarily self-impose the governance constrains of ICAR, which contributes to reducing the agency problem and hence lower the capital raising cost. Thus, the controlling shareholders may benefit from not having to invest additional capital in the firm and raise new funds at a higher premium from the new equity issuance (Fan and
Wong, 2005). The inclusion of the variables not only does not change the main results, but also provides more direct evidence on the hypothesis of firm-specific economic factors. The coefficient on VIOLATE is negatively significant, while the coefficient of REFINANCE is positively significant (Model 2). The results suggest that non-violated firms and those with demand for external equity funds are more likely to undertake ICAR.

Finally, the controlling shareholders’ identity (CTSHARE) of the listed firms is included as an additional explanatory variable in the regression analyses. A firm’s ultimate controller identity is an important factor associated with its agency problems, and thus could have a significant influence on an ICAR decision. As a large stake of state shareholding remains in listed firms (Yang et al., 2011a), CTSHARE is measured as a dummy variable, which equals 1 if the controlling shareholder is the state, and 0 otherwise. Noted from Model 3, the coefficient of CTSHARE is significantly positively related to ICAR, indicating state-owned firms are more likely to undertake voluntary ICAR compared to non-state-owned firms. All the other key results are consistent as before.

In summary, the sensitivity tests on determinants of assurance decisions confirmed the robustness of the primary regressions results.
Table 7.9 Logistic Regression of the Probability of Voluntary ICAR (alternative independent variables)

<table>
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*** indicate significant at p<.10, p<.05 and p<.01 respectively based on two-tailed tests, except for CFRIGHT, VCVAR, FLOWTRATIO, INSHARE, LEVERAGE, and SIZE which are based on one-tailed tests. AGROWTH, INVRATIO and RECEVATIO are winsorized at 1% on the top and the bottom. Industry and Year dummy variables are not reported for expositional convenience. All variables are described in Table 5.1.
7.3 Empirical results: Effect of Voluntary ICAR on Accrual Quality

Another objective of this study is to examine the association of voluntary ICAR and firms’ accrual quality. Thus, this section conducts the data analysis and reports the results.

Descriptive statistics and univariate analysis

Sample selection process

In order to examine the association between voluntary ICAR and accrual quality, on the basis of the final sample (3248 firm-year observations) identified in Section 7.2, another 55 observations lacking available data to calculate the measure of accrual quality are further deleted. More specially, to satisfy the requirement of calculating the measure of accrual quality, further steps are deployed in the sample selection process: following Kothari et al. (2005), 23 observations with current accruals deflated by lagged total assets outside the range of -1 to +1 are excluded; further, if there are less than 10 observations for an industry in any given year, another 32 observations pertaining to that industry and year are then eliminated. After eliminating the above observations, the final sample contains 3193 firm-year observations. Table 7.10 Panel A describes the sample selection process for the purpose of testing Hypothesis 5. Table 7.10 Panel B reports the sample distribution by industry. Within the sample, 580 firm-year observations engaged voluntary ICAR, while 2613 firms didn’t have internal control assured by independent auditors.
Table 7. 10 Sample Selection and Distribution (Accrual quality and voluntary ICAR)

Panel A. Sample selection

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<td>a) Firms in financial sector</td>
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<td>e) Special treatment (ST) firms</td>
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<td>b) Firms with unavailable ownership data</td>
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<td>c) Firms with unavailable financial data</td>
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<td>d) Firms without available corporate governance data</td>
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<tr>
<td>Further Less:</td>
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<td>f) Firms with current accruals deflated by total assets outside +/-1</td>
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<td>g) Firms with less than ten firms in an industry in any given year</td>
<td>32</td>
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<td>Total firms investigated in multivariate regressions</td>
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Panel B. Sample distribution by industry and ICAR

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<td>F</td>
<td>Transportation and Warehousing</td>
<td>46</td>
<td>113</td>
<td>159</td>
</tr>
<tr>
<td>G</td>
<td>Information Technology</td>
<td>23</td>
<td>155</td>
<td>178</td>
</tr>
<tr>
<td>H</td>
<td>Wholesale and Retail Trade</td>
<td>39</td>
<td>181</td>
<td>220</td>
</tr>
<tr>
<td>J</td>
<td>Real Estate</td>
<td>41</td>
<td>140</td>
<td>181</td>
</tr>
<tr>
<td>K</td>
<td>Social Service</td>
<td>23</td>
<td>80</td>
<td>103</td>
</tr>
<tr>
<td>M</td>
<td>Conglomerates</td>
<td>19</td>
<td>159</td>
<td>178</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>580</td>
<td>2613</td>
<td>3193</td>
</tr>
</tbody>
</table>
Descriptive statistics

Table 7.11 presents descriptive statistics for the test sample of 580 firms with voluntary internal control assurance (ICAR=1) and those for the control sample of 2613 firms without voluntary internal control assurance (ICAR=0), and also reports the results of the difference of means for each variable under a two-tailed t-test.

It shows that the means of the absolute discretionary current accruals (denoted as |CA_DISCRE|) are 0.111 for firms with voluntary internal control assurance (ICAR=1) and 0.111 for firms without internal control assurance (ICAR=0). The t-test for mean comparison is 0.087 at p-value of 0.931, indicating no significant difference in the absolute magnitude of current accruals between the two groups. In a robustness test, two additional proxies for accrual quality are used. They are CA_NOISE and CA_MDD. The descriptive statistics (the descriptive statistics are not tabulated) shows that both the mean of the absolute value of CA_NOISE (denoted as |CA_NOISE|) for firms with ICAR and firms without ICAR are 0.071 (p-value of 0.804). In addition, the mean of absolute value of CA_MDD (denoted as |CA_MDD|) for firm with ICAR is lower than those firms without ICAR, but the t-test is not significant (0.068 versus 0.069; p-value of 0.707).

Turning to other control variables, relative to firms without voluntary ICAR, firms with voluntary ICAR tend to be larger in size (22.306 versus 21.697; p-value of 0.000), have higher operating cash flows (0.072 versus 0.056; p-value of 0.001), shorter operating cycle (4.907 versus 5.040; p-value of 0.001) and less occurrence of losses (0.066 versus 0.124; p-value of 0.000). There is no significant difference in terms of SGROWTH, ZSCORE and BM between firms with ICAR and those without ICAR.
Correlation analysis

Table 7.12 reports the Pearson correlation matrix of the dependent and independent variables in the main test. As expected, the accrual quality proxy |CA_DISCRE| is significantly correlated with most of the control variables, including SIZE, SGROWTH, CFO, OPERATECYCLE and BM. Additionally, ICAR, the indicator variable for voluntary internal control assurance, is also significantly positively correlated with SGROWTH and OPERATECYCLE, and significantly negatively correlated with SIZE, CFO and BM. However, the Pearson correlation does not show the significant correlation between |CA_DISCRE| and ICAR.

Overall, the descriptive statistics and univariate analysis provide the initial support for the assumption for the relationship between the discretionary accruals and innate firm characteristics. Nevertheless, it seems that the univariate test does not lend the support for the assumption regarding the accrual quality variance between firms with and without voluntary ICAR in terms of the discretionary current accruals. As discussed in the research method part, it is possible that firms self-select into engaging voluntary ICAR, which results in the participation in the test sample and control sample not being randomly determined, and the univariate test before controlling self-selection bias may therefore be tainted. Since the relation between accrual quality and the adoption of voluntary ICAR is multivariate in nature, these univariate results should be interpreted with caution. To uncover the relationship between voluntary ICAR and accrual quality, further multivariate analyses are warrant by using both the normal OLS regression without controlling for self-selection bias and the two-stage treatment effects regression to control self-selection.
Table 7. 11 Descriptive Statistics (Accrual quality and voluntary ICAR)

<table>
<thead>
<tr>
<th></th>
<th>ICAR=1 Obs</th>
<th></th>
<th></th>
<th>ICAR=0 Obs</th>
<th></th>
<th></th>
<th>t-stat</th>
<th>mean difference</th>
<th>two-tailed p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CA_DISCRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>580</td>
<td>0.111</td>
<td>0.073</td>
<td>2613</td>
<td>0.111</td>
<td>0.080</td>
<td>0.087</td>
<td>(0.931)</td>
</tr>
<tr>
<td>SIZE</td>
<td></td>
<td>580</td>
<td>22.306</td>
<td>22.135</td>
<td>2613</td>
<td>21.697</td>
<td>21.590</td>
<td>11.232</td>
<td>(0.000)</td>
</tr>
<tr>
<td>SGROWTH</td>
<td></td>
<td>580</td>
<td>26.760</td>
<td>15.744</td>
<td>2613</td>
<td>20.222</td>
<td>10.675</td>
<td>1.477</td>
<td>(0.140)</td>
</tr>
<tr>
<td>CFO</td>
<td></td>
<td>580</td>
<td>0.072</td>
<td>0.068</td>
<td>2613</td>
<td>0.056</td>
<td>0.053</td>
<td>3.479</td>
<td>(0.001)</td>
</tr>
<tr>
<td>LOSS</td>
<td></td>
<td>580</td>
<td>0.066</td>
<td>0.000</td>
<td>2613</td>
<td>0.124</td>
<td>0.000</td>
<td>-4.006</td>
<td>(0.000)</td>
</tr>
<tr>
<td>OPERATECYCLE</td>
<td></td>
<td>580</td>
<td>4.907</td>
<td>4.805</td>
<td>2613</td>
<td>5.077</td>
<td>5.040</td>
<td>-3.330</td>
<td>(0.001)</td>
</tr>
<tr>
<td>Z_SCORE</td>
<td></td>
<td>580</td>
<td>3.652</td>
<td>2.662</td>
<td>2613</td>
<td>3.665</td>
<td>2.488</td>
<td>-0.051</td>
<td>(0.959)</td>
</tr>
<tr>
<td>BM</td>
<td></td>
<td>580</td>
<td>0.665</td>
<td>0.658</td>
<td>2613</td>
<td>0.651</td>
<td>0.631</td>
<td>1.188</td>
<td>(0.235)</td>
</tr>
</tbody>
</table>

This table reports the difference of means for each variable under a two-tailed t-test. T-stats are reported in italics, and p-values are stated in parentheses. All variables are described in Table 6.2.

