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The Individual Characteristics of Board Members and Reported Internal Control Weakness: Evidence from China

By

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Abstract

This study examines the relationship between individual characteristics of board members and internal control weaknesses using data from Chinese listed firms from 2007 to 2013. China's first internal control regulation (2008) ("China SOX") stipulates that the board of directors takes the main responsibility for the establishment and implementation of internal control, an approach which is different from US SOX. I examine whether or not individual characteristics of board members are related to internal control weaknesses and, if so, how does this happen. I address this issue by examining the influences of education, training, experience, certification and integrity of board members on specific internal control weaknesses and weakness remediation. In particular, given the vital role of the board chairman in Chinese internal control, I also study the association between individual characteristics of the board chairmen and internal control weaknesses. In addition, I expect that the nature of dominant shareholders (state-owned or non-state owned) and the board behaviour (independence and diligence) have an influence on the correlation between the board and internal control. I use a sample of firms with internal control problems and, based on size, industry and ownership, match these firms to a sample of control firms without internal control problems. I also conduct a series of additional tests.

Results indicate that individual characteristics of board members including education, experience, certification and integrity, are related to internal control deficiencies. However, relevant training has no relationship with internal control. Results also show that individual characteristics of board chairmen are related to internal control problems. The overall results demonstrate that internal control quality is better, internal control weaknesses are reduced and weakness remediation is more likely to be applied in firms in which board members and board chairpersons have stronger qualifications. However, board behaviour and ownership nature do not influence the relationship between board members and internal control. Thus, it

is suggested, board characteristics and internal control are directly linked. My findings prove reliable throughout several sensitivity examinations. It is useful for directors to know that some characteristics (education, experience, certification and integrity) of board members do make a difference.

Dedication

This thesis is primarily dedicated to my grandfather. My dearest grandfather passed away last March. He was a nice person and a good grandfather and I treasure the wonderful memories that I have of him. My lovely grandfather, even if you have left us, you always live in my heart. I will never forget you. I will love you forever. Also, to my parents who gave me life. I could not have pursued the Ph.D. degree at the University of Auckland without their support. Their endless love has been the source of my motivation to progress so far with my study.

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1 Introduction

1.1 Motivation

This research investigates whether the characteristics of individual board members are associated with internal control problems¹. The first internal control regulation in China, sometimes² called a Chinese version of the Sarbanes-Oxley Act of 2002 (henceforth, “China SOX”), was released in July, 2008. China SOX, a regulation adopted in order to enhance risk management and to prevent business disasters, became effective on January 1, 2012. This regulation requires Chinese listed firms and their auditors to evaluate the effectiveness of their internal controls and to provide opinions on internal controls in their annual reports (China SOX, p1). In particular, China SOX requires that boards of directors in China take primary responsibility for the establishment and implementation of internal control (China SOX, p1). This differs from the situation covered by the US SOX³, demonstrating that, in China, a board of directors plays an important role in internal control.

In addition, Chinese corporate governance has unique characteristics, and these have a substantial impact on internal control enforcement. First, the Chinese stock market is characterized by weak legal enforcement and poor corporate governance (Chen & Chan, 2009). As an alternative mechanism, the key personnel in Chinese firms play key roles in the operation of the enterprises. Second, the Chinese government greatly influences corporate governance (Chambers, 2005) and attempts to improve internal control levels (Lin, 2001).

¹ Internal control problems are defined as internal control weaknesses.

² China’s Internal Control and Audit Regulatory Framework - <http://www.china-briefing.com/news/2012/03/09/chinas-internal-control-and-audit-regulatory-framework.html#sthash.Q8RychAv.dpuf>;

Opportunities to improve financial reporting and internal controls in China: CAS and C-SOX. <http://www.pwc.com/gx/en/automotive/industry-publications-and-thought-leadership>; Wang, Liyan and Zhang, Jidong, What is the effect of China’s SOX-Act? (November 1, 2009). <http://ssrn.com/abstract=1542589>

³ According to US SOX, management is responsible for internal control effectiveness (SEC, 2002; Krishnan, 2005; Erickson et al., 2010).

State-owned firms and non-state-owned firms may differ in the effectiveness of their internal control. These new Chinese regulations and the country's institutional backgrounds offer an opportunity to conduct research: this research investigates how unique governance mechanisms, mixed with a socialistic market economy and state power, affect the internal control of Chinese firms.

Internal control is “a process, implemented by an entity's board of directors, board of supervisors, management, and other personnel, with the aim of realizing control goals” (China SOX, p1). Individual characteristics include abilities, knowledge and skills (Hillman & Dalziel, 2003). This theoretical study supports the premise that particular features of the board of directors are related to internal control (Hoitash et al., 2009) and management advice (Haynes & Hillman, 2010). When an organisation's management and ownership are separated, an “agency problem” arises (Jensen & Meckling, 1976), in that, the goals and desires of owners and managers are not in conflict and the shareholders cannot adequately monitor managerial work (Eisenhardt, 1989). The role of the board of directors is to represent the interests of the owners and to protect the interests of the shareholders (Hart, 1993). The board plays a critical role in reducing the loss of proxy access (Dalton et al., 2007). Thus, in the corporate governance and auditing area, the influence of board characteristics is a vital issue.

However, relevant empirical results are scarce. Existing studies have investigated the influence of corporate governance on internal control problems both before and after SOX Section 302 and SOX Section 404. The characteristics of boards of directors and management are found to be correlated with the disclosure of internal control weaknesses (i.e., Krishnan, 2005; Zhang et al., 2007; Lin et al., 2011). However, these literatures (i.e., Krishnan, 2005; Srinivasan, 2005; Johnstone et al., 2011) only examine some characteristics of boards, for example, their independence, experience, expertise, turnover and former audit partners.

Furthermore, prior studies have not analyzed the mediating and moderating effects of board behaviour (independence and diligence) and ownership. Previous studies also have not considered the individual role of the chairman. Thorough investigation employing comprehensive measures for internal control is also necessary.

In sum, given the requirement of new Chinese standards, unique governance characteristics and limitations in prior empirical research, it is beneficial and pertinent to study the relationship between board characteristics and internal control problems.

1.2 Research questions

In China, many enterprises such as China Aviation Oil, CITIC Pacific, Eastern Airlines, Lantian Stock and Yili have recently suffered from internal control failures (Chi et al., 2010). These egregious cases are correlated with the ineffectiveness of internal control (COSO, 1992), which has focused public attention on the importance of effective internal control. The research question of this study is: do the individual characteristics of board members affect internal control problems and, if so, what effect do they have? The research objective includes firstly, that relevant research exists, but the issue of directors and internal control is not covered. Secondly, there are new changes with China SOX. Finally, China's environment is unique so we cannot predict the outcome using existing research. This thesis aims to investigate the influence of the individual characteristics of board members on particular styles of internal control problems and internal control weakness remediation. Internal control is important because it plays a vital role in reducing investment loss and avoiding financial reporting misstatements (Rani et al. 2008). Research on internal control is important because it may be able to tell us more about how to manage a firm better. I am looking at whether board characteristics influence internal control based on the Chinese setting.

Following Krishnan (2005), Prawitt et al. (2009) and Lin et al. (2011), this study adopts education, training, experience, certification and integrity as individual characteristics. In order to answer the research question, the study first examines the impact of the education, training, experience, certification and integrity of board members on internal control quality and weakness remediation. Given the vital role of the board chair in internal control, I have also studied the relationship between the individual characteristics of the board chairmen and the firms with internal control problems. This study also explores the effects of board behaviours and the nature of dominant shareholders on the relationship between board characteristics and internal control problems.

China SOX regulations state that the board of directors is responsible for internal control and discloses the effectiveness of internal control. It emphasizes that the board of directors has the greatest responsibility. In addition, the relationship between the board and internal control has been suggested in prior research. For instance, Ge & McVay (2005) argue that personnel issues cause the deficiencies. The individual characteristics of directors play a vital role in management advice and decision-making. This thesis attempts to analyze the relationship between the board and internal control from the perspective of individual characteristics.

There are eight hypotheses in this study. Because management with a high level of education tends to support the development of internal control, the first hypothesis is that the educational level of board members has a negative relationship with internal control weaknesses. Second, experience can serve as a proxy for knowledge of internal control. It is hypothesized that accounting experience can effectively mitigate the incidence of internal control weaknesses. Third, effective monitoring requires expertise. Consequently, the second hypothesis is that the accounting certification of board members has a negative relationship with internal control weaknesses. Fourth, management integrity is also a major determinant of control effectiveness. As such, it is expected that the integrity of board members is

negatively related to internal control weaknesses. Fifth, the extent of formal training may influence the incidence of internal control weaknesses. Based on the above analysis, I hypothesize that internal control training of board members leads to fewer internal control problems.

Sixth, in China, the chairman is the head of the internal control team and is responsible for the construction of internal control systems (Chen & Wang, 2014). Thus, given the unique role of the Chinese board chairperson in internal control, it has been predicted that individual characteristics of board chairs are associated with internal control weaknesses.

Seventh, in terms of the impact of board behaviours, board characteristics influence “tone at the top” and board behaviours. In turn, board attitudes and board behaviours affect internal control effectiveness. This explains how the board affects internal control, which is not a direct relationship between the board and internal control. I anticipate that board characteristics influence internal control by board behaviours.

Finally, with regard to the impact of the nature of dominant shareholder, well-dispersed ownership is relatively rare outside America and large block holders control most Asian firms. The dominant shareholder appoints board members. Therefore, the final hypothesis is that the nature of the dominant shareholder influences the relationship between the board and internal control.

1.3 Method

The data with regard to internal control was collected from the China Internal Control Database. The data on independent and control variables is available from the China Stock Market & Accounting Research Database, annual reports and corporate websites. Annual reports were downloaded from the websites of the Shenzhen Stock Exchange and the

Shanghai Stock Exchange. I collected the data for the years immediately before and after the implementation of China SOX, 2007 to 2013. I did not include financial and insurance industries or cross-listed firms. I employed a matched-pair design. Each problem firm is matched with a non-problem firm according to criteria including industry, size and ownership. The final sample for my hypotheses contains 3386 firm-year observations (1693 problem firms and 1693 matching firms).

There are three basic models in the thesis. First, I model the variables that influence internal control weakness. The models include both a logit model and an Ordinary Least Squares regression model because I studied not only whether a firm discloses internal control weaknesses, but also the extent of internal control weaknesses and internal control quality. Second, since I predict that individual characteristics of board members influence internal control weaknesses by board behaviours, I added board behaviours into the new model. A relationship between board characteristics and internal control problems is expected to be insignificant in the new model. Third, in order to examine whether different dominant shareholder natures influence the relationship between the board and internal control weaknesses, I used the interaction between the board characteristics and the nature of the dominant shareholders to measure the interaction effect between board characteristics and dominant shareholder nature. I expect the coefficient on the interaction variable to be negative and significant.

Internal control is the dependent variable. Regarding the extent of weaknesses, I used the number of internal control weaknesses and an internal control index as a proxy. The disclosure of internal control problems and weakness remediation is a dummy variable. In terms of independent variables, education is the average education level of board members. High school and below, college, undergraduate, postgraduate and doctoral degrees are numbered 1, 2, 3, 4 and 5, respectively. Training is whether board members received internal

control training during the course of a particular year. Certification is measured as the percentage of board members with one or more professional certifications, such as CA. Experience is a dummy variable. It is equal to 1 if at least one board member is responsible for financial and accounting issues, 0 otherwise. Board members who are punished by China Securities Regulatory Commission or Stock Exchanges due to violation or irresponsibility (individual reasons rather than company reasons) can proxy for the integrity of board members. I used the percentage of board members with disciplinary actions as a proxy for integrity. In regard to control variables, I included the following internal factors in the model: the characteristics of top management, chairmen's characteristics, corporate governance, ownership structure, financial condition and firm characteristics. I also controlled for external factors including audit status, year and industry effects.

This study employed various examinations for robustness. First, the results for each year, industry, ownership, Stock Exchanges, locations and size are presented. Second, endogeneity and the fixed effects at the firm-level were taken into consideration. Next, I examined the influence of internal control teams. Fifth, the effects of the changes in China's SOX Act were tested. Sixth, in regard to the differences between non-financial and financial weaknesses, I provided comparative results. Seventh, I investigated the impact of the expertise of the audit committee and the internal auditors on internal control weaknesses and the relationship between the board and internal control. Next, I studied whether the experience of board members in the Cultural Revolution affected internal control. Ninth, specific types of internal control deficiencies were studied. Finally, alternative measures were incorporated into the model. These procedures were undertaken to ensure the robustness of the results.

1.4 Results

Overall, the results of the main empirical analyses showed that the experience, certification, education and integrity of board members are significantly related to the likelihood of internal control weaknesses. Thus, Hypotheses 1 to 4 are supported. The results confirm that the individual characteristics of board members have a significant relationship with whether or not this firm disclosed internal control weaknesses. However, I found no correlation between internal control and training, which leads to the rejection of Hypothesis 5. The accounting experience of board members is also related to the internal control index.

In terms of control variables, firms with non-duality, fewer independent directors, lower leverage ratio, unhealthy finances, more organizational changes, larger size, management with less professional experience and training as well as a higher education level are more likely to experience internal control problems.

In relation to board chairmen, my thesis provides strong evidence that chairs with an accounting certification and a good education comprise a good indicator that the companies will have fewer internal control weaknesses. Higher education level and lack of certification are linked to lower internal control quality. Among other characteristics, only the stock holding percentage of chairmen has a positive influence on internal control quality. Thus, my sixth hypothesis is supported, which suggests that Chinese chairmen play a vital role in internal control.

Apart from the full sample, I also employed problem firms to test Hypotheses 1- 6. Together, the results indicate that the individual characteristics of board directors and board chairs correlate significantly with the numbers of internal control problem and weakness remediation.

For Hypothesis 7, whether or not the firm is controlled by the Chinese government also does not influence the relationship between internal control and the board. Hence, I concluded that

Hypothesis 7 is rejected. Similarly, contrary to my hypothesis, the results demonstrate that the behaviours of board members including board diligence and independence have no mediating effect on the association between board characteristics and internal control. Therefore, my last hypothesis is not confirmed.