Table 7. 12 Pearson Correlation Matrix (Accrual quality and voluntary ICAR)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CA_DISCRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICAR</td>
<td></td>
<td>1</td>
<td>.002</td>
<td>-.084**</td>
<td>.108**</td>
<td>-.166**</td>
<td>-.025</td>
<td>.143**</td>
<td>.006</td>
<td>-.087**</td>
</tr>
<tr>
<td>SIZE</td>
<td></td>
<td></td>
<td>1</td>
<td>0.02</td>
<td>.061**</td>
<td>-.071**</td>
<td>-.058**</td>
<td>-.001</td>
<td>.021</td>
<td>.961**</td>
</tr>
<tr>
<td>SGROWTH</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>.018</td>
<td>.093**</td>
<td>-.145**</td>
<td>-.178**</td>
<td>-.168**</td>
<td>.407**</td>
</tr>
<tr>
<td>CFO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>.071**</td>
<td>-.079**</td>
<td>-.003</td>
<td>-.005</td>
<td>-.031</td>
</tr>
<tr>
<td>LOSS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>-.147**</td>
<td>-.276**</td>
<td>.068**</td>
<td>-.107**</td>
</tr>
<tr>
<td>OPERATECYCLE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>.055**</td>
<td>-.081**</td>
<td>.028</td>
</tr>
<tr>
<td>Z_SCORE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>-.029</td>
<td>-.064**</td>
</tr>
<tr>
<td>BM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>-.324**</td>
</tr>
<tr>
<td>LAMBDA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).
All variables are described in Table 6.2.
Multivariate analysis with discretional current accruals

Table 7.13 reports the regression estimates of the primary accruals quality proxy, the absolute value of discretionary current accruals (|CA_DISCRE|), on the indicator variable, voluntary internal control assurance (ICAR), where ICAR equals to 1 if firms engaged voluntary internal control assurance and 0 if firms did not have internal control assured by independent auditors, and other controlled variables, innate firm characteristics.

OLS regression results

The first column (Exam 1) in Table 7.13 represents the OLS regression estimates without controlling for self-selection bias. Both adjusted $R^2$ (0.079) and $F$-statistics (10.79 at $p$-value of 0.000) suggest that the independent variables explain a significant part of the discretionary current accruals. Noted from Table 7.13, the main variable of interest, ICAR, is not significantly related to the absolute value of discretionary current accruals (|CA_DISCRE|). The coefficient on ICAR is 0.005 with a p-value of 0.332, which indicates that firms with voluntary ICAR does not report a different level of discretionary current accruals relative to firms without voluntary ICAR. As expected, the innate firm characteristics except for $Z_{SCORE}$ are significantly associated with |CA_DISCRE|. SIZE, CFO and BM are significantly negatively related with |CA_DISCRE|, indicating that firms larger in size, with more adequate cash flow and less conservative accounting practices are more likely to have a higher level of accrual quality; while the positive coefficients on SGROWTH and OPERATECYCLE suggest that firms tend to have lower accrual quality when experiencing rapid sales growth and
longer operating cycle. More interestingly and unexpectedly, LOSS is related with the lower absolute value of discretionary current accruals.

**Results of two-stage treatment effects model**

The second column (Exam 2) in Table 7.13 reports the regression estimates with a two-stage treatment effects model (TEM) after controlling the self-selection bias. Interestingly, after controlling the self-selection bias, the main interested variable, ICAR, is reported significantly positively related with the absolute value of discretionary current accruals (|CA_DISCRE|), at the coefficient of 0.156 with *p-value* of 0.000. This indicates that firms with voluntary ICAR are more likely to report a higher absolute value of discretionary current accruals, that is, lower accrual quality. Turning to the control variables, their estimates are generally consistent with the OLS results in Exam 1. The negative coefficients are reported on SIZE, CFO and BM respectively at -0.015, -0.220 and -0.053 with both *p-values* of 0.000, while the positive coefficients reported for SGROWTH and OPERATECYCLE respectively at 0.000 and 0.005 at the *p-values* of 0.000 and 0.029. No significant relations are found for both LOSS and Z_SCORE. The above findings suggest that firms smaller in size, with inadequate cash flows, rapid growth, lower book-to-market ratio and a longer operating cycle, are more likely to report a higher absolute value of discretionary current accruals, that is, lower accrual quality.

The *Wald chi²* is 349.88 at the *p-value* of 0.000, which indicates that the independent variables, as a whole, explain a significant portion of a firm’s discretionary current accruals. More importantly, it is noteworthy with respect to the coefficient and significance on Lambda, the proxy for the inverse Mill’s ratio calculated from the first-stage probit model on the determinants for a firm’s choice of voluntary ICAR. Noted
from the results, $\Lambda$ is with a negative coefficient of -0.087 at $p$-value of 0.000, which significantly indicates the existence of self-selection bias and the potential understatement of coefficient on ICAR in OLS regression if the self-selection bias is not corrected. The estimate on Lambda suggests that the above coefficients of OLS are misleading due to self-selection bias.
<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Coef.</th>
<th>t-stat</th>
<th>p-value</th>
<th>Coef.</th>
<th>z-stat</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.234</td>
<td>4.65</td>
<td>(0.000)</td>
<td>0.409</td>
<td>6.32</td>
<td>(0.000)</td>
</tr>
<tr>
<td>ICAR</td>
<td>0.005</td>
<td>0.97</td>
<td>(0.332)</td>
<td>0.156</td>
<td>4.91</td>
<td>(0.000)</td>
</tr>
<tr>
<td>SIZE</td>
<td>-0.005</td>
<td>-2.28</td>
<td>(0.023)</td>
<td>-0.015</td>
<td>-4.71</td>
<td>(0.000)</td>
</tr>
<tr>
<td>SGROWTH</td>
<td>0.000</td>
<td>5.82</td>
<td>(0.000)</td>
<td>0.000</td>
<td>5.20</td>
<td>(0.000)</td>
</tr>
<tr>
<td>CFO</td>
<td>-0.218</td>
<td>-9.09</td>
<td>(0.000)</td>
<td>-0.220</td>
<td>-9.23</td>
<td>(0.000)</td>
</tr>
<tr>
<td>LOSS</td>
<td>-0.017</td>
<td>-2.38</td>
<td>(0.017)</td>
<td>-0.009</td>
<td>-1.13</td>
<td>(0.259)</td>
</tr>
<tr>
<td>OPERATECYCLE</td>
<td>0.006</td>
<td>2.43</td>
<td>(0.015)</td>
<td>0.005</td>
<td>2.18</td>
<td>(0.029)</td>
</tr>
<tr>
<td>Z_SCORE</td>
<td>0.000</td>
<td>-1.12</td>
<td>(0.264)</td>
<td>0.000</td>
<td>-1.06</td>
<td>(0.291)</td>
</tr>
<tr>
<td>BM</td>
<td>-0.059</td>
<td>-4.72</td>
<td>(0.000)</td>
<td>-0.053</td>
<td>-4.23</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Industry A</td>
<td>0.014</td>
<td>0.83</td>
<td>(0.408)</td>
<td>0.015</td>
<td>0.89</td>
<td>(0.371)</td>
</tr>
<tr>
<td>Industry B</td>
<td>0.056</td>
<td>3.35</td>
<td>(0.001)</td>
<td>0.050</td>
<td>3.05</td>
<td>(0.002)</td>
</tr>
<tr>
<td>Industry C0</td>
<td>0.009</td>
<td>0.69</td>
<td>(0.489)</td>
<td>0.011</td>
<td>0.85</td>
<td>(0.397)</td>
</tr>
<tr>
<td>Industry C1</td>
<td>0.023</td>
<td>1.65</td>
<td>(0.098)</td>
<td>0.022</td>
<td>1.61</td>
<td>(0.108)</td>
</tr>
<tr>
<td>Industry C3</td>
<td>-0.004</td>
<td>-0.20</td>
<td>(0.842)</td>
<td>-0.001</td>
<td>-0.03</td>
<td>(0.973)</td>
</tr>
<tr>
<td>Industry C4</td>
<td>0.000</td>
<td>0.00</td>
<td>(0.999)</td>
<td>0.000</td>
<td>0.02</td>
<td>(0.984)</td>
</tr>
<tr>
<td>Industry C5</td>
<td>-0.018</td>
<td>-1.25</td>
<td>(0.213)</td>
<td>-0.018</td>
<td>-1.23</td>
<td>(0.220)</td>
</tr>
<tr>
<td>Industry C6</td>
<td>0.010</td>
<td>0.85</td>
<td>(0.398)</td>
<td>0.011</td>
<td>0.93</td>
<td>(0.354)</td>
</tr>
<tr>
<td>Industry C7</td>
<td>-0.003</td>
<td>-0.30</td>
<td>(0.761)</td>
<td>-0.004</td>
<td>-0.41</td>
<td>(0.681)</td>
</tr>
<tr>
<td>Industry C8</td>
<td>-0.012</td>
<td>-1.01</td>
<td>(0.310)</td>
<td>-0.014</td>
<td>-1.17</td>
<td>(0.242)</td>
</tr>
<tr>
<td>Industry C9</td>
<td>-0.013</td>
<td>-0.45</td>
<td>(0.651)</td>
<td>-0.010</td>
<td>-0.37</td>
<td>(0.713)</td>
</tr>
<tr>
<td>Industry D</td>
<td>-0.006</td>
<td>-0.47</td>
<td>(0.637)</td>
<td>-0.008</td>
<td>-0.64</td>
<td>(0.520)</td>
</tr>
<tr>
<td>Industry E</td>
<td>-0.007</td>
<td>-0.39</td>
<td>(0.694)</td>
<td>-0.009</td>
<td>-0.53</td>
<td>(0.595)</td>
</tr>
<tr>
<td>Industry F</td>
<td>0.013</td>
<td>0.94</td>
<td>(0.348)</td>
<td>0.013</td>
<td>0.95</td>
<td>(0.344)</td>
</tr>
<tr>
<td>Industry G</td>
<td>-0.020</td>
<td>-1.59</td>
<td>(0.112)</td>
<td>-0.022</td>
<td>-1.71</td>
<td>(0.088)</td>
</tr>
<tr>
<td>Industry H</td>
<td>0.012</td>
<td>0.98</td>
<td>(0.329)</td>
<td>0.011</td>
<td>0.89</td>
<td>(0.372)</td>
</tr>
<tr>
<td>Industry J</td>
<td>0.061</td>
<td>4.56</td>
<td>(0.000)</td>
<td>0.062</td>
<td>4.67</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Industry K</td>
<td>-0.012</td>
<td>-0.83</td>
<td>(0.406)</td>
<td>-0.009</td>
<td>-0.60</td>
<td>(0.549)</td>
</tr>
<tr>
<td>Year 2007</td>
<td>0.002</td>
<td>0.35</td>
<td>(0.730)</td>
<td>0.006</td>
<td>1.02</td>
<td>(0.306)</td>
</tr>
<tr>
<td>Year 2008</td>
<td>0.014</td>
<td>2.16</td>
<td>(0.031)</td>
<td>0.014</td>
<td>2.08</td>
<td>(0.037)</td>
</tr>
<tr>
<td><strong>Lambda</strong></td>
<td></td>
<td></td>
<td></td>
<td>-0.087</td>
<td>-4.85</td>
<td>(0.000)</td>
</tr>
</tbody>
</table>

| N                     | 3193  |        |         | 3193  |        |         |
| F-statistic/Wald chi2  | 10.79 |        |         | 349.88|        |         |
| Prob>F/Prob>chi2       | 0.000 |        |         | 0.000 |        |         |
| Rho                   |       | -0.666 |         |       |        |         |
| Adjusted R²           |       | 0.0791 |         |       |        |         |

Estimations are based on OLS and two-step treatment effect model. Both t-stats and z-stats are reported in *italics* and two-tailed p-values are reported in parentheses. All variables are described in Table 6.2.
Robustness test with two alternative proxies for accrual quality

In addition to managerial opportunism which may bias the accruals, Dechow and Dichev (2002) argue that accrual quality is also associated with the difficulty in estimating accrual accounts, particularly under complex and uncertain situations where insufficient and ineffective internal controls are unable to or even fail to detect the estimation errors (Doyle et al., 2007b, Ashbaugh-Skaife et al., 2008). Following this line, another two additional proxies for accrual quality, which reflects the accounting estimation errors, are used to do the robustness test. They are measured respectively with the Dechow and Dichev (2002) model and the modified Dechow and Dichev model by McNichols (2002) and Francis et al. (2005b).

- **Dechow and Dichev (2002) model**

The first additional proxy for accrual quality is measured with the following Dechow and Dichev (2002) model, an ordinary least squares (OLS) regression by industry and year.

\[
CA_{it} = \beta_0 + \beta_1 CFO_{i,t-1} + \beta_2 CFO_{i,t} + \beta_3 CFO_{i,t+1} + \epsilon_{it}
\]  

(2)

where \(CA_{it}\) is the current accruals for firm \(i\) in year \(t\), calculated as in the main test. \(CFO_{i,t-1}\), \(CFO_{i,t}\), and \(CFO_{i,t+1}\) represent respectively cash flow from operation for firm \(i\) in year \(t-1\), in year \(t\) and in year \(t+1\). In line with previous accounting literature, all the variables are deflated by the average total assets. The residuals from the regression are proxied for the estimation errors, which measure the extent to which current accruals (\(CA\)) do not effectively map into past, current and future cash flows (\(CFO\)).

- **Modified Dechow and Dichev (2002) model**
While the Jones (1991) model and the Dechow and Dichev (2002) model have been widely used by the accounting literature, both these two models have their own limitations\textsuperscript{11}. To improve the model specification, McNichols (2002) and Francis et al. (2005b) have modified the Dechow and Dichev (2002) model by including the current year change in sales and the current year level of property, plant and equipment. The inclusion of these two variables not only associates the Dechow and Dichev (2002) measure with the Jones (1991) model of discretionary accruals, but also provide a more powerful approach to the estimation of accruals quality and earnings management, which will in turn improve our understanding in this area (McNichols, 2002). Following Doyle et al. (2007b) and Francis et al. (2005b), another proxy for accrual quality in the robustness test is measured with the modified Dechow and Dichev (2002) model by the following OLS regression:

\[
CA_{it} = \beta_0 + \beta_1 CFO_{it-1} + \beta_2 CFO_{it} + \beta_3 CFO_{it+1} + \beta_4 \Delta SALES_{it} + \beta_5 PPE_{it} + \epsilon_{it} \tag{3}
\]

where \(CA_{it}, CFO_{it-1}, CFO_{it},\) and \(CFO_{it+1}\) are defined as above. \(\Delta SALES_{it}\) is the change in sales revenue for firm \(i\) from year \(t-1\) to year \(t\). \(PPE_{it}\) is gross property, plant and equipment for firm \(i\) from year \(t-1\) to year \(t\). Following Srinidhi and Gul (2007), all variables are scaled by average total assets.

Similarly, the regression residuals of equation (2) and (3), denoted as \(CA\_NOISE\) and \(CA\_MDD\), are respectively estimated on a cross-sectional basis by industry and year conditioned on at least 10 observations for an industry in any given year. Different with Dechow and Dichev (2002) who conduct a pooled time-series regression to examine the estimation errors and thus use the standard deviation of the residuals as the proxy for

accrual quality, Srinidhi and Gul (2007) employs the absolute value of the residuals. It is because that both Equation (2) and (3) is regressed on a cross-sectional basis and then the absolute value of the residuals may provide the measure of accrual quality for each firm-year observation (Srinidhi and Gul, 2007, Baxter and Cotter, 2009). To be consistent with prior studies, the absolute values of \( CA_{\text{NOISE}} \) and \( CA_{\text{MDD}} \) are used to proxy for accrual quality in the robustness tests. The larger the residuals are, the lower the accrual quality is.

The robustness tests are replicated in the two-step treatment effect model respectively with the absolute value of \( CA_{\text{NOISE}} \) and \( CA_{\text{MDD}} \) as the dependent variable. Table 7.14 presents the regression estimates for \( CA_{\text{NOISE}} \) (Exam 3) and \( CA_{\text{MDD}} \) (Exam 4) on voluntary ICAR. The Wald-Chi\(^2\) tests for both examinations are at p-value of 0.000, indicating the independent variables explain the significant part of accrual quality.

To the main interest variable, consistent with the findings from the main test, \( ICAR \) is significantly positive with the two additional accrual quality proxies, that is, the absolute value of \( CA_{\text{NOISE}} \) (coefficient=0.043; p-value=0.026) and the absolute value of \( CA_{\text{MDD}} \) (coefficient=0.035; p-value=0.068). Meanwhile, the coefficients of Inverse Mill’s ratio (Lambda) are both significant with negative directions respectively at the p-value of 0.031 and 0.075, indicating the existence of self-selection bias, which justifies the necessity to control for self-selection in the research design.