In my additional analysis, I found in the first instance that the results in different years, industries and ownerships were similar. The results are more significant for those firms which listed their shares on the Shenzhen Stock Exchange than those listed on the Shanghai Stock Exchange and the results are more significant in Eastern China than Central and Western China. The relationship is stronger for SMEs than large firms. Second, for firms changing board members, the findings are consistent with the main results, so endogeneity is not a serious problem. I also found that fixed effects at the firm-level did not influence my results. Fourth, an internal control team plays a role in reducing internal control problems. Fifth, the results for both before and after China SOX were significant. Sixth, the relationship was slightly more significant for non-financial weaknesses than for financial weaknesses. Seventh, the expertise of the internal audit and audit committee negatively influenced the relationship between internal control and the board. Eighth, China's Cultural Revolution had no impact on internal control problems. Ninth, I only find significant results for practice weaknesses and non-financial reporting weaknesses. Finally, results from the alternative proxies showed that the findings were robust. In sum, the robust additional findings added to the understanding of the results.

1.5 Contribution

The research makes several contributions. In the first place, this study contributes to the internal control literature in emerging markets, a perspective that has received scant attention from prior researchers. This study also extends the existing literature regarding the relationship between

corporate governance and internal control by adding more evidence for the board of directors. Based on corporate governance theory, I found that the individual characteristics (education, experience, certification and integrity) of board members had a strong impact on internal control problems. To the best of my knowledge, no prior research has examined the association between individual characteristics of board members and internal control weaknesses. I also found a significant correlation between the individual characteristics of board chairmen and internal control problems. However, I found that ownership and board behaviour have no impact on the relationship between board characteristics and internal control. In particular, this research investigated internal control weaknesses over non-financial reporting. This thesis contributes to the study on internal control by providing insights into specific types of non-financial internal control deficiencies. This thesis adds to the evidence on the determinants of internal control effectiveness. For instance, the Cultural Revolution has no influence on internal control. These findings provide new or different evidences on the current debate and new perspectives in the area of internal control research.

Second, this research contributes to the literature on its methodology. The internal control information was obtained from various sources including annual reports and internal control reports. The measurement of internal control has been extended to both quality and quantity. This study measures internal control quality, internal control deficiencies, specific internal control problems and weakness remediation in different ways. Hence, a comprehensive measurement of internal control is provided. Alternative measures for other variables have also been presented in the additional examinations.

Third, this study focuses on Chinese issues. Chinese internal control and corporate governance have distinctive characteristics. Weak corporate governance mechanisms and low internal control quality are common in China today (Li, 2007), so it is urgent the determinants of internal control effectiveness are pinpointed and that solutions are found to

solve the problem. New internal control regulations in China (mandatory disclosure) and a unique institutional background together provide a research opportunity. This research sheds light on whether or not different types of corporate governance have different effects on internal control problems. The findings could be useful for improving the effectiveness of internal control in China. As a study based on a non-U.S. single-country and an emerging economy, the results might set an example and provide insight for other countries with a similar institutional background.

Finally, this research also has policy implications. The effectiveness and cost of China SOX are debated and have encountered many problems. Ergo, it is useful to know more about the situation of applying internal control standards in China, a regulatory environment different from that of the US (Ji et al., 2015). This thesis investigates some requirements of China SOX. My results show that a highly-qualified board of directors, board chairmen and management can effectively reduce the incidence of internal control deficiencies. I also found that the stronger the expertise of the internal auditor and audit committee the weaker the role of board members in internal control. Additional tests provide evidence suggesting that the internal control team plays a positive role in internal control. My findings could be of relevance to regulatory authorities who have long wanted to improve the internal control quality of Chinese firms.

1.6 Organization of the thesis

This thesis proceeds as follows. The next chapter discusses the background. The prior research is reviewed in Chapter 3. Chapter 4 presents the theoretic framework and motivates the hypotheses. This is followed by Chapter 5, the research design, in which details are provided of sample selection, data collection, variable definitions, model construction and additional analyses. In Chapter 6, I present the descriptive statistics, the empirical results for my main

analyses and additional texts. The conclusions are offered in the final chapter with a discussion of research findings and implications of the results, the limitations of this thesis and directions for future study.

2 Background

2.1 Introduction

This chapter discusses the issues underlying the thesis. The first section reviews the historical development of internal control in China. The next section analyses the concepts and reasons for introducing “China SOX”. By comparing it to US SOX, this chapter discusses the strengths and weaknesses of “China SOX” and reveals the differences from US SOX to be researched. Finally, this chapter also discusses China’s unique institutional mechanisms.

2.2 The history and development of internal control in China

Internal control in China has a long history dating from the West Zhou Period (BCE1046-BCE771) (Li, 2001). Many divisions of Government have participated in the construction of internal control and have enacted a great many laws and regulations in this regard since the founding of new China in 1949. The development of the internal control of Chinese enterprises can be divided into two stages. The first stage is learning and exploring (1949-2005) and the second stage is development and innovation (from 2006 onwards).

2.2.1 Two stages

Stage 1 Learning and exploring

During the first stage, requirements about the responsibilities and duties, appointment and removal, rewards and punishment of accountants were related to internal accounting control. Other regulations dealt with accounting systems. The principal regulations and laws about internal control during this stage are set out in Appendix A.

There are some clearly definable characteristics of the objective and definition of internal control during the period 1949 to 2005. First, the requirements for internal control in Accounting Law were only limited to accounting control level. However, there were no general

requirements for the assessment and reporting of internal control. Second, the aim of internal control in China not only relies on the COSO framework⁴, but also takes Chinese characteristics into consideration. For example, China has a long history and traditional culture, which has a far-reaching impact on business; China SOX also pays attention to non-financial internal control. Third, apart from Internal Accounting Control Standards, other regulations were all designed according to the needs of firms in certain industries. In general, a unified, authoritative and comprehensive internal control system was lacking. Fourthly, the logic and levels of internal control system are not very apparent. Fifth, there were different internal control definitions such as accounting control, internal control and risk control. In terms of the fundamental principle of internal control, there are some discordant regulations. When it comes to the contents and structure of internal control, they are similar to the COSO framework although there are some differences in the detailed contents. What is more, the content of internal control is broad, and there are distinct industry characteristics. Finally, there were different internal control structures for companies listed on different exchanges, and there was no unified internal control framework in China (Chen, 2009).

Stage 2 Innovations and development

In 2002, the Sarbanes-Oxley Act was enacted in the US (SOX 2002, from that point forward),

⁴ There are five internal control components including control environment, risk assessment, control activities, information and communication, and monitoring. Control environment is the basis of internal control and includes processes, structures and standards. Risk assessment is the process of evaluating the risk. Control activities make sure the risk can be reduced to a low level. Information and communication are both important for internal control. Monitoring activities include ongoing and separate evaluations. These five components are relevant to a whole entity. They operate all units, divisions, subsidiaries, subsets and functions of the entire entity. Based on the 1992 original version, under the five components, The New Framework develops 17 principles. It helps people understand better about effective internal control (COSO, 2013). They support a firm in attaining its objectives (COSO, 2004). The framework contains three objectives: operations (the effectiveness of operation) reporting (reliable, timely and transparent financial and non-financial reports) and compliance (laws and regulations).

which exerted a considerable influence on China. Chinese internal control developed fast after 2006. Many departments began to engage in drawing up regulations and standards. The China Securities Regulatory Commission released “The Management of IPO”, which required that the internal control of an IPO must be effective, and a CPA had to sign an internal control assessment report. The State-owned Assets Supervision and Administration Commission released “Guidelines on Overall Risk Management of Central Enterprises” in June, 2006. It was similar to the Enterprise Risk Management-Integrated Framework (COSO, 2004), and by enriching the contents of internal control systems in China, indicates a breakthrough in the construction of internal control norms. The Ministry of Finance launched an “Internal Control Standards Commission” on the 15th of July, 2006. At the same time, the Shanghai Stock Exchange released “Internal Control Guidelines of Listed Companies of SSE”. In September 2006, Shenzhen Stock Exchange issued “Internal Control Guidelines of Listed Companies of Shenzhen Stock Exchange”. In March 2007, the Internal Control Standards Commission⁵ released “Internal Control Basic Standards”. In Beijing, the first “Basic Standard for Enterprise Internal Control” (*Caikuai* [2008] No. 7, “Basic Standard”) was released in July, 2008. However, it was not formally implemented until 26 April 2010, when the five Chinese Ministries (China Banking Regulatory Commission, China Insurance Regulatory Commission, Ministry of Finance, China Securities Regulatory Commission and National Audit Office) released “Implementation Guidelines for Enterprise Internal Control” (*Caikuai* [2010] No.11, “Implementation Guidelines”). The release of the “Basic Standard and Implementation Guidelines” indicates that the internal control system which adapts to the actual situation of Chinese companies and integrates advanced international experience has been completed basically (Liu⁶, 2010). The implementation of mandatory disclosure of internal control

⁵ On 15th July 2006, Internal Control Standards Commission was established in Beijing. They are responsible for the establishment and implementation of internal control in China.

⁶ Yuting Liu, The Director-General of the Department of Enterprise, The Ministry of Finance.

information promoted the future effectiveness of internal control in China. In the following sections the guidelines are discussed in great detail.

2.2.2 Internal control guidelines of listed companies of Shenzhen Stock Exchange and Shanghai Stock Exchange

In July, 2006, the Shanghai Stock Exchange released “Internal Control Guidelines for Listed Companies of SSE”. This regulation has five characteristics. First, the contents of internal control are similar to COSO Risk Management. Second, the contents of internal control rely on the three goals model including operation, reports and compliance, which are similar to the goals of the COSO Internal Control-Integrated Framework. Third, the factors of internal control are analogous to the COSO Internal Control Integrated Framework. Fourth, the responsible body for internal control is similar to that of the Turnbull Report in the UK (2005)⁷. Finally, the reports on internal control are similar to the SOX and SEC in the USA. However, there are more principles, and they are more general in terms of demands. In total, therefore, the model for Internal Control Guidelines for Listed Companies of the Shanghai Stock Exchange had a broad internal control structure and had strict requirements for assessment and reports.

The model of the Internal Control Guidelines for Listed Companies of the Shenzhen Stock Exchange is similar to that of the Shanghai Stock Exchange. There is a process for introducing the opinions of the board of supervisors and independent directors. Auditors only assess financial reporting internal control. A comparison of the Internal Control Guidelines for Listed Companies of the Shenzhen Stock Exchange and of the Shanghai Stock Exchange is shown in

⁷ Internal Control Guidance for Directors on the Combined Code (1999) is a report for listed firms on the London Stock Exchange. The report informs directors of their duties under the Combined Code to keep good internal control in their firms and have good audits and checks to make sure financial reporting quality and find fraud before it becomes a problem.

Table 2.1.

Table 2.1: Comparison of internal control guidelines of listed companies of Shenzhen Stock Exchange and Shanghai Stock Exchange

| Items | Shanghai Stock Exchange | Shenzhen Stock Exchange |
|----------------------------|--|---|
| Contents | Similar to COSO risk management. | Similar to COSO internal control. |
| Goals | Strategy, operation, reports and compliance | Operation, reports, compliance and assets safety |
| Responsibility Body | Board of directors, inspection and supervision departments | Board of directors, internal audit department |
| Structure | Similar to COSO risk management structure. | |
| Assessment | Accounting firm verifies the evaluation opinions on internal control self-assessment report. | Auditor verifies the evaluation opinions on internal control. If there is disagreement, the company adds a special statement. |
| Regulation Characteristics | Risk management, effective conclusions and verification of CPA | Internal control, effective conclusions and evaluation opinions on internal control over financial reporting of CPA |

(Source: Chen, 2009)

2.2.3 Internal control standards of Internal Control Standards Commission

On 15th July, 2006, the Ministry of Finance set up China Internal Control Standard Commission. It is an organization that provides consulting suggestions for internal control in China. The goal of the Internal Control Standards Commission is to set up an internal control standard system. It is a centre to deal with risk prevention, to monitor corruption and to control and assess measures to promote and protect companies and to strengthen corporate governance and internal constraint mechanisms. It seeks to become the most authoritative organization that draws up internal control standards. The Internal Control Standards chose the “1+x” model. That is, there is only one Internal Control Basic Standard, and based on Basic Standard, some

“Implementation Guidelines” according to the primary economic business activities can be undertaken by Chinese firms.

Basic Standard is a regulation designed to improve risk management and avoid business disasters in China. Basic Standard was announced in 2008 and will be phased in over a number of years. It was to be carried out from 1st July 2009, but it was delayed until 1st January 2011. As an initial step the requirement is limited to mainland-based companies listed domestically and abroad⁸ (“Implementation Guidelines”, 2010, p1). It was then to be extended to all companies listed in China (the main board of Shenzhen Stock Exchange and Shanghai Stock Exchange) from 1st January 2012. Firms which listed on the small and medium-sized firm board and the Growth Enterprise Market adopt these guidelines “when appropriate.” Non-listed large and medium firms are encouraged to adopt the guide.

At the same time, Assessment Guidelines, Practical Guidelines and Auditing Guidelines for Internal Control were also released and came into effect immediately. New standards were introduced to improve the quality of internal controls in Chinese listed firms, thus reducing risks for businesses and their stakeholders (Raymond, 2009). It is intended to have different requirements on companies based on their ownership structure and size, which is akin to the Sarbanes-Oxley Act.

However, in 2012, the internal control regulation pertaining to the mandatory disclosure requirements was changed. Since 2012, state-owned firms disclose internal control reports. Since 2013, non-state owned mainboard listed firms (total market value more than 1 billion RMB at the end of 2011 and average net profit from 2009 to 2011 is over 30 million) are required to disclose internal control reports. Since 2014, other mainboard listed firms disclose

⁸ They are Chinese firms listed in both China and other countries or in jurisdictions such as London, New York, and Hong Kong. They are big firms with good performance and which have foreign branches.

internal control reports. Also, in 2012, the Ministry of Finance and the China Securities Regulatory Commission issued the first regulations about how to disclose internal control information.