With respect to the control variables, the coefficients for \( SGROWTH \), \( LOSS \) and \( OPERATECYCLE \) are significantly positively related to \( |CA_{\text{NOISE}}| \) and \( |CA_{\text{MDD}}| \), while \( BM \) is significantly negatively associated with the absolute value of these two proxies for accrual quality. The coefficients for \( SIZE \), \( CFO \) and \( Z\_SCORE \) are not significant.
Overall, the robustness tests with two alternative proxies for accrual quality reported in Table 7.14 yields highly similar results compared to the main results reported in Table 7.13. Specially, the results from Table 7.14 Column 1 and 2 suggest the coefficients on ICAR (the independent variable) are positive and statistically significant.
<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Dependent variable =</th>
<th>Coef.</th>
<th>t-stat</th>
<th>p-value</th>
<th>Dependent variable =</th>
<th>Coef.</th>
<th>z-stat</th>
<th>p-value</th>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>0.065</td>
<td>1.71</td>
<td>0.088</td>
<td></td>
<td>0.059</td>
<td>1.55</td>
<td>0.122</td>
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<tr>
<td>ICAR</td>
<td>0.043</td>
<td>2.23</td>
<td>0.026</td>
<td></td>
<td>0.035</td>
<td>1.83</td>
<td>0.068</td>
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<tr>
<td>SIZE</td>
<td>-0.001</td>
<td>-0.64</td>
<td>0.521</td>
<td></td>
<td>-0.001</td>
<td>-0.63</td>
<td>0.531</td>
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<td>SGROWTH</td>
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<td>7.08</td>
<td>0.000</td>
<td></td>
<td>0.000</td>
<td>6.71</td>
<td>0.000</td>
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<tr>
<td>CFO</td>
<td>0.019</td>
<td>1.33</td>
<td>0.184</td>
<td></td>
<td>0.011</td>
<td>0.73</td>
<td>0.464</td>
<td></td>
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<tr>
<td>LOSS</td>
<td>0.028</td>
<td>6.20</td>
<td>0.000</td>
<td></td>
<td>0.040</td>
<td>8.91</td>
<td>0.000</td>
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</tr>
<tr>
<td>OPERATECYCLE</td>
<td>0.005</td>
<td>3.61</td>
<td>0.000</td>
<td></td>
<td>0.006</td>
<td>4.04</td>
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<tr>
<td>Z_SCORE</td>
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<td>1.15</td>
<td>0.249</td>
<td></td>
<td>0.000</td>
<td>1.33</td>
<td>0.184</td>
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<tr>
<td>BM</td>
<td>-0.036</td>
<td>-4.71</td>
<td>0.000</td>
<td></td>
<td>-0.028</td>
<td>-3.69</td>
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<td>1.46</td>
<td>0.144</td>
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<td>0.010</td>
<td>0.97</td>
<td>0.330</td>
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<td>Industry B</td>
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<td>0.017</td>
<td>1.60</td>
<td>0.109</td>
<td></td>
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<td></td>
<td>0.009</td>
<td>1.11</td>
<td>0.268</td>
<td></td>
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<td>Industry C1</td>
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<td>2.00</td>
<td>0.046</td>
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<td>0.015</td>
<td>1.74</td>
<td>0.083</td>
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<td>Industry C3</td>
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<td>0.65</td>
<td>0.517</td>
<td></td>
<td>-0.001</td>
<td>-0.11</td>
<td>0.911</td>
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<tr>
<td>Industry C4</td>
<td>0.005</td>
<td>0.73</td>
<td>0.465</td>
<td></td>
<td>0.003</td>
<td>0.37</td>
<td>0.711</td>
<td></td>
</tr>
<tr>
<td>Industry C5</td>
<td>-0.017</td>
<td>-1.83</td>
<td>0.067</td>
<td></td>
<td>-0.020</td>
<td>-2.23</td>
<td>0.026</td>
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</tr>
<tr>
<td>Industry C6</td>
<td>0.007</td>
<td>0.92</td>
<td>0.355</td>
<td></td>
<td>0.002</td>
<td>0.22</td>
<td>0.823</td>
<td></td>
</tr>
<tr>
<td>Industry C7</td>
<td>-0.006</td>
<td>-0.99</td>
<td>0.321</td>
<td></td>
<td>-0.007</td>
<td>-1.02</td>
<td>0.308</td>
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</tr>
<tr>
<td>Industry C8</td>
<td>0.002</td>
<td>0.28</td>
<td>0.781</td>
<td></td>
<td>-0.001</td>
<td>-0.14</td>
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<td>0.12</td>
<td>0.906</td>
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<tr>
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<td>-0.24</td>
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<td>-1.11</td>
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<td>Industry E</td>
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<td>-1.25</td>
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<td></td>
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<td>-1.27</td>
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<tr>
<td>Industry F</td>
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<td>1.08</td>
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<td>Industry G</td>
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<td>Industry H</td>
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<td>Industry J</td>
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<td>Industry K</td>
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<td>-0.95</td>
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<tr>
<td>Year 2007</td>
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<td>3.55</td>
<td>0.000</td>
<td></td>
<td>0.007</td>
<td>2.25</td>
<td>0.025</td>
<td></td>
</tr>
<tr>
<td>Year 2008</td>
<td>0.018</td>
<td>4.58</td>
<td>0.000</td>
<td></td>
<td>0.016</td>
<td>3.91</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Lambda</td>
<td>-0.023</td>
<td>-2.16</td>
<td>0.031</td>
<td></td>
<td>-0.019</td>
<td>-1.78</td>
<td>0.075</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>3200</td>
<td></td>
<td></td>
<td></td>
<td>3200</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wald chi2</td>
<td>300.31</td>
<td></td>
<td></td>
<td></td>
<td>310.17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob&gt;chi2</td>
<td>0.000</td>
<td></td>
<td></td>
<td></td>
<td>0.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rho</td>
<td>-0.313</td>
<td></td>
<td></td>
<td></td>
<td>-0.259</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Estimations are based on two-step treatment effect model. Z-stats are reported in italics and two-tailed p-values are reported in parentheses. All variables are described in Table 6.2.
7.4 Summary

This Chapter reported and discussed the empirical results of this study. To examine the determinants for voluntary ICAR, the descriptive statistics and the results of univariate analysis were initially documented. Subsequently, multivariate results examining the determinants for voluntary ICAR were presented. Finally, the sensitivity tests were outlined and reported to check the sensitivity of the main results. To address the possible effect of voluntary ICAR on accrual quality, the empirical results were reported in a similar order, that is, the descriptive statistics and univariate results, multivariate results and robustness tests. The next chapter summarizes the overall conclusion of this study.
CHAPTER 8

CONCLUSION

8.1 Introduction

This chapter summarizes the major conclusions and implications of this study. While Chapter 7 respectively provided the results of the determinants and impact of voluntary ICAR, in this chapter I bring these results together to provide a more integrated discussion of the results. Section 8.2 provides an overview of the study. The implications and contributions of this study are reflected upon respectively in Section 8.4 and 8.5, and followed on with limitations of the study in Section 8.7 and directions for future research in Section 8.8.

8.2 Overview of the Study

This study investigates voluntary ICAR in the context of China. More specifically, the primary objectives of this study are twofold. First, this study aims to examine the determinants of ICAR voluntarily adopted by Chinese firms under a low-regulatory environment. Second, this study seeks to investigate the effect of voluntary ICAR on financial reporting quality, to test whether ICAR voluntarily adopted by Chinese firms is effective in improving financial reporting quality.

For the purpose of study, multiple theories are utilised to guide the conceptual framework and hypotheses development, including information economics, agency theory, loss of control theory and institutional theory. In addition, the findings from past related research, such as determinants of voluntary financial auditing and those of voluntary assurance of sustainability report, are also borrowed as the theoretical
perspective. Drawing upon the fundamental tenets of the underpinning theoretical perspectives and findings of related research, a number of hypotheses reflecting the study’s objectives are developed. In general terms, firm-level economic incentives are postulated to be associated with voluntary adoption of ICAR by Chinese firms. The association with voluntary adoption ICAR is specially postulated with three components of firm-level economic incentives: (1) agency conflicts embedded in ownership structure; (2) alternative corporate governance mechanisms; and (3) firm operating characteristics. Aside from firm-level economic incentives, regional-level institutions across China are also expected as the influential determinants. In addition, an association is expected between voluntary ICAR and financial reporting quality, which is measured with accrual quality in this study.

The empirical analyses presented in this study adopt a cross-sectional perspective and multivariate statistical techniques (i.e. multivariate regression) are the primary approach applied to test the hypotheses. The logistic regression is applied to examine the determinants of voluntary ICAR. To evaluate the individual determinants, the probability of adopting ICAR is regressed on ownership structure variables, corporate governance variables, firm operating characteristics variables and marketization indices variables. The former three types of variables represent firm-specific economic incentives, while the latter one type reflects the regional institutional features. Consistent with prior research, the ordinary least squares (OLS) model is initially adopted to test the association between voluntary ICAR and accrual quality after controlling the innate firm characteristics, which have impacts on accrual quality. Subsequently and more importantly, a two-stage model, namely treatment effect model (TEM) is applied on the consideration of the existence of the potential self-selection bias (Maddala, 1983, Greene and Zhang, 2003, STATA, 2000, Heckman, 1979). This is because if self-selection bias does exist, the OLS
model without controlling for self-selection bias may produce misleading estimates (Wooldridge, 2009, p.239-240). The self-selection bias arises from a firm’s discretionary decision on ICAR based on their individual-level heterogeneity, which in turn results in the non-random distribution of the firm-year observations with and without voluntary ICAR within the sample. Indeed, the analysis indicates the existence of self-selection bias, which justifies the necessity to control the problem by utilizing a two-stage treatment effect model.

For the analysis, the initial pool of all A-share Chinese firms listed on the main board of both the Shanghai Stock Exchange (SSE) and the Shenzhen Stock Exchange (SZSE) from 2007 to 2009 was established. From this pool and after necessary exclusion due to sample constraints or data availability, a sample of 3248 firm-year observations and a sample of 3193 firm-year observations spanning the 2007 to 2009 calendar year were collected, and the main statistical analyses respectively for the two primary research questions were performed. In addition to the main analyses, a number of robustness and sensitivity tests were also performed. Conclusions on the major testable hypotheses are summarized in the next section.

8.3 Major Conclusions of this Study

Table 8.1 summarizes the prepositions and related testable hypotheses, and the acceptance or rejection of each hypothesis based on statistical analysis conducted. A detailed discussion of the acceptance or rejection of each hypothesis is subsequently provided. There are 5 general hypotheses. H1 to H4 are deployed to examine the determinants of voluntary ICAR, while H5 investigates the effect of voluntary ICAR on accrual quality.
<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Description</th>
<th>Variables</th>
<th>Predicted Sign</th>
<th>Accepted/Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>The adoption of voluntary ICAR is positively associated with the degree of information asymmetry and agency problem embedded in a firm’s ownership structure.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H1a</td>
<td>The adoption of voluntary ICAR is positively related to the cash flow rights of the ultimate controlling shareholder.</td>
<td>CFRIGHT</td>
<td>+</td>
<td>Accepted</td>
</tr>
<tr>
<td>H1b</td>
<td>The adoption of voluntary ICAR is positively related to the degree of the separation of voting rights and cash flow rights pertaining to the ultimate controlling shareholder.</td>
<td>VCVAR</td>
<td>+</td>
<td>Accepted</td>
</tr>
<tr>
<td>H1c</td>
<td>The adoption of voluntary ICAR is positively associated with firm’s floating ratio.</td>
<td>FLOATRATIO</td>
<td>+</td>
<td>Rejected</td>
</tr>
<tr>
<td>H1d</td>
<td>The adoption of voluntary ICAR is positively associated with the level of firm’s institutional shareholding.</td>
<td>INSHARE</td>
<td>+</td>
<td>Accepted</td>
</tr>
<tr>
<td>H1e</td>
<td>The adoption of voluntary ICAR is positively associated with the level of debt in a firm’s capital structure.</td>
<td>LEVERAGE</td>
<td>+</td>
<td>Rejected</td>
</tr>
<tr>
<td>H2</td>
<td>The adoption of voluntary ICAR is significantly associated with a firm’s alternative corporate governance mechanisms.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H2a</td>
<td>The adoption of voluntary ICAR is significantly associated with firm’s cross-listing status in the US.</td>
<td>CROSSLIST</td>
<td>?</td>
<td>Accepted</td>
</tr>
<tr>
<td>H2b</td>
<td>The adoption of voluntary ICAR is significantly associated with firm’s external auditor type.</td>
<td>BIG 4</td>
<td>?</td>
<td>Accepted</td>
</tr>
<tr>
<td>H2c</td>
<td>The adoption of voluntary ICAR is significantly associated with the efficacy of BoD.</td>
<td>B_SIZE</td>
<td>?</td>
<td>Rejected</td>
</tr>
<tr>
<td>H2d</td>
<td>The adoption of voluntary ICAR is significantly associated with the efficacy of BoS.</td>
<td>B_MEET</td>
<td>?</td>
<td>Accepted</td>
</tr>
<tr>
<td>H3</td>
<td>The adoption of voluntary ICAR is significantly associated with a firm’s operating characteristics.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H3a</td>
<td>The adoption of voluntary ICAR is positively associated with firm size.</td>
<td>SIZE</td>
<td>+</td>
<td>Accepted</td>
</tr>
<tr>
<td>H3b</td>
<td>The adoption of voluntary ICAR is significantly associated with firm’s financial health.</td>
<td>LOSS</td>
<td>?</td>
<td>Accepted</td>
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<tr>
<td>H3c</td>
<td>The adoption of voluntary ICAR is significantly associated with firm’s growth.</td>
<td>AGROWTH</td>
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<td>Rejected</td>
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<td>H3d</td>
<td>The adoption of voluntary ICAR is significantly associated with firm’s accounting risks represented in the level of inventory and receivables.</td>
<td>RECRATIO</td>
<td>?</td>
<td>Rejected</td>
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<tr>
<td>H3e</td>
<td>The adoption of voluntary ICAR is significantly associated with firm’s unqualified audit opinion.</td>
<td>EA_OPINION</td>
<td>?</td>
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</tr>
<tr>
<td>H4</td>
<td>The adoption of voluntary ICAR is significantly associated with the quality of regional-level institutions under which a firm operates.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H4a</td>
<td></td>
<td>MARINDEX</td>
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<td>Accepted</td>
</tr>
<tr>
<td>H4b</td>
<td></td>
<td>GMINDEX</td>
<td>?</td>
<td>Accepted</td>
</tr>
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<td>H5</td>
<td>Firms with voluntary ICAR significantly exhibit different accrual quality relative to firms without voluntary ICAR.</td>
<td>ICAR</td>
<td>?</td>
<td>Accepted</td>
</tr>
</tbody>
</table>
Determinants of voluntary ICAR

H1: Agency conflicts embedded in ownership structure

As indicated in Table 8.1, a general proposition expected that the voluntary adoption of ICAR is possibly associated with the degree of information asymmetry and agency problems embedded in a firm’s ownership structure. More specifically, five individual hypotheses (H1a to H1e) were raised. Based on the main results shown in Table 7.4, the empirical analysis indicated that voluntary adoption of ICAR is more likely to occur when a firm has higher cash flow rights, larger divergence between voting rights and cash flow rights in the hand of controlling shareholder, and more institutional shareholding. Three significantly positive associations were documented. The results were consistent before or after taking consideration of regional-level institutions (Table 7.4) and when taking account of a different aspect of regional-level institutions (Table 7.5). In addition, the main results stay robust in the following sensitivity tests reported from Table 7.6 to 7.9. As a result, H1a, H1b and H1d are accepted. As no statistically significant relationship was found for a firm’s floating ratio and leverage, H1c and H1e are rejected.

Overall, the result shows that agency costs of equity are associated with a voluntary ICAR decision, which is corroborated by prior studies on voluntary auditing decisions (Carey et al., 2000) who found the higher the agency costs, the more likely firms select voluntary auditing. However, unlike Carey et al. (2000) who documented that the agency costs of equity under a diversified ownership structure are positively associated with voluntary auditing choices, this study found the agency costs of equity under the concentrated ownership structure are critical to a voluntary ICAR decision. Firms are
more likely to adopt voluntary ICAR when their ownership structures indicate agency conflicts. This finding is predicted by agency theory, which proposes auditing/assurance is as a mechanism to monitor/bond the performance of contracting parties, to reduce information asymmetry and mitigate agency problems (Watts and Zimmerman, 1983, Jensen and Meckling, 1976, Francis et al., 2005a, Watts and Zimmerman, 1976). This finding also lends support to the arguments of the entrenchment effect and the incentive effect played by the controlling shareholder in light of agency theory (Jensen and Meckling, 1976, Shleifer and Vishny, 1997, Bebchuk et al., 2000).

This study aims to disentangle entrenchment and incentive effects. Specifically, firms are more likely to adopt voluntary ICAR when their perceived entrenchment problems, captured by the divergence between voting rights and cash flow rights pertaining to controlling shareholders, are more severe. There is also evidence that a voluntary ICAR decision is associated with the incentive effect measured by the cash flow rights of controlling shareholders. This finding is supported and complemented by the previous few studies that have examined auditor selection under the concentrated ownership structure, such as Wang and Zhou (2006) and Fan and Wong (2005). The former investigated auditor selection using data from China during the period from 2001 to 2004 and documented that Chinese listed firms are more likely to select BIG4 auditors when the perceived agency costs, proxied by the difference between voting rights and cash flow rights pertaining to the ultimate controlling shareholder, are higher. The latter examined auditor selection using data from eight East Asian economies from 1994 to 1996 and found that the selection of BIG5 auditors is associated with the incentive alignment effect measured by cash flow rights of controlling shareholder.
In addition to the entrenchment effect, the result indicates an incentive effect of the concentrated ownership (Shleifer and Vishny 1997). It shows a controlling shareholder with greater cash-flow stake in a firm diverts less and will thus have more incentive to practise better governance, namely voluntary ICAR, to facilitate the transactions among the contracting parties (Jensen and Meckling 1976). This is particularly the case post non-tradable share (NTS) reform in China, which effectively ties the share price closer to the wealth of the controlling shareholder. It is found that, post NTS reform, the controlling shareholders become more concerned about the share price and possible punishment from the capital market (Campello et al., 2014, Liu and Tian, 2012). As they are unable to engage in short-run speculation and their holdings are highly concentrated, they are likely to have a stronger incentive and ability to exercise effective corporate governance, namely voluntary ICAR (Grossman and Hart, 1980). In addition to agency conflicts indicated within the concentrated ownership structure, it is also found that firms with more institutional ownership tend to adopt ICAR voluntarily, which suggests that institutional investors with a growing cash-flow stake in firms start to play an active monitoring role in addressing the agency problem and information asymmetry.

Although agency costs of debt are predicted in light of agency theory (Watts and Zimmerman, 1983, Jensen and Meckling, 1976, Francis et al., 2005a, Watts and Zimmerman, 1976) and documented by prior research (Chow, 1982, Abdel-Khalik, 1993, Blackwell et al., 1998, Carey et al., 2000) to be associated with voluntary assurance decision, no significant association is found in this study. This result is consistent with Tian and Estrin (2007) who examined the association between debt financing and the quality of corporate governance using a sample of Chinese listed firms from 1994 to 1998 and found that the failure of corporate governance may derive from the shared government ownership between borrowers and lenders which creates the soft budget. In
China, bank loans are the dominant form of credit (Yang et al., 2011a) and China’s banking system is still dominated by state owned banks (Berger et al., 2009, Firth et al., 2008). It is the soft budget of China’s banks that prevents them from providing significant monitoring to firms, since the state is still the ultimate owner of the major banks and most listed firms (Tian and Estrin, 2007).