Based on the unique setting in China, the Chinese government made a decision to implement China SOX in different enterprises in batches. That is because funds, human resources and technological support are needed in order to implement internal control in a firm. Firms which have listed both domestically and abroad tend to be stronger, have better financial performance, are more advanced technologically and have more highly qualified staff. In particular, firms which have listed in the USA have set up a complete internal control system in the firm according to SOX. The quality of internal control is different in firms which have listed both domestically and abroad from those only listed in mainland China. Those companies which have listed both domestically and abroad are considered to have better internal control (Accounting Department of China Securities Regulatory Commission and the Ministry of Finance, 2012). It is reasonable to let firms that have listed both domestically and abroad to first implement internal control (Wang, 2013). Then when other firms are prepared to tackle China SOX, they start to implement internal control.

In China, internal control practice is rooted deeply in its unique environment and is affected by the values and traditions of Confucianism⁹. Even if the ideas of an Integrated Framework had been carried out in 2006, many companies still only rely on accounting control and have not yet set up a high-quality internal control system. China started to construct internal control theory and practice late and fell far behind developed countries. However, with the release of the guidelines, internal control quality can be improved in China, a process which may

⁹ The core of Confucianism is humanism. The spiritual concern focuses on the family and the world. It relies on the belief that human beings are improvable, teachable and perfectible by personal and communal efforts, particularly self-creation and self-cultivation. It pays attention to the cultivation and maintenance of a code of ethics.

strengthen accounting information quality, auditing effectiveness, internal control information disclosure and make the capital market more active.

2.3 China SOX: what is it and why was it introduced?

In this section, I explain in detail what China SOX is. I then discuss the reasons why SOX was introduced to China by the Chinese government.

It is widely believed that SOX 2002 exerted a significant influence on China (Li, 2007). In response to recent high-profile internal control scandals and to enhance and standardize internal control, the Chinese government has been attempting to carry out internal control standards. Learning from SOX and taking Chinese settings into consideration, the Chinese government released the Basic Standard in July, 2008. It is called “China SOX” or “C-SOX” and employs the COSO Internal Control- Integrated Framework. China SOX is a regulation adopted in China in order to enhance risk management and prevent business disasters and requires detailed disclosure of internal control for public and private Chinese firms.

The aim of this standard is to improve and standardize internal control, improve the level of management and operating of firms, promote the sustainable development of firms, maintain the order of socialist market economics and the interests of the social public (Basic Standard, 2008, Section 1). PWC (2012) believed that because the stature of China in the world economic has risen significantly, it had become necessary to enhance financial reporting quality and align with international standards. The government of China is working on the creation of a healthy business environment with high-quality accounting and internal controls. In order to provide guidance in implementing the Basic Standard, five Chinese authorities released the “Implementation Guidelines” including Assessment Guidelines, Practical Guidelines and Auditing Guidelines for Internal Control on 26th April 2010.

The Basic Standard specifies the elements and principles of internal control, which is similar to the COSO framework (KPMG, 2010). The Implementation Guidelines offer an implementation framework for Basic Standard. It specifies the scope, effective dates and requirement for the implementation of the Basic Standard (KPMG, 2010). Yuting Liu (2011) considers that the Chinese internal control system has significantly improved since the issuance of the Implementation Guidelines. It has helped to strengthen comprehensive management and to improve the ability of operation for listed companies, as well as for unlisted large and medium-sized enterprises.

The contents of internal control are similar to COSO Internal Control Integrated Framework and COSO Enterprise Risk Management Integrated Framework. The goal of internal control is to ensure that management and operations are legal, that assets are safe, that financial reporting and relevant information are accurate and complete, that the effectiveness and efficiency of operation are improved and that development strategy is realized. There are five progressive goals including legitimacy, compliance, the safety of assets, the truth and completeness of reports and relevant information, the effectiveness and efficiency of operation and the development of strategy goals. The factors of internal control assessment include recognition, analysis and risk management. Thus, there are mainly five factors to the structure of COSO internal control as well as to the Internal Control - Integrated Framework. These are the internal environment - the foundation of all internal control components; Risk assessment - analysis and identification of risks regarding the achievement of firm objectives; Control activities - the procedures and policies that ensure the execution of directives; Information and communication tools - systems to exchange and information to support business goals; and Internal monitoring - the process of evaluating internal control quality. The main contents regarding internal control in China SOX are listed in Appendix B (The Basic Standard Supporting Guidelines, pp: 4-18).

The Basic Standard requires Chinese firms to:

- (1) Build internal control strategies around the five COSO control elements
- (2) Link management and executive compensation to the effective implementation of internal control; proper internal control implementation is an essential component of performance for department and staff levels
- (3) Implement IT systems to support and automate controls
- (4) Establish and implement internal control policies
- (5) Disclose self-assessment of the effectiveness of internal control.

In China, a board of supervisors is responsible for internal control supervision, top management takes responsibility of daily operation, and the obligations of the audit committee are to check internal control. The difference between the board of supervisors and the board of directors is that the board of supervisors is a supervision body, supervising board members and management and is responsible to shareholders. The board of directors makes and executes decisions taken at the shareholder meeting and is responsible for shareholder meetings.

The board of directors is responsible especially for the implementation and evaluation of internal control. Basic Standard (2008, Section 6) requires the board of directors to disclose the effectiveness of internal control in self-assessment reports and the auditors also need to opine formally in the annual internal control auditing reports on the effectiveness of internal control. Specifically, Evaluation Guidelines (2010) require firms to disclose internal control problems, the assertion of weakness, material weakness remediation and the measures of remediation in self-assessment report. Auditing Guidelines (2010) point out that, auditors should treat differently the detected internal controls over non-financial reporting. That is just a general disclosure rather than detailed disclosure. They do not need to disclose control

deficiencies in the report. Instead, they only need to communicate with firms and remind them to improve internal control. If they detect significant deficiencies, they need to write to the board of directors and management. When they detect material weaknesses, apart from writing to the board of directors and top management, they are also required to disclose the nature and extent of the internal control weakness in the annual internal control reports.

The enforcement of Basic Standards means that companies must conduct self-assessments on the effectiveness of internal control, issue annual self-assessment reports and appoint accounting firms to audit internal control over financial reporting from when China SOX came into effect. Basic Standards consists of seven chapters and 50 items including general rules, risk assessment, internal environment, control activities, information and communication, internal supervision and supplementary articles. It confirms that the fundamental principles for the establishment of internal control include comprehensiveness, importance, adaptability and cost efficiency. It only points out what the principle of demand on assessment is, “A company should do self-assessment on the effectiveness of its internal control regularly and issue internal control self-assessment reports combined with internal supervision.”

“Implementation Guidelines” including the Application Guidelines for Enterprise Internal Control, the Guidelines for Assessment of Enterprise Internal Control and the Guidelines for Audit of Enterprise Internal Control. Application Guidelines provide guidelines for companies to establish and improve internal control according to internal control principles and the five factors. The Guidelines for Assessment of Enterprise Internal Control is to help management to assess the effectiveness of internal control. The Guidelines for Audit of Internal Control are the professional norms for CPAs and accounting firms to apply when conducting internal control auditing business.

In terms of internal control assessment reports, before the release of the Guidelines for Assessment of Internal Control, some listed firms in the Shenzhen and Shanghai Stock Exchanges tried to disclose internal control assessment reports. However, these reports were different in content and style due to the lack of guidelines, which made them difficult to compare and confused users. Therefore, the Guidelines for Assessment of Enterprise Internal Control requires companies to disclose some important aspects in assessment reports:

- The statement of authority of internal control report of the board. In essence, all board members are responsible for the effectiveness of internal control.
- The scope, which is the objective and business items that are assessed.
- The evidence of assessment includes basic guidelines, assessment guidelines and ways of evaluation.
- The overall situation of internal control assessment.
- The conclusion of effective internal control.
- The measures to address internal control deficiencies and major defects.
- The process and ways of assessment. Internal control weakness and affirmation, which mainly describes the measures of internal control weakness and which should remain the same as the year before. It also needs to make the major defects, important defects and general defects clear.

The Ministry of Finance is trying to employ an internal control assessment table, which will make it easy to compare the internal control assessment reports of different companies and is beneficial for users to read and understand (Liu, 2011).

China SOX is a valuable tool for strengthening the management of listed companies and unlisted large and medium-sized enterprises comprehensively as well as an important institutional arrangement in order to respond to the current international financial crisis at the time (Liu, 2011). It requires state-owned firms and non-state owned large and medium firms governed by the Basic Standards and the Supplementing Guidelines to disclose a self-evaluation report on the effectiveness of internal control. They also need to engage an accounting firm to issue a report on the effectiveness of internal control. The Application Guidelines consist of 18 aspects, definitions and examples. The Evaluation Guidelines require enterprises to perform comprehensive assessments on the design and operation of internal control. They are in line with international standards. The audit section of the Supplementing Guidelines provides basic requirements for performing internal control audits. The Implementation Guidelines specifies the scope, effective dates and requirements for implementing the Basic Standard and signifies that China regulators are finally mandating this compliance obligation.

To make companies stronger and bigger, improve core competitive ability and management as well as to achieve in the global market, Chinese enterprises must convert from accounting control to risk control (Liu, 2010). Chinese internal control indeed has its particular characteristics. China places more value on internal control to ensure economic information safety (Liu, 2010). Low internal control effectiveness is common in China today, so it is urgent to pinpoint the determinants of internal control effectiveness and to find solutions to the problems. The new Chinese internal control regulations (non-financial internal control and mandatory disclosure) and unique institutional background (politics, culture, laws, capital market and corporate governance) provide a unique research opportunity. The implementation of “China SOX” will be useful to improve internal control effectiveness in

China. “China SOX” may set an example and provide guidance for other countries that have a similar institutional background.

2.4 The comparison between “China SOX” and US SOX

According to KPMG’s China Boardroom Update: International Regulatory Development, (Issue 2, April), there are “a lot of similarities between the China regulatory requirements and the SOX 404¹⁰”. But there are also some differences between “China SOX” and US SOX. In this section, I compare the definitions, classifications, disclosure and persons in charge in “China SOX” and US SOX.

2.4.1 Definitions

The backbone of China SOX is the COSO risk framework. However, Basic Standard (2008) uses a broader definition of effective internal control as compared to SOX 2002¹¹. Internal control is defined as “a process, implemented by an entity’s board of directors, boards of supervisors, management, and other personnel, with the aim of realizing control goals”. There are three goals including the effectiveness and efficiency of operations, the reliability of financial reporting and compliance with applicable laws and regulations (Basic Standard, 2008, Section 1). Internal control of US SOX is a process affected by an organization's authority flows, structure, human resources and information systems, designed to help the organization accomplish specific objectives (COSO, 1999). The definitions of SOX (2002) focus on the reliability of financial reporting¹² while Basic Standard (2008) pays more

¹⁰ Sarbanes-Oxley Act Section 404 requires all listed firms to establish internal controls and procedures for financial reporting and make sure of their effectiveness.

¹¹ PCAOB also has a definition limited to financial reporting. In contrast, COSO’s definition relates to all aspects of internal control rather than only financial reporting. But COSO did not propose the definition of internal control over non-financial reporting.

¹² Final Rule: Management’s Report on Internal Control Over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports Securities and Exchange Commission.

attention to deviation from the control goal. That is, Basic Standard not only focuses on internal control weaknesses over financial reporting, but also concentrates on internal control weaknesses over non-financial reporting.

Internal control over non-financial reporting refers to other controls apart from internal control over financial reporting. China SOX requires “Chinese listed firms and their auditors to evaluate the effectiveness of enterprise internal control over both financial reporting and non-financial reporting and provide the annual opinions”. Unlike US SOX, China SOX focuses on both internal control over financial reporting and non-financial reporting.

Only China SOX proposes internal control over non-financial reporting and from 2012 required Chinese listed firms to disclose and audit internal control deficiencies over non-financial reporting. Overall internal control should include both financial reporting and non-financial reporting. China is the first country to include non-financial reporting into internal control. China SOX provides a unique setting to study internal control over non-financial reporting. In the internal control international seminar (South Africa, 2008), international experts considered that it is an important institutional arrangement that is able to respond to accounting scandals and international financial crises. Li (2012) explains that China is in a period of transformation of its economy and society where the capital market is comparatively weak, so Chinese government has had to take prudent measures. It is an innovation to consider internal control over non-financial reporting because internal control over non-financial reporting may be important and have a great influence on internal control over financial reporting and economic safety (Li, 2012). Non-financial weaknesses in China include information disclosure, corporate governance, internal control, regulations and rules, human resources and training, and related matters (investor relationship, related party transactions, budgeting and social responsibility) (China SOX, 2008).

China SOX pays more attention to human rights instead of just financial performance than western countries. This is important because it makes people focus on human factors in a firm. Under the guidelines of non-financial internal control, Chinese firms set internal control objectives, conduct effective and low-cost training, manage control documents and process, prepare for the internal control audit and improve the quality of internal control (Li, 2012).

2.4.2 Classifications

There are three weakness classification schemes. Based on the reasons for the internal control problem, internal control weaknesses include design weaknesses and operating weaknesses (Basic Standard, 2008). In common with SOX (2002), three types of internal control weaknesses are defined by the Evaluation Guidelines (2010). Listed in increasing order of severity, there are control deficiencies, significant deficiencies and material weaknesses.

Material weaknesses are defined as a significant deficiency or combination of control deficiencies, which causes a firm to deviate seriously from its goal. Finally, the monitoring of the internal audit and audit committee over internal control is effective. Significant deficiencies are defined as a control deficiency or combination of control deficiencies, which may cause the firm to deviate from its goal. The severity and economic consequences of significant deficiencies are lower than material weaknesses. Other weaknesses are control deficiencies. However, different from US SOX, there are no precise definitions and assertions of internal control weaknesses in the Evaluation Guidelines (2008). Firms make their assertions on internal control weaknesses and must keep the claims unchanged once they are made. There are four aspects showing potential material weaknesses. First, when auditors detect the fraud of boards, supervisors or senior managers. Second, when the firm restates their financial reporting. Third, when the auditor detects material misstatements in financial reporting while the firms failed to detect them. Given that the effectiveness of internal

controls varies among Chinese firms and the general level of internal control is low, it is reasonable for firms to assert internal control weakness by themselves. But the lack of conformity of the assertions may result in difficulties of operation and high cost to firms. Chinese firms may refer to PCAOB (2004)'s definitions on weaknesses to assert their internal control weaknesses. The detailed definitions and assertions should be issued in the near future.