**H2: Corporate governance mechanisms**

Agency theory has been most concerned with describing the governance mechanisms that solve the agency problem. To address agency problem, multiple governance mechanisms are utilized. This hypothesis considers the interaction between voluntary ICAR and other governance mechanisms in place. Based on mixed theoretical arguments and empirical findings regarding the interactive relationship, either complementary or substituted, it is postulated that a firm’s corporate governance mechanisms are associated with the adoption of voluntary ICAR. Specially, four individual hypotheses (H2a to H2d) were raised respectively for two external (overseas cross-listing and external auditor) and two internal cooperate governance mechanisms (board of directors and board of supervisors). The main results in Table 7.4 and 7.5 indicated a statistically positive association for a firm which is cross-listing in the US; and negative association for a firm which has a BIG4 as its independent auditor. In addition, in terms of inner corporate governance mechanisms, the main results suggested voluntary adoption of internal control is more likely to occur when a firm has a board of directors which meets often and a board of supervisors which is larger. However, no significant relationship was found with respect to other aspects of board efficacy, i.e., independence of board of directors, size of board of directors and diligence of board of supervisors. The main
results were also supported by the sensitivity tests reported in Table 7.6 to 7.9. Therefore, H2a are accepted, while H2b to H2e are partly accepted.

Generally, the results show a complementary interaction between voluntary ICAR and corporate governance mechanisms. First, it is found firms cross-listed in the US tend to adopt voluntary ICAR. The finding is consistent with prior research on internal control disclosure (Deumes and Knechel, 2008, Michelon et al., 2009), suggesting the effect of stricter requirements from cross-listed exchanges on firms’ accounting choice. Second, firms with BIG4 as financial reporting auditors are less likely to select voluntary ICAR. This result is supported by Fang and Dai (2012b) who found BIG4 are reluctant to accept ICAR engagements in China due to the consideration of the protection of their high reputation and the potential high risks associated with ICAR service when examining the incentives for voluntary internal control audit reporting using a sample of Chinese listed firms from 2008 to 2009. Third, regarding the effectiveness of BoD, the result shows that firms whose BoD meets more often are more likely to have their internal control report assured. Generally, the frequency of meetings of a BoD indicates its activeness and enthusiasm (Liao et al., 2008). The finding suggests that it is the functional mechanism (diligence) of a BoD that influences a firm’s decision on ICAR, rather than its structure (size or independence). Finally, regarding the effectiveness of BoS, the result suggests that firms with a larger BoS are more likely to adopt voluntary ICAR. This finding indicates the active role of larger BoS in prompting voluntary ICAR (Chen, 2005).

**H3: Firm’s operating characteristics**

A firm’s operating characteristics, referred as internal control risk factors, are documented to be significantly associated with its internal control weaknesses by
previous research (Bronson et al., 2006, Ashbaugh-Skaife et al., 2007, Doyle et al.,
2007a, Ogneva et al., 2007, Deumes and Knechel, 2008). In light of loss of control
theory and signal theory, the potential loss and failure of control necessitates firms to
augment internal control and inform outsiders that their internal control system is in
place and operates effectively through a more credible ICAR from external auditors.
Thus, these risk factors were expected to have an influence on a firm’s decision on
voluntary adoption of ICAR. Six operating characteristics were captured and individual
hypothesis were formulated accordingly. The main results in Table 7.4 and 7.5 suggest
that ICAR is more likely to be voluntarily adopted by a firm which is (1) larger, (2) has
better financial health and (3) received an unqualified audit opinion on financial
reporting. These results were held when conducting sensitivity tests presented in Table
7.6 to 7.9. Thus, H3a, H3b and H3e are accepted based on the statistical analysis.

As predicted, the results show that firm operating characteristics are the influential
factors of voluntary ICAR. In particular, it is found that firms larger in size, having a
better financial performance and receiving a clean audit opinion over financial reporting
tend to have internal control assured. This finding indicates the demand for voluntary
ICAR from larger firms, which is corroborated by the results of Abdel-Khalik (1993)
and Carey et al. (2000). Larger firms tend to be more complex and involve in a large
number and variety of activities. These attributes increase internal control risk and would
make it more likely for larger firms to adopt ICAR to address the absence and failure of
internal control. More importantly, larger firms and well-performed firms are more able
to do so to make sure the appropriate internal controls are in place and operating
effectively, as they have more resource to invest in internal control. In addition, this
finding is more indicative of the signaling effect of voluntary ICAR. It implies those
firms that are larger, well-performed and keeping internal control appropriate and
function effectively (reflected as i.e., clean audit opinion on financial reporting) would be more likely to adopt voluntary ICAR to signal their commitments and high quality.

**H4: Regional-level institutions**

Previous research on cross-country basis suggests institutions influence the costs and benefits that firms incur to bond them to improved governance, which in turn will influence a firm’s incentive to adopt better governance mechanisms (Fan and Wong 2005; Doidge et al. 2007). Following this line, in this study it is postulated that the uneven institutions across regions in China affect firms’ decisions on the adoption of ICAR. The main results in Column 2 of Table 7.4 showed a statistically negative association between voluntary adoption of ICAR and the total marketization index. It indicated a substitute relationship between voluntary adoption of ICAR and institutions. In other words, a firm domiciled in the regions with weaker institutions is more likely to adopt ICAR. More specially, taking account of the specific aspects of regional-level institutions, the results reported in Table 7.5 suggest that voluntary adoption of ICAR is more likely to occur in a firm which is domiciled in a region with (1) higher government intervention, and (2) weaker legal environment and legal enforcement. The substituted relationship between voluntary adoption of ICAR and regional-level institutions was held when conducting sensitivity tests reported in Table 7.7 to 7.9. As a result, H4 is accepted.

As predicted by institutional theory, it is found that voluntary adoption of ICAR is influenced by the regional institutions. The results show that voluntary ICAR is adopted by Chinese listed firms as a substitute mechanism to the weaker regional institutions. In particular, firms domiciled in the regions with the poorer institutions (with higher government intervention and weaker legal environment) are more likely to voluntarily
adopt ICAR, relative to firms in the regions with better institutions. This finding not only indicates the impact of the legal environment and its quality on the provision of auditing and assurance services (Choi and Wong, 2007, Fan and Wong, 2005), but also supports the substitution view which argues that a firm’s governance mechanisms (e.g., assurance) play a substitute effect for absent or weak country-level institutions that constrain the behavior of contracting parties (Durnev and Kim, 2005). This substitute relationship found in this study is also consistent with the findings of recent international auditing studies (Kim et al., 2011, Francis et al., 2011, Kolk and Perego, 2010), suggesting voluntary ICAR are deployed by firms domiciled in the regions with the poorer institutions to seek social legitimacy and signal the presence of higher quality corporate governance to the market.

Overall, results associated with H1, H2, H3 and H4 shows that voluntary adoption of ICAR by Chinese listed firms can be explained by both the firm-specific economic incentives and the unbalanced regional-level institutions within China. These findings not only justify the conceptual framework developed in this study, by utilizing both economic-based theories and institutional theory, but also support previous international auditing studies (Simnett et al., 2009, Fan and Wong, 2005, Choi and Wong, 2007, Choi et al., 2008, Francis et al., 2011, Kolk and Perego, 2010), revealing that both firm-specific economic factors and institutional characteristics are influential factors of a firm’s decision on adopting better corporate governance, namely through auditing and assurance. More specifically, these results present a clear picture how firm-specific economic incentives and institutional characteristics affect a firm’s decision-making on voluntary ICAR.
First, the results show that firms with higher cash flow rights and larger divergence between voting rights and cash flow rights in the hand of a controlling shareholder are more likely to adopt voluntary ICAR, suggesting ICAR is voluntarily adopted to facilitate contracts and address the agency problem and information asymmetry. It is also found that firms with more institutional ownership tend to adopt ICAR voluntarily, indicating institutional investors play an active monitoring role in addressing the agency problem and information asymmetry. Second, voluntary adoption of ICAR can also be complemented by multiple corporate governance mechanisms in some degree. The empirical results show that firms that are cross-listing in the US, have a diligent board of directors and have a larger board of supervisors, are more likely to seek voluntary ICAR. Third, firm operating characteristics are also found to be the influential factors of voluntary ICAR. The empirical results show that firms larger in size, and having a clean audit opinion over financial reporting and with a better financial performance, tend to have internal control assured. Fourth, voluntary adoption of ICAR is also influenced by the unbalanced institutions across regions within China. In particular, firms domiciled in the regions with the poorer institutions (with higher government intervention and weaker legal environment) are more likely to adopt voluntary ICAR.

Effect of voluntary ICAR on accrual quality

H5: Effect of voluntary ICAR on accrual quality

Taking account of the fact that internal control is still in its infancy in China, this study postulated an association between voluntary adoption of ICAR and accrual quality, but did not predict direction, although ICAR is expected to contribute to good financial reporting quality by the proponents (Bédard, 2006b). Noted from Column 2 of Table
7.13, the inverse Mill’s ratio, \( \Lambda \), has a negative coefficient of -0.087 at \( p\)-value of 0.000, which shows the existence of self-selection bias and indicates the necessity to address this issue. Thus, the main empirical results presented in Column 2 of Table 7.13 reported a statistically positive association between voluntary adoption of ICAR and the absolute value of discretionary current accruals. It suggests that firms which voluntarily adopted ICAR had a higher absolute value of discretionary current accruals, indicating lower accrual quality. Consistently, the positive relations hold when examining two alternative proxies for accrual quality in the robustness test reported in Table 7.12. Based on the statistical analysis, H5 is accepted.

The results of H5 suggest that voluntary adoption of ICAR is associated with financial reporting quality in terms of accrual quality. More specifically, firms voluntarily adopting ICAR exhibited lower accrual quality relative to those without.

This finding would appear to suggest that voluntary ICAR is inefficient in China, at least in terms of improving financial reporting quality, since auditors’ involvement in ICAR is normally expected to lead to a higher accrual quality (Bédard, 2006b). However, it may be too rash to draw this conclusion and it is better to exhibit caution in interpreting these results.