Evaluation Guidelines (2010) classify internal control weaknesses based on economic consequences, while Auditing Guidelines (2010) analyse the resources of internal control weakness deeply and divide internal control weakness into internal control weakness over financial reporting and non-financial reporting. Internal control weakness over financial reporting may make firms provide false accounting information to the market. Internal control weakness over non-financial reporting might result in a decline in profits and materially wrong decisions, which damages the interests of investors. However, the definitions and assertions of internal control over non-financial reporting are also missing in the Basic Standard (2008). The three classifications of internal control weaknesses can be used to measure completely the various types of weakness disclosures in China.

2.4.3 Disclosure

The regulations of internal control reports are quite different from COSO. SOX 2002 only requires firms to disclose internal control over financial reporting rather than overall internal control information based on the consideration of cost-effectiveness. However, material weaknesses over non-financial reporting are also required to be disclosed in internal control auditing report in China. Internal control over non-financial reporting refers to other controls apart from internal control over financial reporting. The goals include maintaining the safety of assets, the effectiveness and efficiency of operations, compliance with applicable laws and

regulations and to realize development strategy. Audit Guidelines (2010) point out that, auditors should treat the detected internal controls over non-financial reporting differently. They do not need to disclose control deficiencies in the report. They only need to communicate with firms and remind them to improve internal control. If they detect significant deficiencies, they need to write to the board of directors and management. When they detect material weaknesses, apart from writing to management and board of directors, they are also required to disclose the nature and severity of internal control material weakness in the annual reports (Audit Guidelines, 2010, p9). Basic Standard (2008) requires the board of directors to disclose the effectiveness of internal control in self-assessment reports and the auditors need to opine formally in the annual internal control auditing reports. Internal control weakness disclosure includes both financial reporting weaknesses and non-financial reporting weaknesses. Specifically, Evaluation Guidelines (2010) require firms to disclose internal control problems, the assertion of weakness, material weakness remediation and the measures of remediation in a self-assessment report.

2.4.4 Person in charge

SOX (2002) regulates that management should take the primary responsibility for internal control. Different from American regulations, Basic Standard (2008) regulates that the board of directors is responsible for the establishment and implementation of internal control and for disclosing the effectiveness of internal control in self-assessment reports. It emphasizes that the board of directors has the highest responsibility. It also points out that the board of directors should fully recognise their responsibility of internal control, and strengthen the guidance and supervision of the establishment and implementation of internal control (Basic Standard, 2008, Section 2). Specifically, Implementation Guidelines (2010) demonstrates that the board of directors is in charge of management development strategies. Directors need to play a leading role and set a good example for the establishment of effective internal control. They should

lead and influence the whole team with their good characteristics and earnest attitudes to collectively create a positive work environment (Implementation Guidelines, 2010). The requirements for boards in China SOX are different from US SOX, hence the Chinese case can be used to study the impact of the board as the board is an important monitoring mechanism in internal control. Apart from board of directors, other important departments including supervisory boards, top management and audit committee are also responsible for internal control. Every member of the organization is correlated with internal control, resembling US SOX.

Basic Standard (2008) advises that specialized organizations such as an internal control team should be set up in the firm. In order to design, establish, operate and improve internal control, the board should assign a unique team to bear the responsibility and direct the construction and implementation of internal control. The internal control team is responsible for the whole process of internal control including the establishment, implementation and daily work of internal control (Basic Standard, 2008, Section 2). The members of the internal control team are board members, and the board chairman is often the team leader. The establishment of the internal control team makes clear who is responsible for internal control and avoids the disorder caused by multiple managements. This also provides an opportunity to study the role of internal control teams given that they are not a mandatory requirement.

KPMG (2010) compared the similarities and differences of Sarbanes-Oxley 404 and China SOX. The contents are listed in the figure below.

Table 2.2: Comparison of SOX 404 and China SOX

| Issue | Comment |
|---------|---------|
| General | |

| | |
|--|--|
| Major implementation requirement | Very similar |
| Scope for implementation | There is similar statutory scope for application. |
| Targeted internal control categories | China significantly increases the workload of enterprises and auditors. Internal control includes not only financial control, but also nonfinancial control. |
| Compliance sequence | They both have considered the differences in the level of enterprise internal control and resource applicable to the different scales of companies. |
| Waiver | There are no waiver provisions in Chinese newly listed companies. |
| Person in charge | The board of directors rather than managers in China is responsible for the establishment and implementation of internal control. |
| Enterprises' internal control assessment | |
| Guidelines on internal control assessment | China appears to be mandatory in terms of words. |
| The details of the assessment guidelines | China also focuses more on practical operations rather than underlying principle and rules. |
| The responsibility for the assessment | They both think the management or those charged with governance should be responsible for internal control assessment. |
| Scope of internal control | Same |
| General approach and internal control framework for assessment | China does not go into details regarding the evaluation procedure, and there is no special guideline on the effective planning of the assessment. |

| | |
|--|---|
| Classification of internal control deficiencies | Chinese firms are required to adopt an internal control framework. Chinese companies and auditors are also required to focus on different categories of internal control. However, The scope for the enterprise is wider than that for auditors. The definition of deficiencies is only available for enterprises, but not for editors. |
| Criteria for assessment conclusion | Ambiguity in China in criteria for assessment outcome may cause difficulties in comparing the assessment conclusion of different companies. |
| Date of assessment conclusion | Chinese regulatory agencies need to clarify further whether the assessment conclusion is as of a year-end or for a year. |
| Content requirements for report and outline of assessment guidelines | It is harder to compare the reports of different companies in China, as the reports need be more comprehensive and informative. The content of the outline of assessment guidelines is similar. |
| Auditor's internal control audit | |
| Expressing opinions | Same |
| Date of the auditor opinion | Same |
| Objectives of planning an audit | China may increase auditors' workload |
| General approach of an auditor | Same |
| Internal control framework | Similar |
| Using the work of others | Similar |
| Types of audit opinions | Same |

| | |
|--|------|
| Content requirement on auditors' report | Same |
|--|------|

(Source: China Boardroom Update: Internal Control Regulatory Developments. KPMG, 2010)

In sum, the USA has built a comparatively complete internal control system based on The COSO framework including many rules, standards, guidelines and interpretations (KPMG, 2010). By borrowing from US SOX, China has started to construct an internal control theory and practice system. However, Chinese politics, economy, regulated market, social environment, and traditional culture are quite different from those of the USA. These factors explain why Chinese internal control has its distinctive characteristics (Li, 2009). The rich history, economic reform, and unique culture offer a setting to study whether the internal control theories and practice of Western countries are applicable in a Chinese institutional environment (Peng, 2009). Firm culture influences internal control (COSO, 1992). Chinese firm culture is affected greatly by traditional Confucian culture, which is quite different from that in Western countries. China's unique culture provides a research opportunity to study internal control. Autocracy and democratic culture are significantly related to internal control. A democratic culture is beneficial to the improvement of internal control effectiveness (Li, 2012). When China implements and develops internal control, not only will China endeavor to learn advanced ideas and methods from the USA, but also it will be necessary to consider the unique setting in China.

2.5 Institutional background of China

The differences between China SOX and US SOX reflect a unique Chinese background. For firms in different industries and regions, governmental policies are different (Lin et al., 2012). For example, Chinese regional development is uneven. The government employs regional preferential tax policies to improve the economic development of particular regions

and to reduce the regional development gap (Wu et al., 2012). The situation in China is complex and quite different from the USA. The design of China SOX takes Chinese characteristics into consideration.

As the largest emerging economy and one of the most economically significant developing countries, China has attracted broad interest. Economic growth includes overall economic strength, increased global interaction and rapid development of the capital market (Peng, 2009). Since the economic reform, China has transferred to a socialist market-driven economy. In 2001, China joined the World Trade Organization. Growing investment chances and internal commercial interests promote Chinese economic development (Bisman & Liao, 2009). Economic reforms have a great influence on accountancy in China (Chen & Chan, 2009). The accounting profession has gradually come to play an indispensable and critical role in the fast-growing Chinese economy, security markets and corporate governance (Chen & Chan, 2009). Chinese society is in a period of transformation, and there are many reforms regarding economics, accounting, auditing and internal control. By borrowing from American and international accounting standards, the Chinese government is attempting to introduce and improve the systems of accounting, auditing and internal control. For example, they have released Basic Standards and Implementation Guidelines since 2008 and they have continued to promulgate relevant regulation and rules such as the detailed requirements about the disclosure of internal control information.

Unlike the case in the USA, the Chinese government dominates the regulation and enforcement of internal control (Wu et al., 2012). To some degree, a socialist one-party system centred on the Communist Party entirely affects standard setting and international harmonization of Chinese accounting regulation and enforcement. In developing countries, political ties are a widespread phenomenon. Chinese firms, especially stated-owned firms, benefit much from political ties due to highly interventionist governments and weak rights

protection (Wu et al., 2012). The Chinese government is always the principal player in the economy. It has controlling shares in almost all large listed firms and also controls most resource allocation channels including public listing and bank loans (Ding & Su, 2008). There are conflicts of interest and collusion between different layers of government and firms. The central government sets regulations for the stock market, ensures the quality of listed firms and protects investors, while local governments seek higher GDP and more capital as well as colluding with listed companies for their own interest (Chen & Schipper, 2008). Local governments serve multiple roles in the economic transition. They are providers of public services, acts as agents of central government, monitor and are major shareholders of listed firms. Because sophisticated intermediaries and effective governance mechanisms are lacking in China, the multiple roles of regulators may cause conflicts.

Ownership nature, agency relations and bankruptcy risks are different in state-owned enterprises (SOEs) and non-state-owned enterprises (NSOEs). This may result in differences in auditing effectiveness in reducing financial reporting noise and information risk of investors' pricing. SOEs have privileged access to private information. They pay more attention to profitability (Chen et al., 2012) and do not have the demand for voluntary disclosures (Xiao et al., 2004). Many SOEs exist in China, and some of them are enormous (Chen & Schipper, 2008). SOEs play a pivotal role in China's national capital today (Tang et al., 1999). In China, there are many government-owned firms and their largest shareholder is the state. However, they do not find that the government tunnels for private benefits (Jiang et al., 2010).

The Chinese capital market only began in the early 1990s (Tang, 2000). The Chinese stock market has been considered as excessively controlled and interventionist, lacks transparency, has weak-form efficiency, and has an underdeveloped legal and regulatory framework (Cheung et al., 2010). Chinese investors lack access to information because listed firms only

disclose required information (Haw et al., 2000). It is still difficult for investors to get disclosed information. Information transfer in Chinese firms is costly and challenging (Tang, 2011). However, the Chinese stock market is growing in maturity and importance. It pays attention to political ties and social networks (He & Liu, 2010). Chinese participants have a high demand for information (Birnberg et al., 2008). But disclosure level is relatively low, and the quantity and quality are low throughout China (Xiao et al., 2004). Information asymmetry cost is substantial in the Chinese order-driven market (Zhou, 2007).

Chinese listed firms have six types of shares: state, foreign, management, employee, individual and legal person. Chinese listed firms have high ownership concentration, and a single investor controls the firm. Many dominant investors link closely to the state. Private companies have no connection to government. Government appoints directors and top management and affects decision-making of firms. This may influence the enforcement of relevant regulations and lead to weak governance and internal control. The quality of information disclosure may also be influenced (Firth et al., 2007). Financial reporting under China GAAP is considered to be related to apparent earnings management. Although the Chinese stock market is perceived to lack alternative accounting information, the financial statements under the less reliable China GAAP standards remain useful to investors (Chen et al., 2002). Chinese investors also value high-quality audits (Gul et al., 2003).

The institutional environments include legal protection and corporate governance. Corporate governance in many developed states with strong law protection is effective. But in China, corporate governance is weak, and governance structure is unique (Chan et al., 2007). As can be seen from Figure 2.1, the structure of corporate governance of listed firms in China differs from that in the US. In the latter the owners of the firms are stockholders and a shareholder meeting is required every year (Jiang & Kim, 2014). Listed firms have a unique two-tier corporate governance structure. It includes not only the board of directors, but also the

supervisory board. Boards of supervisors can exercise authority independently and oversee and evaluate boards of directors, top management and financial issues (Firth et al., 2007). A firm should have three supervisors, and one-third of them should be employees and at least one of them must be a shareholders' representative. The purpose of the existence of the board of supervisors is to balance management and the board (Gul et al., 2003). However, in China, board and management may force supervisors to conspire with them, so supervisors are considered to be weak and ineffective (Dong, 2008). For instance, the cases in Appendix C show that the board and top management in some Chinese listed firms put themselves above the internal control system together.

Boards of directors have decision-making power and are at the top of the internal control system. Corporate governance plays a critical role in internal control enforcement. Boards of directors and supervisors are elected by vote. The numbers on a board can range from 5 to 19 and the director can serve three or more years. Directors' responsibilities include decision-making, meetings convening, shareholder resolutions and management evaluation. The board meetings are required to take place once every half year. In China, the board of directors is the most important internal corporate governance mechanism (Jiang & Kim, 2014), which is different from the case in the USA. Another difference is that independent directors are sometimes considered to be ineffective in China. Lin et al. (2012) argue that although independent directors' modified opinions are informative in predicting firms' financial and legal risks, independent directors are more likely to resign than to say no when they have private information about adverse corporate events.