Arguably, the results may indicate a realistic effect of voluntary ICAR on accrual quality in a short time span, particularly in China, an emerging country where internal control is newly emerging and still in its early stages of adoption. Although ICAR is expected to lead to higher accrual quality, probably in the long turn, conversely, based on the status of weak internal controls within Chinese listed firms, it is possible that ICAR may result in a lower accrual quality in the first few years of adopting ICAR. This is because internal controls of Chinese listed firms were inadequate and weak in the past, which
resulted in many instances of prior misestimated and manipulated accruals. If ICAR is of benefit to identify internal control weaknesses and promote the remediation, there should be a process to adjust previous accruals errors, which in turn leads to a lower accrual quality in the period of adjustment. In this process, both the firms and the independent auditors reasonably exhibit more consciousness and prudence when evaluating internal controls, which may intensify their search for misestimated and manipulated accruals, thereby resulting in more write-downs and adjustments of previous accruals. When the process of internal control weaknesses remediation and prior accruals adjustments is completed, a higher accrual quality associated with ICAR would be expected. Alternatively, voluntary ICAR in China may be inefficient to some extent in terms of improving accrual quality. If it is true, what are the possible reasons that drive voluntary ICAR behavior while leading to the conflicting lower accrual quality? Accrual quality is the function of internal control quality, and voluntary ICAR is expected to contribute to improving internal control quality by identifying and remedying internal control weaknesses. According to this inference, it is possible that voluntary ICAR was just used by Chinese listed firms to seek legitimacy and might just be ‘window dressing governance’. Or the process of voluntary ICAR does not create a genuine opportunity to learn and improve the internal control system, due to the obstacles from either firms or auditors which hinder the real and conductive change of internal control. It would be premature to draw conclusions on inefficiency before addressing these concerns and so further studies are warranted.

Summary of major conclusions

In sum, the results of this study generally support my empirical predictions based on the theoretical framework formulated with information economics theory, agency theory,
loss of control theory and institutional theory. First, the incidence of voluntary ICAR is higher for firms with higher agency conflicts and information asymmetry embedded in equity ownership structure, and those with more effective corporate governance mechanisms, such as cross-listing status, diligent BoD and larger BoS. This finding supports the arguments of information economic theory and agency theory that voluntary ICAR confers to facilitating contracts through increasing information credibility and reducing agency costs. Second, the incidence of voluntary ICAR is associated with some firm operating characteristics. My result demonstrates the demand for voluntary ICAR is higher for larger firms. This finding is consistent with loss of control theory which views the demand for assurance as an effective within-company control mechanism to compensate for the loss of control induced by organizational design and the resultant loss of observability of subordinate behavior. I also find that firms with better financial performance and receiving a clean audit opinion over financial reporting tend to have internal control assured. This finding indicates the signaling effect from the perspective of information economics theory. Third, it is found that the demand for voluntary ICAR is higher for firms domiciled in the regions with poorer marketization institutions, particularly stronger government intervention and weaker legal environment. This result is not only consistent with institutional theory which argues that institutions have impact on the provision of assurance service, but also supports the substitution relationship between a firm’s corporate governance mechanism (e.g. assurance) and institutions. This finding indicates firms domiciled in regions with weak institutions seek to achieve legitimacy through voluntary ICAR. Finally, based on the examination of the determinants of voluntary ICAR, this study further finds voluntary ICAR is associated with financial reporting quality in terms of accrual quality.

8.4 Implications of this Study
Findings from this study provide a number of important insights into ICAR determinants and its association with financial reporting quality. In addition, the results provide important inferences with implications for key stakeholders (for example, regulators, investors, and auditees/corporate management). The implications for the respective key stakeholders are discussed in the following sub-sections.

**Regulators**

The evidence obtained from this empirical research has several important policy implications for the Chinese capital market and regulators. The Chinese regulators have asserted that ICAR are important and have set up the mandatory timetable to be implemented gradually in firms listed on the main board under different categories and groups (please refer to section 2.2 of Chapter 2). On one hand, the benefits and costs of asserted ICAR may vary across companies and be linked to company-specific characteristics. The ability of this study to distinguish companies voluntarily contracting for ICAR on the basis of their agency costs derived from ownership structure and alternative corporate governance devices, firm operating characteristics and the regional institutional variances, suggests there is an economic basis for an assurance decision, and that mandating ICAR could probably cause companies with lower agency costs to overspend on outside monitoring (Ettredge et al. 1994). This is also complementary to the debate on the policy options of ICAR: mandatory or voluntary. The analysis reveals strong economic incentives for voluntary ICAR and these economic incentives are still resilient after accounting for the regional-level institutions. The findings provide support for regulators who want to allow firms with some flexibility in their choice for ICAR, because firms can tailor the assurances to suit their specific environments. On the other hand, results from this study show that (1) firms with shares cross-listed in the US, (2)
state-controlled firms and (3) firms of larger size and better financial performance are more likely to voluntarily adopt ICAR. These findings lend empirical support for the Chinese regulators who promote the implementation of mandatory ICAR under different categories and groups, that is, initially starting with overseas cross-listed firms, then central and local state-controlled companies, and further non-stated-controlled larger and profitable firms. As these three types of firms have shown strong economic incentives to voluntarily adopt ICAR and have gradually strengthened their internal control during this process, arguably it will not incur expensive marginal compliance costs for mandatory requirements. In other words, the mandatory requirement for ICAR can be justified.

In addition, the findings of this study contribute to bring the Chinese regulators’ attention to the regional institutional divergence and its influence on the implementation of internal control regulation. Results from this study show that firms domiciled in regions with poorer institutions, mainly represented with higher level of government intervention and weaker legal environment and enforcement, are more likely to undertake ICAR voluntarily. It is well recognized that investor protection is crucial to develop a strong capital market and formal legal enforcement is an effective mechanism to offer this protection. However, formal legal enforcement is not the only means. On one hand, it is argued that when the formal legal enforcement is weak, then to attract investment, entrepreneurs may have incentives to develop functional alternatives to assure investors’ interests are protected, and as such, entrepreneurs may voluntarily “bond” themselves (Cai, 2007). On the other hand, when formal legal enforcement is not achievable in the short to medium term, it is argued that at least in the short term administrative governance may be a viable alternative to a legal mechanism in emerging stock markets (Pistor and Xu, 2005). Thus, the attitude and commitment of local regulatory agencies
may to some extent influence firms’ incentives to undertake ICAR. For example, local governments can adopt two different attitudes on the voluntary adoption of ICAR: endorsement and ignorance. They could facilitate the adoption of ICAR through emphasizing its importance, providing some flexibility to the existing regulatory system, offering technical assistance to potential adopters and audit firms, and by enhancing the reputation of first adopters. The local governments, by committing to or ignoring ICAR, can change the regulative, normative and cognitive aspects of the regional-level institutional environment, which in turn influences the diffusion of the adoption of ICAR among firms domiciled in the same region.

Given worldwide policy-makers are continuing to evaluate the policy options of ICAR, there is arguably support for the gradual approach and the relatively flexible regulatory environment adopted by the Chinese government for Chinese listed firms to establish and develop internal control.

**Investors**

Investors require reliable information to make economic decisions on whether to buy, sell or hold investments. A fundamental purpose of ICAR is to add credibility to the internal control reports disclosed by firms, which concomitantly enhances trust in firms’ financial reports and the mechanisms underlying financial reporting. It is found the controlling shareholders have played an important incentive effect on undertaking ICAR to limit their expropriation, which contributes to investor protection. Meanwhile, the results show that firms that are larger, profitable and with unqualified financial audit opinions are more likely to attain ICAR. These findings suggest that a firm by voluntarily adopting ICAR, provides a signal that it is actively committed to reinforcing
internal control and is confident in its internal control quality. Therefore, investors may use voluntary ICAR as a mechanism for differentiating between investment choices.

8.5 Major Contributions of this Study

This study draws on two evolving streams of the literature in internal control and international auditing, to which it seeks to contribute. The study addresses two particular limitations in the extant internal control literature. One is that prior research on internal control has paid little attention to the emerging economies which have notably different institutional circumstances from those of the developed economies.

The other is that research on the assurance of internal control on a voluntary basis has been ignored due to the mandatory requirements pursuant to Section 404 of SOX. Effective internal controls are equally as important or more important in the emerging countries that are attempting to gain credibility among global investors. This study assists in broadening such an understanding by examining voluntary ICAR in the context of the Chinese capital market. Based on a sample of 593 firms with internal control reports issued from 2007 to 2009, this study provides exploratory insights into the assurance decisions on internal control and its association with financial reporting quality in the Chinese context. The findings suggest that firm-level economic incentives and regional-level institutions both influence the choice to seek assurance on internal control reports in China. However, the results also indicate that the assurance is not associated with higher financial reporting quality for assured companies. To the researcher’s best knowledge, this is the first study to (1) provide a comprehensive examination of the determinants of voluntary ICAR from the social-economy perspective drawing upon both the firm-specific economic incentives and the institutional features; and (2) empirically link voluntary ICAR and financial reporting
This study not only builds upon recent literature in international auditing (Simnett et al., 2009, Fan and Wong, 2005, Choi and Wong, 2007, Choi et al., 2008, Francis et al., 2011, Kolk and Perego, 2010) that aims at explaining differences in audit markets and choice of governance structures on a cross-country basis, but also contributes to this stream of literature in several ways. First, this study extends the literature and provides empirical evidence on the demand for voluntary assurance in the context of internal control. Second, this study examines the effect of agency conflicts within a concentrated ownership structure on firms’ decision for voluntary ICAR, extending prior research mainly focusing on the agency costs with a diversified ownership structure. Third, this study extends the literature from cross-country comparative studies to a focused-country analysis and provides evidence about the institutions’ effect on firms’ demand for voluntary assurance in a single country setting. The focused-country analysis has its advantage over cross-country studies. It can control data quality better, which allows researchers to analyze the impacts of a key institutional factor on various issues in-depth, while holding constant other factors that might be difficult to disentangle in cross-country studies (Fan et al., 2011). Consistent with previous studies, firm-level economic incentives and regional-level institutions both appear to influence the choice to attain assurance on internal control reports in China. More specially, a substituted relationship is documented between voluntary adoption of ICAR and regional-level institutions, which is corroborated by the results of Durnev and Kim (2005), Kolk and Perego (2010), Francis et al.(2011) and Kim et al. (2011). Overall, the findings of this study support the argument that, consistent with evidence for firms seeking assurance on their financial and sustainability reports, those Chinese companies purchasing assurance on their internal control reports appear to do so to enhance the credibility of their reporting and quality.
reduce agency costs (Carey et al., 2000).