There are four committees in a firm including audit committee, strategy and investment committee, nominating committee, salary design, and measurement committee. Executives (top management) are under the control of the board of directors and they are responsible for the day to day operation including internal control issues of the firm. Since 2002, China

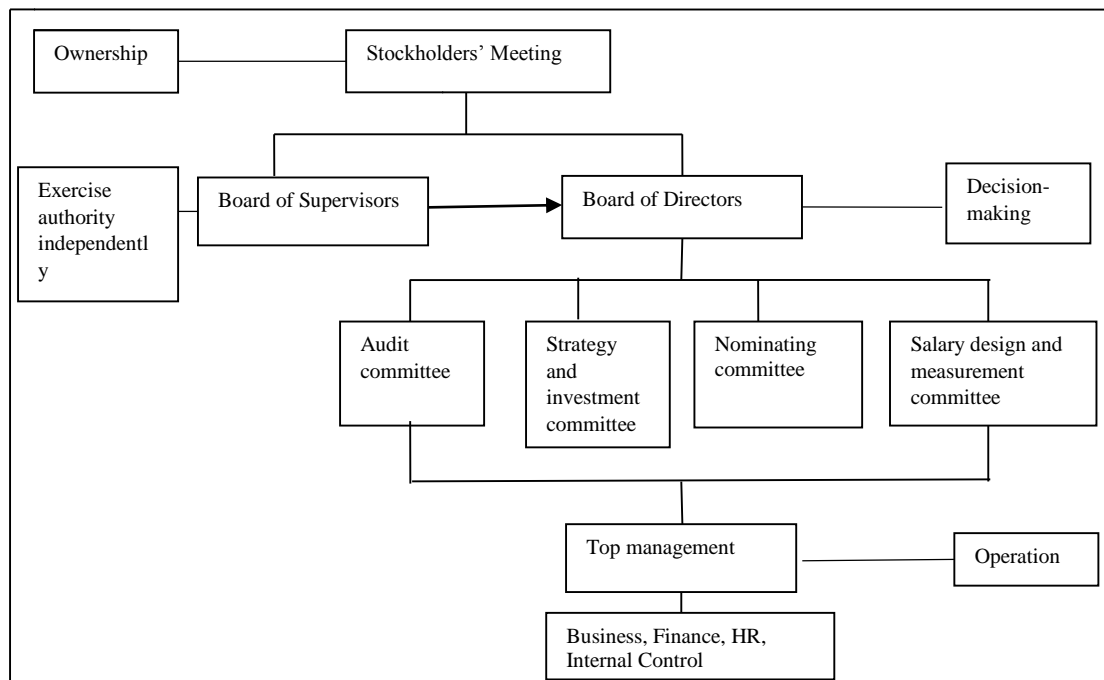
Securities Regulatory Commission (CSRC) has suggested that listed firms should set up an audit committee. The minimum number of members of the audit committee is three and independent directors should take up half the total number. On the other hand, the members of the audit committee must be independent in the US. In regard to expertise, all audit committee members in China must have professional knowledge and business experience. The head of the audit committee must have auditing and finance experience. Similarly, in the USA, at least one member must have financial or accounting expertise. American audit committee members cannot work on more than three audit committees, while there is no such requirement in China. In China, the audit committee is required to evaluate the expertise and independence of the auditing organization, in particular, the impact of non-auditing services. However, there is no requirement about how to assess independence and expertise. This is different from the detailed requirement in America. Similar, the USA has more detailed requirement about the relationship with external audit organizations than does China. The independence of Chinese audit committees is also not as good as in America. In China, the audit committee is required to guide the internal audit (Wang, 2014).

Top management does not control the firm in China (Jiang & Kim, 2014), so they play a less important role compared to top management in developed countries. SOEs fire their managers due to poor performance, but compensation is not an important incentive for them. The incentive of managers in government-controlled firms is to get promoted to a higher position in the government (Firth et al., 2007; Conyon & He, 2011). For example, the motivation of Chinese firms engaging in CSR is to have a strong political network.

The corporate governance structure varies slightly in each firm. The Chinese governance mechanism is interesting but puzzling because it is hampered by the minimum protection of property rights and charged with monitoring growth of finance and economics (Chan et al.,

2007). It is also difficult to explain why weak governance can result in good economic performance.

Figure 2.1: Corporate governance structure of listed firms in China



(Source: Chen, 2004)

The “Code of Corporate Governance for Listed Companies” was issued in 2002 by the CSRC, State Economic and Trade Commission. China’s corporate governance code merely offers a very brief, broad and vague overview of guiding principles. The Chinese legal environment is far from mature (Chen et al., 2011). China has embarked on developing laws and regulations for business. Many of them have been enacted in recent years, but the Chinese legal system is relatively primitive compared to capitalist nations. The strength of enforcement is a major problem that needs to be solved. When the law is weak, and enforcement is inadequate, managers tend to have opportunistic behaviours. There is no legal redress for individuals in China. This implies Chinese investor monitoring and oversight is far less effective (Chen et al., 2005). But the level of the legal environment is improving (Jiang & Kim, 2014).

China's traditional culture has a far-reaching impact on business. Culture factors and individual characteristics of key firm personnel may play an invaluable role in Chinese firms. Firm culture, the attention degree of managers on competence of employees, risk preferences, integrity, ethics and values of managers attract more attention from Chinese research. As the foundation of Chinese culture, Confucianism influences every aspect of life in China (Yee, 2012). Confucian values affect business culture vertically and horizontally. Vertical social relationships embed hierarchical social relationships. Horizontal order covers self-identity and social order (Redding, 1993). Personal qualities in Confucian values include the frugality, diligence, prudence and asceticism. Chinese owners prefer personal and behavioural control, subjective control, little budget participation and centralisation (Efferin & Hopper, 2007). Chinese are more sensitive to the attribution of morality due to the implicit culture in China (Wong-On-Wing & Lui, 2007). Collectivism rather than individualism is emphasized in China. In Chinese collectivist culture, "face" (what others think of him or her) is important. Face may impede information sharing in Chinese firms (Chow et al., 1999).

In sum, China's weak legal system, negligible control mechanism and inefficient labour market provide a unique setting. China's research has its unique academic, historical and practical value and has attracted broad and increasing interest. The Chinese setting provides opportunities for my research to examine how distinct differences between China and elsewhere might allow issues to be investigated in a totally new way. For example, different owners (state-owned firms and non-state-owned firms) have different influences on Chinese enterprises. Furthermore, local enterprises (ultimate shareholder is a local government) and central enterprises (ultimate shareholder is a central government), family enterprises and non-family firms may have different levels of internal control and corporate governance. In addition, research into whether the practices and theories of accounting and auditing in other

countries, especially the US and other developed countries, can be extended to a Chinese setting.

2.6 Conclusions

China SOX, China's version of the US SOX with supporting guidelines was issued in 2008 and 2010. The Basic Standard mirrors its counterpart (the USA) in many aspects. The aim of China SOX is to improve financial reporting quality, increase internal control effectiveness and reduce the risks to stakeholders and firms. Although internal control theory and practice in China falls behind America and other developed countries, China SOX has contributed to the development of internal controls and has recently made significant progress. Compared to similar countries in the world, China has done better because China has an evolving internal control regulatory framework. As a formal internal control regulation, Basic Standard (2008) has important implications for the development of internal controls. China SOX is changing the way China does business. It has since 2012 required listed firms to disclose material weaknesses and remediation over both financial reporting and non-financial reporting in internal control self-assessment reports and verification reports. It also emphasises the vital role of boards in internal controls. US SOX offers the experience of implementation, which will assist China in tackling difficulties and troubles during the implementation period of new internal control standards. Consequently, new internal control regulations and the unique institutional background offer future research opportunities.

China's unique institutional background and the changes to accounting and auditing regulations motivate China-related research. As a result of the development of China's economy, on-going regulatory changes, as well as unique social and political environment, more high-quality China-related research based on the unique background and new regulations will be of considerable interest. Also, future comparative research that analyzes

the similarities or differences in different stages of China's accounting and auditing (before and after) with various other countries would be of interest. For instance, the incentives for information disclosure of Chinese firms are different from American companies. Future studies could investigate the influences of this difference. Furthermore, research may investigate the cost-effectiveness of China's new regulations such as China SOX versus the US SOX.

In conclusion, China SOX requires that boards of directors are primarily responsible for internal control. What is more, China SOX also focuses on internal control weaknesses over non-financial reporting. Given the above distinct differences between US SOX and China SOX, this thesis will examine the impact on boards of directors of Chinese internal control as well as non-financial internal control.

3 Literature review

This section reviews the literature on internal control weaknesses. I first discuss internal control research in the USA, and then review empirical studies in China.

3.1 Internal control research in the USA

3.1.1 Introduction

After a series of serious internal control scandals, the USA government passed SOX 2002 in order to improve the quality of financial reports and restore the confidence of investors in the capital market. A firm and its auditor are required to disclose the deficiencies of internal control and provide annual opinions under Section 302 and 404 of SOX. Internal control weaknesses are required to be disclosed. A large body of academic studies have examined the disclosure of internal control deficiencies under SOX 302 and 404. This section reviews contemporary articles regarding this topic published in accounting journals from 2005 to 2014. I subdivide these studies into three topics: determinants of control weaknesses, internal control weaknesses and corporate governance as well as weakness remediation.

3.1.2 Determinants of internal control weaknesses

A substantial body of studies have examined the determinants of internal control deficiencies using voluntary or mandatory data prior to or after SOX 302 and 404. These studies provide indirect or direct evidence on the factors influencing weaknesses in internal control over financial reporting.

3.1.2.1 Voluntary disclosure period

In the period when disclosure was voluntary, there were few articles about internal control disclosure due to the unavailability of data. According to descriptive statistics of Bronson et al. (2006), none of the management reports cover internal control material weakness. About forty

percent of reports disclose that their internal controls are effective, and only three of them report the assessment criteria of internal control effectiveness. Ghosh & Lee (2013) examined financial reporting quality, structural problems and internal control disclosure. They found that during the pre-disclosure period, the firms with internal control weaknesses have structural problems and low financial reporting quality.

3.1.2.2 Firm characteristics

After internal control information was disclosed mandatorily, there followed increasing numbers of empirical articles. Based on specific material weakness disclosure provided by management pursuant to SOX 302, Ge & McVay (2005) investigate the disclosure of internal control material weaknesses after SOX. They offer descriptive evidence that inappropriate allocation of resources for accounting controls, deficient revenue recognition and accounting policies, lack of segregation of duties, insufficient account reconciliation, and deficiencies in the period and complex accounts increase the likelihood of material weakness. Subsidiary-specific and current accrual account-specific material weaknesses are quite common. Then Ge & McVay (2005) empirically analysed whether firm characteristics relate to internal control deficiencies and found that companies with complex business, small size, less profit and audited by a large accounting firm tend to disclose material weaknesses. They also emphasize that the root of deficiencies stems from personnel issues. Using post-SOX evidence, Doyle et al. (2007a) confirm the findings of Ge & McVay (2005) and add that young age, rapid growth and restructuring are consistently positively correlated to control weaknesses. Furthermore, Doyle et al. (2007a) posit that the determinants vary in light of weakness classifications. More severe entity-wide issues are more pervasive in young, small and weak financial companies while less severe account-specific issues exist in healthy financial, diversified complex and rapidly changing firms. Firms with staff-related problems tend to be financially weak and small

while firms with complexity-related problems have diversified, complex and changing operations.

However, Ge & McVay (2005) and Doyle et al., (2007a) mainly focus on the material weakness in internal control. Ashbaugh-Skaife et al. (2007) develop Ge & McVay (2005) and Doyle et al., (2007a) by investigating all three kinds of internal control weaknesses (control deficiencies, significant deficiencies and material weaknesses). Based on non-mandated data under SOX 302, Ashbaugh-Skaife et al. (2007) study the reasons why firms expose control weaknesses and the incentives of management to discover and report control deficiencies. The findings show that fewer resources, organizational changes, accounting risks, auditor resignations and complex operations are positively linked with the disclosure of internal control weaknesses. The incentives for discovering and reporting control problems are usually relevant to concentrated institutional ownership, prior SEC enforcement actions, whether audited by a dominant accounting firm and financial restatements. Leone (2007) argues that the paper of Doyle et al. (2007a) and Ashbaugh-Skaife et al. (2007) provide a starting point for future study regarding the consequences of control deficiencies. Consistent with the results of Ge & McVay (2005), Doyle et al. (2007a) and Ashbaugh-Skaife, Collins, & Kinney (2007), Petrovits et al. (2011) found that similar factors cause control problems in non-profit organizations.

Different from Ashbaugh et al. (2007), Rice & Weber (2012) directly examined the determinants of reporting decisions and effectiveness under SOX 404. Their design centres on restating firms because the misstatements of restating firms are more likely to be linked with underlying material weaknesses. They conclude that a minority of sample firms reported their existing material weakness during the misstatement periods and that the percentage declined over time. The findings suggest that, in identifying existing material weaknesses, SOX 404 is not always effective and has not been improved over time. In addition, they also found that internal factors (few financial distress and few reported material weaknesses and restatements)

and external factors (external capital, audit firm size, reduced auditor effort, few changes of auditor and non-audit fees) are positively related to higher probability of disclosing existing control problems.

Prior studies of determinants (Ge & McVay, 2005; Ashbaugh-Skaife et al., 2007; Doyle et al., 2007a) are restricted solely to financial characteristics, while Li et al. (2010) extend them (Ge & McVay, 2005; Ashbaugh-Skaife et al., 2007; Doyle et al., 2007a) by testing whether the qualifications and turnover of CFOs are the determinants of SOX 404 material weakness. Li et al. (2010) offer evidence that less qualified CFOs (whether he or she has a CPA license or has worked in an auditing firm, how many years he or she worked as a CFO) and more CFO turnover are more likely related to adverse SOX 404 opinions. Similarly, Masli et al. (2010) studied the potential benefits of monitoring technology on internal control. Using 152 firms from 2003 to 2006, they found that there is a negative relationship between the implementation of monitoring technology and material weaknesses. Cassar & Gerakos (2010) studied the determinants of hedge fund internal control. The results show that high potential agency costs, managers of funds domiciled offshore, levered and young funds are related to strong internal control. The findings also demonstrate a positive correlation between internal control quality and the performance fee rewarded to managers. This suggests that internal controls seem less likely to detect or prevent earnings management by managers.

3.1.2.3 Other factors

In terms of early warning, Hermanson & Ye (2009) report that only 27 per cent of accelerated filer firms in the first year of SOX 404 with an adverse Section 404 report disclosed material weaknesses under Section 302 in past quarters of the same year. Munsif et al. (2012) extended Hermanson & Ye (2009) by examining both accelerated and non-accelerated filers from 2007 to 2008. They found that less than half of accelerated filers (with adverse Section

404 reports) had early warnings. After controlling for other factors, non-accelerated filers tended to have early warnings than accelerated filers in 2008 but the difference was not significant in 2007. Early warning is related to a high number of material weaknesses, more audit committee members, a new CFO and frequent audit committee meetings. Overall, these studies indicate that governance attributes, firm characteristics, and audit quality are essential ingredients in early warning.

Mitra et al. (2013) analyse the correlation between internal control and accounting conservatism. They found that internal control weaknesses, especially firm-level material weaknesses have a significant influence on accounting conservatism both before and after SOX. Internal control weaknesses are positively related to accounting conservatism. They also found that during the first three years rather than last three years after SOX, the difference in conservatism between weakness firms and non-weakness firms was more significant. The results suggest oversight and scrutiny can effectively enable weakness firms to use conservatism.

Using data from Korea, Choi et al. (2013) examined the influence of investment of human resource in internal control weaknesses. The results show that the ratio and change in the number of employees involved in internal controls and key departments have a negative association with internal control weaknesses. The results also indicate that a change of internal control personnel has a positive relationship with internal control weakness remediation. The results indicate that human resource investment plays a vital role in determining internal control quality.

In terms of culture, Hooghiemstra et al. (2014) investigated whether national culture influences the disclosure of internal control. As an international study, they argue that culture influences the disclosure decision of the management by influencing their perceptions. They

used 4370 observations from 29 different countries from 2005 to 2007. The results show that national culture directly influences internal control disclosure. In addition, the findings indicate that national culture indirectly influences disclosure decisions on investor protection.

As noted above, empirical findings consistently indicate that internal control deficiencies are often related to firms characteristics including internal factors (firm size, firm age, business complexity, profitability, organizational changes, financial distress, financial health, accounting risk, growth, structure, resource availability, past weaknesses and restatements, change in qualifications and turnover of CFOs, management changes, human resource investment, corporate governance and monitoring technology) and external factors (external finance, audit firm size, auditor resignations and changes, auditor effort, non-audit fees and national culture). Especially, the results of prior studies show that some characteristics of the board of directors, top management, audit committees, CEO and CFO are linked with material weaknesses.

3.1.3 Internal control weakness and corporate governance

SOX and its regulations provide an increased emphasis on corporate governance (Hoitash et al., 2009). It is important to test monitoring mechanisms (corporate governance and audit committee) that can be used to reduce internal control weaknesses. The accounting profession and policy makers maintain that one of the primary functions of corporate governance,¹³ especially audit committee, should oversees internal control (Krishnan, 2005). Corporate governance and internal control are closely associated and influence each other (Li, 2007). In addition, internal control quality is a function of the quality of the control environment including the board of directors, the audit committee and other non-governance controls

¹³ One of the goals of corporate governance is that the board remains in effective control of the affairs of the company at all times.

(Krishnan, 2005). Academic research indicates that audit committees consider internal control to be their function. While it seems clear that corporate governance and especially audit committees are expected to play a crucial role in reducing control weaknesses, what happens in reality (Krishnan, 2005)? In response to this practical question, many studies, based on corporate governance theory, have investigated the association between internal control and corporate governance especially audit committees.

Audit committee characteristics can reflect or be determined by, the composition of the board (Beasley & Salterio, 2001; Klein, 2002a). Many researchers have examined the impact of the audit committee on internal control under SOX 302 and SOX 404. Krishnan (2005) tests the association between audit committee composition and the quality of internal control using firms that changed auditor over the period before SOX. The empirical results indicate that the independence and the numbers of financial experts of audit committees are significantly negatively related to both levels of internal control weaknesses (less severe reportable conditions and more serious material weaknesses). The findings also indicate that auditor tenure, financial stress, Chief Financial Officer (CFO), Chief Accounting Officer (CAO) or Controller' work experience and tendency to engage in fraud are linked with the incidence of control problems. However, board of directors, internal audit function and external auditor are not found to be linked with internal control weaknesses. That is because the author only used the proportion of the non-audit committee directors that are independent to proxy for the board. Independence is one characteristic of the board, which cannot represent the whole quality of board members. A concern about her research is the small sample size because it only includes firms that changed auditors. This may limit the generalizability of the findings.

In contrast, by using a large sample from the post-SOX period (all firms are required to disclose material weakness), Zhang et al. (2007) overcome the sample size problem of Krishnan (2005). Zhang et al. (2007) investigated the relationship between auditor independence, audit

committee quality and internal control weaknesses. They present evidence that disclosure of the material weakness is positively linked with less audit committee financial expertise, especially related to less accounting and non-accounting financial expertise. They also argue that material weakness disclosure is positively related to auditor changes and auditor independence. In particular, Hoitash et al. (2012) built a conceptual model in CFO compensation and found that changes to CFO equity compensation and bonuses have a negative relationship with weakness disclosure. Klamm et al. (2012) examined the determinants of internal control weaknesses. They found that account-level and entity-level deficiencies often occur in Section 404 reports. They also found that specific weaknesses relate to low profitability and non-Big 6 auditors. The results indicate that effective corporate governance is important for strong internal control. Further, Myllvmaki (2013) found that material weaknesses under SOX 404 are related to material weaknesses in the next two years.

Although a weak association between material weaknesses and supervisory or user expertise is reported by Zhang et al. (2007), Krishnan (2005) and Zhang et al. (2007) do not assess specific-style control problems. Hoitash et al. (2009) divided material weakness by source and classified financial expertise according to types (accounting, supervisory and user). Hoitash et al. (2009) employed material weakness under both SOX 302 and 404 to investigate how governance characteristics affect internal control quality. They note that the financial experts without accounting experience or multiple financial experts as audit committee members are associated with material weakness. They also found evidence that only accounting financial experts are related to the disclosure of account-specific control issues, while only supervisory financial experts are linked with the disclosure of management-oriented problems about personnel and information technology. Both accounting and supervisory expertise are related to better internal controls while “user” financial experts are found to be related to more material weakness disclosures. However, all relationships are only detectable under the more stringent

SOX 404 rather than the less stringent SOX 302. Therefore, different regulatory requirements influence the association between corporate governance and internal control. Similarly, Li et al. (2010) tested whether the qualifications of CFO are the determinants of SOX 404 material weaknesses. They offer evidence that less qualified CFOs (whether CFO has a CA license or has worked in an audit firm, how many years he or she worked as a CFO) are associated with adverse SOX 404 opinion.

Apart from independence and expertise, other audit committee characteristics such as turnover and former audit partners have also been studied in previous literature. Srinivasan (2005) focused on firms that experienced accounting restatements and studied the penalties for outside directors. He offers evidence that outside directors bear reputational costs when their companies report income-decreasing restatements. Further, he reveals that higher turnover of boards, especially of audit committees, is linked to more technical restatements. He is followed by Johnstone et al. (2011). They employed four-year data of SOX 404 disclosures to explore the correlation between material weakness and the turnover of audit committees, top management and boards of directors. Positive associations were found in their paper. In terms of former audit partners, Naiker & Sharma (2009) consider how material weaknesses under SOX 404 are influenced by the presence of affiliated former audit partners (AFAPs) and unaffiliated former audit partners (UFAPs) on the audit committee. The results show a negative relationship between AFAPs, UFAPs and material weaknesses. The empirical findings suggest that the expertise possessed by former partners offers significant contributions to more effective internal control. They contribute to practical issues by arguing that independence concerns about “revolving-door” appointments and the three-year “cooling-off” rule could not be warranted. In other words, imposing restrictions in regard to appointing experienced and qualified experts as audit committee members are largely ineffective.

Cullinan et al. (2010) investigated the impact of the compensation (stock options) of the audit committee on internal control. They found that firms with stock options for their audit committee tend to have internal control problems. This suggests that a stock option plan makes audit committees ineffective in terms of internal control.

Internal auditors support managers to take responsibility for internal control (Institute of Internal Auditors IIA, 2004, 3). Lin et al. (2011) investigated the relationship between internal audit and material weaknesses under SOX 404. Using data from 214 firms from 2003 to 2004, they found a negative association between material weakness and education level, the extent to which internal audit including audit activities is associated with financial reports and the monitoring of weakness remediation. The quality of internal auditing prevents the incidence of material weaknesses. They also found that internal auditing of auditing engagement and external coordination of the internal auditor can improve internal control effectiveness.

Few studies examine the impact of control deficiencies on corporate governance. Wang (2010) examines the relationship between increased internal control mandated requirements and corporate governance on CFOs before and after SOX. The results show that after SOX weak control results in lower compensation and higher turnover of CFOs. Strong control leads to higher compensation and insignificant changes of turnover of CFOs. This suggests that mandatory disclosures identify effectively good and bad CFOs and reduce information asymmetry in the labour market. From the perspective of insider trading, Skaife et al. (2013) investigate the relationship between internal control and managerial rent extraction under SOX 404. They posit that internal control material weaknesses may result in greater profitability of insider trading. Using a sample of 4505 firms during the period from 2004 to 2008, they observe that the firms disclosing material weaknesses benefit more from inside trading. They also found that weak “tone at the top” tends to leave the firms when CEOs and CFOs engage in insider trading with more profit. Lin et al. (2014) investigated the association between CEO

characteristics and internal control. They use 4374 non-financial observations from 2006 to 2009. The results show that CEO age and entrenchment are positively related to internal control material weaknesses under SOX 404.

In particular, Rizzotti & Greco (2013) investigated the determinants of internal control committee diligence. There are no audit committees in Italy. Instead, it has internal control committees and boards of statutory auditors. They found that the percentage of outside directors, independent directors, CEO duality and block holders are not related to the diligence of internal control committee. However, the diligence of the board of directors positively influences internal control committee diligence. Ye et al. (2013) examined the association between internal control and shareholder voting when directors are elected. They found that internal control material weaknesses are related to shareholder voting. However, managers negatively relate to material weaknesses. More material weaknesses relate to greater dissatisfaction by shareholders. In contrast, if early warning regarding internal control problems is provided, there will be less dissatisfaction. Differently, auditor committee directors are penalized due to accounting restatements. Interestingly, Hsu & Liao (2012) examined whether the compensation committees care about SOX 404 opinions. The results show that compensation committees do pay attention to SOX opinions, and that they adjust the compensation of CEOs and CFOs according to those opinions. Additionally, this relationship is pronounced for firms with financial expertise.

Another paper examined non-profit organizations and family forms. Based on resource dependency theory, Pridgen & Wang (2012) studied the relationship between audit committee and internal control in non-profit hospitals from 2001 to 2008. They found that hospitals with an audit committee have high-qualified internal control. Weiss (2013) investigated internal control in family firms. In Israel, family relations among directors and block shareholders are mandatorily disclosed. They found that family ownership is related to less internal control

material weaknesses. Compared to non-family firms, in family firms, internal control material weaknesses are related to low-quality earnings. The results suggest that family firms employ internal control to improve the quality of accounting information. Family ownership and internal control have a joint effect of enhancing earnings quality.

In summary, past papers have studied empirically the influence of corporate governance on material weaknesses before or after SOX 302 and SOX 404. The characteristics of audit committees, boards of directors, internal auditors, top management and experts (independence, experience, expertise, strength, turnover, auditor tenure, financial stress, fraud tendency and former audit partners), were found to be generally associated with material weaknesses. However, earlier work (e.g. Krishnan 2005; Zhang et al. 2007; Hoitash et al. 2009) tends not to address a linkage between audit committee size and control problems. Moreover, in terms of endogeneity, changes in corporate governance and internal control may be an element of a board response to material weakness disclosure (Johnstone et al., 2011). In general, the quality of corporate governance, particularly of audit committees, is associated with the disclosure of material weaknesses. But previous studies mainly focus on American firms and study only some characteristics. Given the importance of boards, it would be interesting to study the influence of the characteristic differences of boards of directors and managers in terms of internal control effectiveness.

3.1.4 Weakness remediation

SOX 404 requires firms to disclose annual non-remediated material weaknesses. Recent work has examined the causes and consequences of remediation activity.

Few studies examine determinants of remediation. For example, Li et al. (2010) attempted to offer a comprehensive understanding of the relationship between qualification improvement, turnover of CFOs and weakness correction. They concluded that remediation firms tend to

experience higher turnover of CFOs and hire CFOs who have better qualifications. Results imply that hiring a subsequent newly qualified CFO exhibits an improvement in fixing material weaknesses. In terms of corporate governance, Johnstone et al. (2011) evaluated whether changes in corporate governance affect subsequent weakness remediation. The findings indicate that turnover of audit committee members (rather than board members, CEOs and CFOs) relates positively to remediation. If there are more independent directors and financial expertise on boards, audit committee members have more shareholdings, an audit committee member acts as chairman, and then remediation would be improved. In addition, accounting expertise, work experience and good reputation benefit weakness remediation. Results also reveal that the presence of more material weaknesses and general level weaknesses (versus specific weaknesses) have a negative relationship with remediation. Skaife et al. (2013) investigate whether internal control effectiveness influences insider trading profitability. The results show that insider trading is not related to weakness remediation.

Beyond determinants, remediation and accounting information quality have also been studied in past articles. Ashbaugh-skaife et al. (2008) examined the impact of deficiency remediation on accrual quality and found that those companies whose auditor confirmed remediation of previous reported material weaknesses exhibited noticeable improvement in accrual quality compared to those companies that failed to remediate weaknesses. However, early studies do not evaluate remediation by specific weakness types. Bedard et al. (2012) examine remediation of the material weakness of specific types and whether different levels of remediation vary with changes in earnings quality. The results suggest that company-level weaknesses are linked with lower likelihood of remediation. Results also show that the two remediation types (company-level and account-level) both improve earnings quality significantly. Especially, some company-specific (accounting reconciliation, information technology and segregation of duties) and some account-level (revenue, tax, inventory and receivables) remediation types are

slow but significantly tied to change in abnormal accruals. Hammersley et al. (2012) focused on firms that failed in internal control remediation. They found that firms with pervasive weaknesses (at the entity level and individual weaknesses), complex operations and small audit committees are less likely to remediate material weaknesses. In terms of conservatism, Goh & Li (2011) observe that material remediation causes greater conservatism under SOX 302 and 404.

With regard to timeliness, Munsif et al. (2012) studied the relationship between weakness remediation and audit lags. They observed that audit lag is short for those firms with remediation disclosure. But those firms had higher lags in both 2008 and 2009 compared to firms without remediation under SOX 404. This suggests that material weaknesses cause the reduction of audit lag.

Summing up, like the disclosure of internal control deficiencies, contemporary research has studied determinants and remediation by specific weakness type of SOX 404. The findings consistently imply that disclosure structure under SOX 404 should be improved.