8.6 Limitations of this Study

While having many important insights, the study is not without limitations. For instance, while the search techniques for voluntary ICAR reporting is comprehensive through examining in the annual reports as well as cross-referencing the information disclosed on SSE and SZSE website, they were not exclusive. In particular, there is a potential bias that the sample may not represent the true population of firms which have adopted voluntary ICAR. It is possible that firms voluntarily undertook ICAR but did not disclose it due to the receipt of unsatisfactory assurance opinions. Nevertheless, both the SSE and SZSE required listed firms to disclose ICAR reports if only they appointed independent auditors to engage ICAR. Based on consideration of the regulation, it may be reasonably believed that the collected sample accounts for a significant number of firms that really adopted voluntary ICAR. Therefore, there is a possibility that the results of this study are affected by the firms that genuinely adopted ICAR but did not disclose it.

There are some potential limitations on proxy measures. First, the audit committee, external auditor and internal auditor are argued to be the cornerstones of the foundation on which effective corporate governance must be built. In particular, the audit committee and the internal auditor are directly charged with the responsibility for internal control. This study, in deploying the board of directors and the board of supervisors as the alternative corporate governance mechanisms, rather than audit committee and internal auditor, to some degree may not capture the close interactions. However, efforts to include these factors were curtailed due to the unavailability of information. Second, this study adopted accrual quality as the proxy measure for financial reporting quality, but it is known this proxy measure is not entirely
exclusive. In addition, even the proxy measures for accrual quality are not entirely exclusive. It is recognized that every measure for accrual quality has its limitations (Dechow et al., 1995). Therefore, the proxy measures used in this study are also subject to the limitations and the accrual quality constructs may thus be measured with noise. Nevertheless, it is found that all the three proxies used in this study support a consistent relationship between voluntary ICAR and accrual quality, indicating that the results are generally robust.

Also, the ability to infer causality between voluntary ICAR and accrual quality is limited with the cross-sectional designs applied in this study. This is because internal control policy in China has been implemented for a relative short period of time, particularly the emergence of voluntary ICAR, which makes a longitudinal analysis impossible. It is suggested by Ashbaugh-Skaife et al. (2008) that “in all cross-sectional designs, there are potential concerns of endogeneity, self-selection and correlated omitted variables which limit the ability to draw strong casual inferences from the results”. In the similar vein, Doyle et al. (Doyle et al., 2007b) also recognize this limitation of cross-sectional design in examining the relation between internal control quality and accrual quality. Although the two-stage treatment effect model was deployed to control self-selection in this study, the results should be interpreted with caution.

This study examines the association between accrual quality and the adoption of voluntary ICAR, rather than the quality of voluntary ICAR and the assurance reports, which limits the ability to fully explain the negative relations between voluntary ICAR and accrual quality found in this study. When facing great uncertainty, it is possible that both management and independent auditors may intensify their search for misestimated and manipulated accruals and further write-down or adjust prior accruals, which results in a poor accrual quality in the current period of assurance. Although it is one possible explanation, it is not exclusive. On the
contrary, a fundamental assumption is that voluntary ICAR is of benefit to improve internal control quality by either increasing the consciousness of management or enhance the auditors’ effort in internal control attestation through independent auditors’ involvement, which in turn reduces the opportunity of both intentional and unintentional misstatements and thus leads to more reliable financial reporting. Therefore, further study is warranted to fully understand the underlying rationale.

Another limitation was that this study used data from one country, namely China. As a nation-specific study it potentially limited the generalization of the results to other domestic and institutional settings. Being a study with a concentration on publicly listed firms, it is recognized there is a limitation in generalizing the study’s findings to non-listed Chinese firms or publicly listed firms in an alternative domestic setting with different institutional settings. However, this study not only sheds light on the emerging ICAR under a low regulation environment but also provides a basis for replication of future research in other countries or on cross-country basis.

8.7 Suggestions for Future Research

Despite these limitations, this study suggests some new directions for future research. First, a fruitful extension of the present study would be to replicate this study on a cross-country basis, to examine the role of variations in legal and other institutions across countries on firms’ decision for voluntary ICAR. Such an analysis would provide useful evidence for the explanation of the divergent policy selection on ICAR around the world and shed light on the evaluation of ICAR policy options and further policy-making. In addition, this study encourages the replication to other emerging countries where the institutions are relatively weak but important.
Second, this study could further explore the identity of controlling shareholders - another key dimension of ownership structure, to examine the determinants for voluntary ICAR, as one important type of controlling shareholder in China and some other countries is the state (Claessens and Fan, 2002, La Porta et al., 1999). The state faces conflicts of interests as both the controlling shareholder and playing the political role. Therefore, the drivers for the state-controlled and private-controlled firms to adopt voluntary ICAR are likely to be different, represented not only in the firm-level agency-related incentives, but also in the impacts of varied regional-level institutions.

Third, future research should examine the quality of voluntary ICAR and the assurance report rather than merely their adoption, such as the content of assurance engagements, assurance procedures and the assurance reporting format. In particular, in the presence of mixed ICAR guidelines in China before 2010, this line of investigation appears timely and necessary for understanding the underlying reasons for the negative association between voluntary ICAR and accrual quality found in this study. Such an analysis would also lend useful support for the issuance of Guidelines for Auditors' Auditing on Enterprise Internal Control by the Chinese government in 2010. Finally, further studies would need to consider whether the introduction of the new standard guidelines in ICAR can bring about the necessary progress in assurance quality.

Fourth, external auditor issues under voluntary ICAR will also be of great interest and needs further investigation. These issues may include, for example, (1) what are the characteristics of external auditors which were appointed to conduct voluntary ICAR; (2) what audit approaches did external auditors adopt to conduct ICAR and how did they make judgments; (3) what levels of fees are charged for ICAR; (4) what is the audit process and whether there is audit delay because of ICAR; and (5) is there any audit differentiation in terms of ICAR?
Adopting ICAR does not exclusively arise from a firm’s motivation, but also relies on the supply-side of an assurance engagement, that is, external auditors. Thus the knowledge of the external auditors’ behavior and influence may have practical implications for regulators, investors, auditees and auditors as well.

Finally, further research is needed to better understand how investors and analysts react to the provision of voluntary ICAR services in supplementing investment decisions in addition to financial information. It is noted that many financial intermediaries have incorporated internal control into their ratings. For example, Moody has taken account of the nature of internal control weaknesses disclosed by the Section 404 reports into determining ratings (Doss and Jonas, 2004). In addition, further systematic assessment of whether the provision of voluntary ICAR is informative by examining the stock market responses such as cost of equity, stock price, market returns and etc. can throw better light on the value of ICAR. These studies may further inform the economic consequences of voluntary ICAR, and narrow the debate on the cost-benefits of ICAR from a developing market context.
REFERENCES


BENEISH, M. D., BILLINGS, M. B. & HODDER, L. D. 2008. Internal Control


CANDIAN INSTITUTION OF CHARTERED ACCOUNTANTS (CICA) 1995.


DOWNNS, A. 1967. Inside bureaucracy, Boston, Little Brown


EMANUELS, J., VAN LEEUWEN, O., VAN PRAAG, B. & WALLAGE, P. 2006. Abnormal returns around disclosure of problems in internal control over financial reporting.


Journal, 15, 105-120.


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GOH, B. W. 2009. Audit Committees, Boards of Directors, and Remediation of Material Weaknesses in Internal Control. *Contemporary Accounting Research*, 26, 549-


INTERNATIONAL FEDERATION OF ACCOUNTANTS (IFAC) 2006. Internal controls - a review of current developments.


LYNCH, N. 2008. Trends in Accrual Quality and Real Activity-based Earnings
Management in the Pre and Post Sarbanes-Oxley Eras, Mississippi State University.

MADDALA, G. S. 1983. Limited-dependent and qualitative variables in econometrics, Cambridge Univ Pr.


MINISTRY OF FINANCE (MOF), CHINA SECURITIES REGULATORY COMMISSION (CSRC), CHINA NATIONAL AUDIT OFFICE (CANO),
CHINA BANK REGULATORY COMMITTEE (CBRC) & CHINA INSURANCE REGULATORY COMMITTEE (CIRC) 2008. Enterprise Internal Control Basic Standard.


SCHIPPER, K. & VINCENT, L. 2003. Earnings Quality. *Accounting Horizons*, 17, 97-


WATTS, R. & ZIMMERMAN, J. 1983. Agency problems, auditing, and the theory of


WILLIAMSON, O. 1967. Hierarchical control and optimum firm size. The Journal of
Political Economy, 75, 123-138.


Corporate Governance in the Chinese Stock Market. Corporate governance: an international review, 17, 457-475.