3.1.5 Conclusions

Since the implementation of SOX, the USA has entered the mandatory stage of internal control disclosure and plentiful research focusing on the disclosure of internal control weaknesses was spurred. Prior research approached internal control deficiencies and their remediation from two dimensions. Horizontal dimensions study the relationship between internal control problems or their remediation and internal or external factors such as corporate governance and stakeholders. Vertical dimensions examine specific-type weaknesses. The basic findings of the previous literature show that economic incentives drive the disclosures of internal control deficiencies. Corporate governance and firm characteristics influence the presence of internal control problems and weakness remediation.

To summarize, several shortcomings exist in previous studies. First of all, when it comes to research design, additional blended research methods are needed to reduce measurement errors. It is hard to observe or verify internal control (Krishnan, 2005). Internal control effectiveness should include both weak and good internal control. Good internal control contributes to positive outcomes while weak internal control leads to negative results to some degree (Krishnan, 2005). However, most research only focuses on internal control deficiency while ignoring good internal control. Some studies even compared companies with weaknesses to those without, but those without weaknesses may not necessarily represent good quality. For example, Wang (2010) defines strong internal control as belonging to those firms without material weakness. Non-material weakness does not necessarily equal strong control; it might be that such a company still exhibits control deficiencies. It is better for future work to measure internal control effectiveness from both positive and negative aspects, even at different levels. Internal control deficiencies mean ineffective internal controls while good internal controls stand for effective internal control. The majority of alternative variables of internal control effectiveness include the improvement of internal control effectiveness, internal control weaknesses and audit opinion, of internal control, and even accounting information quality. Ge & McVay (2005) and Doyle et al. (2007b) mention that using the disclosure of weaknesses to proxy for the actual control problem might result in systematic bias. The economic implication of variable internal control designs is not clear, which leads to the limitations of the theoretical and practical significance of the study (Li, 2009).

Furthermore, the cross-sectional design may lead to endogeneity, self-selection and omitted variables (Ashbaugh-Skaife et al., 2008). The firms may choose the quality of internal control and the effort of discovering and disclosing control deficiencies (Ashbaugh-Skaife et al., 2007), which may result in a self-selection problem. The research in this area is a study of association, not causation (Carcello & Neal, 2003; Doyle et al., 2007b; Naiker & Sharma, 2009). Omitting

variables is a very common problem in empirical models. Some unobserved factors that relate to internal control and audit committee characteristics might influence the reported results. For example, there are many monitors of internal control. Prior studies cover control manager quality, top management, boards of directors, internal audit, external auditor, financial stress and firm growth. In addition, other factors including firm culture, the top management team, human capital, social capital and different characteristics of boards of directors and managers should also be controlled. After controlling those variables affecting internal control, the results might change. To some extent the control variables in prior studies are inadequate. This may reduce the power of results.

In terms of sample size, smaller samples might restrict the generalizability of the results (Krishnan, 2005). Limited data may also make the results lack sufficient statistical power (Beneish et al., 2008). A larger sample size (all firms that disclose weaknesses) may result in more reliable results. For example, some studies use companies that did not disclose weaknesses as a matched sample. By comparing two samples, they get more reliable results. However, a small sample size may be not always be necessarily less reliable and worse than a large sample size. There are mixed findings for the relationship between firm size and control effectiveness. Further studies are needed in order to address the inconsistency. In order to control the incentives of firms that improve the effectiveness of internal control, we can only choose the firms that are punished by China Securities Regulatory Commission as samples. That is, if firms are punished, they are forced to remediate the material weakness and improve the effectiveness of internal control. Although some papers identify the impact of size and industry in descriptive statistics, to my knowledge, none of the prior analyses focus on specific size and industry. SMEs, family or private enterprises, non-listed firms, bankruptcy firms and the financial industry should have different internal control qualities. For example, non-listed firms are not required to disclose internal control information, so their internal control

effectiveness may vary from listed firms. Research on bankrupt firms is also scarce.

Most research uses short time frames, which makes it difficult to measure the influence of weakness disclosures. Long-term data for more than three years is also needed. It is better to compare the first few years of SOX and later periods because auditors and management may be more familiar with the process of internal control including implementation, evaluation and reporting (Doyle et al., 2007a). Particularly, there is no research to date that takes advantage of recent data, for example, between 2012 and 2014. New data will be provided with the improvement of data gathering and measurement technology.

Finally, most of the previous studies focus on audit committees' characteristics, and the results show that the audit committee makes more contribution to internal control compared to other monitors. However, according to American laws and regulations, management is responsible for the implementation and maintaining of internal control effectiveness¹⁴. Management pays attention to the whole process of internal control while audit committees supervise management. For instance, the American Auditing Standards Board No. 55 Auditing Standards (1995) indicates that to establish and maintain an internal control system is an important management responsibility. Managers bear the fundamental responsibility for the internal control and have ownership of the internal control system (COSO, 1992). SOX (2002) grants internal control responsibilities to the CEO, which combines corporate governance and internal control. The roles of other monitors also need to be further examined. For example, what is the effect of board members on internal control?

3.2 Internal control research in China

3.2.1 Introduction

¹⁴ Guide to Internal Control Over Financial Reporting, p1

Most of the published papers are based on American data, and there are few English-language articles about internal control in China¹⁵. Internal control research in China also exists and may help to contribute to our understanding. A considerable amount of academic research has examined internal control issues in China. Most Chinese internal control research borrows from US research and blends COSO framework in the control environment, enterprise culture, ERP and other factors. It involves the evaluation and information disclosure of internal control. In particular, internal control research in China is closely related to enterprise strategy, corporate governance, firm value and risk control (Zhu, 2011).

In China, many enterprises such as China Aviation Oil, CITIC Pacific, Eastern Airlines, Lantian Stock and Yili have recently suffered from internal control failures (Chi et al., 2010). These egregious cases are correlated with the ineffectiveness of internal control (COSO, 1992), which has focused public attention on the importance of effective internal control. In order to enhance and standardize internal control, the Chinese government has been attempting to implement a series of internal control standards. The question is how to promote the effectiveness of internal control in China? In response to this issue, a considerable amount of academic research has examined internal control in China. This section reviews articles regarding internal control published in Chinese accounting journals from 2007 to 2014.

3.2.2 Determinants of internal control disclosure

¹⁵ Baker, RR; Biddle, GC; O'Connor, NG (2012). SOX internal control deficiencies and auditors of U.S.-listed Chinese versus U.S. firms. <http://hub.hku.hk/bitstream/10722/152556/2/Content.pdf>
Wang, Liyan and Zhang, Jidong, What is the effect of China's SOX-Act? (November 1, 2009). SSRN: <http://ssrn.com/abstract=1542589>
Zhang Xiaolan and Shen Haojie. Internal control disclosure and cost of capital: An empirical study of Shanghai Stock Market in fiscal year of 2008 <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6003818>
Ji, X. D. Determinants and economic consequences of voluntary disclosure of internal control weaknesses. *Journal of Contemporary Accounting & Economics*. 11(1), 1-17.

Basic Standard has become effective since 2012. Until now, due to lack of availability of data, most Chinese internal control research has focused on voluntary disclosure. A substantial body of research has investigated the determinants of internal control disclosure using voluntary data. This literature provides some evidences for the factors that influence internal control disclosure.

By taking advantage of the Chinese voluntary disclosure setting, Fang et al. (2009) studied the determinants of voluntary disclosure from the perspective of firm characteristics and external audit. Based on the data of 1436 firms listed on the Shanghai Stock Exchange from 2003 to 2005, they found that the general level of internal control disclosure is low in China but that it improved slightly between 2003 and 2005. They also found that whether firms cross-list overseas, are audited by big 4 or not, the size of assets, net return of assets, the percentage of independent directors, the size of supervisory board, year effects and the existence of audit committee are positively associated with disclosure decisions. However, auditor opinion types relate negatively to disclosure decisions. Overall, the influence of external audits is not significant compared to the characteristics of the company. The findings show that firms with low disclosure cost and a high likelihood of effective internal control tend to disclose positive internal control information. Ji et al. (2015) investigated the determinants of voluntary disclosure of internal control problems from 2010 to 2011. He studied the characteristics of Chinese companies with internal control problems including investment, finance, organization structure, human resource and financial reports. Determinates included age, profitability and business complexity. In particular, some unique characteristics of Chinese firms such as independent supervisory board, tradability of shares, political ties of board chair and concentration of the top 3 shareholders' ownership are associated with weakness disclosure. It suggests that whether a Chinese firm disclosed internal control problems is related to firm characteristics, corporate governance and ownership structure.

Similarly, Lin & Rao (2009) investigated why listed firms disclosed internal control verification (auditing) report voluntarily. They posit that the companies with high internal control quality are more likely to disclose verification reports. The sample consisted of 1298 enterprises listed on the main board of the Shenzhen Stock Exchange and the Shanghai Stock Exchange in 2007. Internal control quality was measured both by whether internal control auditing report was disclosed, together with internal control information disclosure index of listed firms (Internal Control White Paper of Chinese Listed Firms, 2008)¹⁶. They found that large sized firms, internal control resources, rapid growth, an internal auditing department and listing on the Shanghai Stock Exchange tended to disclose internal control verification reports. Older, financially weak, restructured, illegal and listed on Shenzhen Stock Exchange firms were less likely to disclose an internal control verification report. They also found that state owned companies and companies with refunding plan are more likely to disclose an internal control auditing report. They offer evidence that the incentive of listed firms that disclose internal control information is to signal their high-quality internal control.

The voluntary disclosure of an internal control verification report is not only determined by the incentive of firms but also decided by auditors. In order to examine this opinion, Fang & Dai (2012) used a sample of 2760 firms which had listed on the Shenzhen Stock Exchange and the Shanghai Stock Exchange in 2008 to 2009 to study the determinants of the voluntary disclosure of an internal control verification report. Dependent variables include whether disclosed or not, the scope of disclosure (internal control over financial reporting or overall internal control), the degree of verification (reasonable guarantee or negative guarantee), the type of auditor opinions (standard or non-standard). Internal control quality is measured by improvement (size of the supervisory board) and effectiveness (non-ST¹⁷, non-loss, standard auditor opinions and non-

¹⁶China Stock Newspaper, 24/06/2008, Shenzhen Dib Enterprise Risk Management Technology Limited Company

¹⁷ Suspension of business in case of slump of stock prices.

illegal risk). They observe that the main incentives for voluntary disclosure and improving disclosure quality are signalling (measured by management share, cash flow share of actual controller, refinancing needs and underestimated value) and reducing proxy conflicts (measured by the separation of cash flow rights). The shareholding rate and control quality also affect the decision about disclosure. When internal control quality is high, it is less likely that the firms disclose internal control information to reduce proxy conflict. This suggests that internal control and external verification replace each other. They also observe that the auditor reputation is negatively associated with whether he or she is willing to issue verification reports. The agency conflict between major shareholders and minority shareholders as well as internal control quality influences significantly the process and result of internal control assessment. The primary reason is that negative verification reports mean poor internal control, in particular for those firms with high agency conflict. The findings suggest that audit reputation still has an impact on internal control auditing even in an emerging market with low law risk and weak investor protection.

Accounting departments of both the Ministry of Finance and the China Securities Regulatory Commission (2012) analyze the implementation conditions of internal control for those firms listed both domestically and abroad. They are based on mandatory information disclosures from internal control self-assessment reports and internal control auditing reports. These cross-listed firms¹⁸ first applied China SOX at the beginning of 2011. There are sixty-seven companies listed in Hong Kong, London, and the USA. All firms disclosed internal control self-assessment reports, internal control auditing reports, and financial reports. Sixty-six firms offered positive opinions about internal control. Only one company assessed its internal control as ineffective, and there was internal control material weakness in this firm. Forty-

¹⁸ 54 firms listed on Hong Kong Stock Exchange. 10 firms listed on Hong Kong and New York Stock Exchanges. The number of firms listed on Hong Kong and New York and London, or Singapore, or Hong Kong and London Stock Exchanges is only one.

nine firms reported internal control deficiencies. But only six firms among them disclosed both the numbers and content of internal control problems. Some firms only found one deficiency while some companies discovered one-thousand deficiencies. The differences among these firms are huge. Five firms did not mention remediation measures or plans.

Among the firms that disclosed remediation ways, the contents were quite simple. None of the firms disclosed internal control weaknesses over non-financial reporting. Sixty-five firms omitted this part. In general, these firms implemented internal control well in 2011 and set a good example for other Chinese firms. However, there are still some problems. First, firms should raise awareness about internal control. Second, the lack of internal control professionals restricts the development of internal control. Third, a method guides for the implementation and assessment of internal control is needed. Finally, the effectiveness of internal control report information needs to be improved. As for the internal control consultant, the personal quality and service quality are uneven. The pertinence of service is not strong, and it does not combine with business management. When it comes to internal control auditing, skills, standards and training need to be strengthened.

In terms of the effectiveness of China SOX, Wang & Zhang (2009) used hand-collected data from Chinese listed companies that had implemented China SOX in 2008 to study the effects of China SOX. They found that China SOX has greatly improved internal control report quality. The existing penalty measures have a strong effect, which decreases the cost of regulation. Different auditing firms issue internal control reports and financial reports, which makes the internal control reporting effect more significant.

In sum, based on the Chinese setting, prior research discusses the determinants of internal control weakness disclosure. There are two main views including external and internal factors. External factors contain investor protection, and internal factors are audit committee, corporate

governance, firm size, firm age, financial condition, operation complexity, organization change, management ability, and ownership structure.

3.2.3 Internal control weakness and corporate governance

Different countries have different regulations about internal control (Van de Poel & Vanstraelen, 2011) and corporate governance structures. For example, a substantial body of Chinese literature has examined the association between corporate governance and internal control in China and provides some different evidence.

In China, corporate governance and internal control are associated closely together and influence each other (Yang & Hu, 2004; Li, 2007). Based on signalling theory and agency theory, empirical findings from China consistently indicate that internal control disclosure is often related to the integrity (Cheng & Wang, 2008), ethics and values of managers (Cheng & Wang, 2008), the degree of attention of managers on the competence of employees (Cheng & Wang, 2008), and the risk preferences of managers (Cheng & Wang, 2008). The results also indicate that the numbers at annual shareholders meeting (Cheng & Wang, 2008), the percentage of independent directors (Fang et al., 2009), the size of the supervisory board (Fang & Dai, 2012), and the existence of an audit committee (Li et al., 2011) affect control weaknesses. Finally, the results show that internal auditing department (Lin & Rao, 2009), agency conflict between major and minor shareholders (Fang & Dai, 2012), the characteristics of control power (Tong et al., 2012), the percentage of shares (Fang & Dai, 2012), and ownership and its concentration (Lin & Rao, 2009) influence internal control problems. Those findings are quite different from US evidence and they are based on the unique Chinese institutional background.

Most earlier research from the US literature studies corporate governance from separate aspects while Cheng and Wang (2008) considered corporate governance as a whole. They investigated

the impact of corporate governance structure on the effectiveness of internal control by using a sample of 1162 Chinese firms listed before 31st, December, 2006. Internal control effectiveness was measured by core return on equity, the reliability of financing reporting and legitimacy. They found that attendance at annual shareholder meetings, the integrity, the ethics and values of managers and the degree of attention managers paid to the competence of employees are positively related to internal control effectiveness. The risk preferences of members have a significant U-shaped relationship with internal control effectiveness (The square of risk preference has a positive relationship with internal control. Prudent and radical¹⁹ boards may both attempt to control risk). While the meeting frequency of boards of directors and boards of supervisors, as well as the control power of the largest shareholders, have no significant influence on internal control effectiveness. His results contribute to internal control literature from a different angle.

In terms of the unique characteristics of the degree of control power and market concentration in China, Tong et al. (2012) took advantage of 4131 samples from the Shenzhen Stock Exchange and the Shanghai Stock Exchange from 2007 to 2009 to test the association between control power, market concentration and voluntary disclosure of verification reports. The results indicated a U-shape relationship between market concentration degree and the probability of disclosure. When the market is concentrated, non-state-owned enterprises are more likely to disclose verification reports in order to obtain a competitive advantage. In contrast, if there are many pyramid tiers (different levels of controls: top-class, middle-class and bottom-class), it is less likely that firms will disclose internal control verification reports due to information asymmetry. This suggests that the characteristics of control power and degree of market concentration together influence the disclosure of reports. In particular, Zhang

¹⁹ Both of them may take effective measures to avoid frauds and errors in the accounting information system.

& Zheng (2010) surveyed 126 firms about the determinants of internal control effectiveness based on four goals of internal control. They found that the development stages of firms, the size of assets, financial position, the concentration of management, firm culture, integrity, and the ethics and values of managers are important determinants of internal control effectiveness based on legal, reporting and operating goals. The efficiency of the internal auditing department and ownership concentration affect the effectiveness of legal and reporting goals. The effectiveness of strategy goals is influenced mainly by firm size and development stage. Zhang et al. (2013) found that whether management pays attention to internal control is the most important factor in regard to internal control effectiveness. Capital, organization structure, personnel quality, information technology and management maturity also influence the effectiveness of internal control. Zhao & Xu (2013) examined the relationship between management power, opportunism incentive and internal control weakness. The results show that if management has more power, it is more likely to conceal internal control problems. The results also show that this association is more significant in government-controlled firms than non-government controlled firms.

Firm culture influences internal control (COSO, 1992). Chinese firm culture is affected greatly by traditional Confucian culture, which is quite different from that in Western countries. China's unique cultural setting provides a research opportunity in the area of internal control. Li (2012) is the only empirical research regarding culture and internal control. He discusses the influence of firm culture on the design, implementation and efficiency of internal control from the perspective of autocracy and democratic culture. In a firm with a democratic culture, lower levels are respected and trusted, and control goals are realized by the initiative and enthusiasm of the staff. Encouragement rather than punishment is used in this culture. On the other hand, sufficient communication is absent in an autocratic culture. Power and authority are employed to manage from the top to bottom. Wrong behaviours and disobedience are

punished severely. They used questionnaire and survey methods. Factor analysis was used to deal with 14 variables of culture characteristics and “centralization degree”. The full sample was divided into two parts according to the mean value of the degree of centralization. The subsample with a lower value of centralization is the democratic culture sample while the subsample with higher value of the centralization degree is the autocracy culture sample. Similarly, the ten variables of the internal control design path are also dealt with by factor and dimension reduction. All data were also partitioned into a high-value team and a low-value team. The internal control design of the high-value team was based on a democratic culture. The internal control design of the low-value team was based on an autocratic culture. Two common factors (power influence and control orientation) were extracted from the variables of internal control implementation by factor analysis. The results showed that the autocratic culture had a more significant impact on the design of internal control. While the democratic culture played a more important role in the implementation of internal control. Overall, autocracy and democratic culture are significantly related to internal control. A democratic culture is beneficial to the improvement of internal control efficiency. Appropriate separation of powers and reasonable democracy are needed in Chinese firms.

In sum, the Chinese research regarding the association between internal control and corporate governance is based on agency theory, externality theory, risk management theory and power allocation theory. Previous studies aim to explain issues such as weak internal control and firm fraud. They investigate the impact of characteristics of board and audit committees on internal control based on unique Chinese settings including different firm culture and corporate governance structures. However, Chinese research pays more attention to the whole team but, in fact, entrepreneurial individuals may also play a vital role in internal control, especially in China. Those unique findings based on Chinese background may contribute to internal control and corporate governance literature review.

3.2.4 Weakness remediation

Only two papers have studied the remediation of internal control weaknesses. Gai & Chang (2013) examined the impact of weakness remediation on auditing fees. They used data from China A-share listed firms between 2009 and 2010. They found that audit fees increase more in companies with material weaknesses than those without material weaknesses. The specific internal control material weaknesses have a greater influence on audit fees compared to general material weaknesses. The researchers also found that the remediation of internal control deficiency can reduce audit fees, but the relationship is not significant.

However, Zhang & Gao (2014) studied how specific internal control problems affect audit fees from the viewpoint of auditors. They classified internal control deficiencies into accounting level internal control deficiencies and company level internal control deficiencies. They did that so as to study the nature of internal control deficiency and the influence on audit fees. Their findings were that problem firms are related to higher audit fees. This indicates that Chinese auditors pay attention to accounting events. Second, they found a significant negative association between weakness remediation and auditing fee. Finally, whether firms disclose the same problems has no relationship with auditing fee.

3.2.5 Conclusions

As noted above, based on signalling theory and agency theory, Chinese empirical findings consistently indicate that internal control disclosure is often related to firm characteristics including internal factors (firm size, firm age, development stages of firm, financial health, size of asset, net return on assets, organizational changes, firm culture, integrity, ethics and values of managers, the attention degree of managers on the competence of employees, the risk preferences of managers, the concentration of management, attendance at annual shareholders meeting, the percentage of independent directors, the size of the supervisory board, the

existence of an audit committee, ownership and its concentration, agency conflict between major shareholders and minor shareholders, the characteristics of control power, the shareholding rate, independent supervisory board, tradability of shares, political ties of board chair and concentration of the top 3 shareholders' ownership, rich internal control resources, rapid growth, an internal auditing department and its efficiency) and external factors (external finance, whether the firms cross-list overseas, auditor reputation, audited by big 4 or not, auditor opinion types, listed place and degree of market concentration).

There are some typical characteristics of Chinese internal control research. First, most of the research focuses on information disclosure, control assessment and control auditing. Second, more studies combine internal control and corporate governance, risk control and firm strategy. This is consistent with the five goals of internal control. Finally, internal control research in China pays more attention to non-financial factors such as the control environment and firm culture. These factors play a vital role in internal control in China. Basic findings of the previous literature show that economic incentives drive the disclosures of internal control. Corporate governance and firm characteristics influence internal control quality. All in all, the findings contribute to practical issues by confirming that internal controls in China are generally effective, although there are some problems.

Chinese studies are scattered and not methodical. American internal control research is comparatively advanced and complete, which provides a good example for China. In addition, all Chinese research is set against a background of voluntary disclosure. The unique setting leads to the limitations of research topics. But with the availability of mandatory disclosure data, more research opportunities would be provided for the future. For example, the consequences of China SOX and the different control quality in SMEs, family or private enterprises, non-listed firms, and bankruptcy firms are of interest for the future. Moreover, the influence of the legal system background of internal control based on the level of country and

province could be an interesting topic. Future research can also discuss the association between internal control and Chinese corporate organizational structure.

Prior to the disclosure of internal control information, relevant empirical studies are rare due to the non-availability of data. Since 2006, Chinese listed firms have been encouraged to disclose internal control information voluntarily. Borrowing from American research, most Chinese research focuses on determinants and consequences of the voluntary disclosure of internal control. However, fewer firms voluntarily disclose internal control weakness; what is worse, the contents and types of reports are mixed and confused, which may have a negative influence on the reliability of relevant studies. This implies that it is urgent to carry out mandatory regulations. In spite of the fact that empirical research regarding Chinese internal control started late and there are some drawbacks in topics and research designs, by borrowing from American studies and emphasizing Chinese characteristics, it is making progress and getting better.

Apart from sharing similar determinants as American research, China's unique setting creates special study opportunities. First, corporate governance in many developed states with strong law protection is effective (Wang & Xiao, 2011). However, corporate governance in China is weak (Chen & Chan, 2009), which influences internal control enforcement. The board of supervisors oversees the board of directors. The impact of the board of supervisors, the concentration of management, the percentage of independent directors, the size of supervisory boards, attendance at annual shareholders meetings, the existence of an audit committee, ownership and its concentration, agency conflict between major shareholders and minor shareholders, the characteristics of control power and ownership are different foci of Chinese research compared to those in America. Future research can study the relationship between internal control and Chinese organizational structure more deeply.

In addition, China SOX is an underdeveloped legal framework. There are no relevant punishment measures for those firms with poor internal control, which may raise questions about its weak enforcement power. Enforcement is more important than the standard itself (Ding & Su, 2008). Compared to US SOX, China SOX seems to be lacking in strong power of implementation due to a weak legal environment. Given the special setting, Chinese internal control studies focus on the incentives for voluntary disclosure rather than on the factors that influence weakness disclosure. The incentive for improving internal control is not strong due to poor corporate governance and weak legal enforcement (Chen & Chan, 2009). Thus, the key members of Chinese firms play a more vital role in maintaining good internal control than regulations and systems. Factors such as the degree of attention of managers on the competence of employees, and the integrity, ethics and values of managers are more emphasised in Chinese research (Cheng & Wang, 2008).

Second, unlike Western countries, China's current voluntary setting provides a unique research opportunity regarding the determinants of voluntary disclosure behaviours. With the implementation of mandatory information disclosure of internal control since 2012, future research may borrow from Western studies to investigate the determinants of internal control information disclosure under a mandatory setting. For example, the factors of deficiency disclosure and disclosure degree based on different classifications, and comparisons of voluntary and mandatory disclosure are needed in the future.

Third, unlike other states, the Chinese government dominates the regulation and enforcement of internal control (Wu et al., 2012). To some degree, government completely dominates standard setting and international harmonization of Chinese accounting regulation and enforcement. The Chinese government is always the principal player in the economy. It has controlling shares in almost all large listed firms and also controls most resource allocation channels including public listing and bank loans (Ding & Su, 2008).

Finally, China has a long history, and traditional culture has a far-reaching impact on business. Chinese internal control includes financial aspects and non-financial aspects. Cultural factors and the individual characteristics of key firm personnel may play an invaluable role in Chinese internal control. Firm culture, the degree of attention of managers on the competence of employees, and the risk preferences, integrity, ethics and values of managers are more emphasised in Chinese research.

In short, given its special institutional background, traditional culture and regulations setting, Chinese internal control research would come to different conclusions compared to research in the USA. Issues about internal control in China would be worthy of further investigation. Overall internal control measures will be a new research area in China's unique setting. The mandatory disclosure of internal control weakness in internal control self-assessment reports and internal control auditing reports opens the door for future empirical research regarding internal control in Chinese firms.

3.3 Conclusions to literature review

In conclusion, based on the setting of America and China, the characteristics of audit committees, boards of directors, internal auditors, top management and experts are found to be associated with material weaknesses. However, there are some gaps in past work.

First, earlier work mainly focuses on audit committee and internal control and studies some characteristics of corporate governance. Few investigations examine the influence of other monitors such as the board and board chairman. However, according to China SOX, the board of directors is responsible for the establishment and implementation of internal control effectiveness. This suggests that the board of directors plays a significant role in Chinese internal control. Moreover, in the earlier research the characteristics of the board of directors are just control variables rather than interest variables. In fact, human capital plays a very

important role in internal control effectiveness. In future, more research regarding the impact of boards of directors of internal control is needed. For example, whether and how the characteristics of directors, especially board chairmen, influence internal control? What is the difference in impact between managers and directors? Overall, mandatory disclosure will provide a great many research opportunities regarding China SOX.

Secondly, prior studies identify an association between the board and internal control, but they do not further analyse the correlation. More important, past literature considers the relationship between the board and internal control is direct because they do not separate the influences of board characteristics and board behaviour. Previous papers also do not analyze how board characteristics influence internal control. In other words, the relationship between the board and internal control will change due to the impacts of other variables. In fact, the relationship between internal control and the board may be indirect and their association might be influenced by a third variable such as board behaviour or ownership.

Finally, in terms of research topics, the majority of prior research is primarily restricted to American issues based on SOX. Few research studies focus on non-US cases, for instance, Van de Poel & Vanstraelen (2011), Chernobai & Yasuda (2013), Yazawa (2015) and Choi et al. (2013) study Dutch, Japanese and Korean settings separately. Most prior research is against an American background. They do not examine the influence of different internal control regulations and corporate governance mechanisms across various states; for example, whether or not American conclusions are different in a Chinese environment? In fact, control issues in other countries may be interesting and heterogeneous. Given its special institutional background, traditional culture and regulations setting, different conclusions are likely. For example, the Chinese government is attempting to introduce and learn from the American internal control and corporate governance system, but differences still exist between China and the USA. Chinese internal control indeed has its special characteristics. For example, China

SOX requires listed firms to disclose material weaknesses over both financial reporting and non-financial reporting. Issues about internal control in China would be worthy of further investigation.

In order to fill the above gaps in prior literature, this research focuses on the influence of the board of directors on internal control based on China new internal control regulations and unique institutional background (political, culture, legal, capital market and corporate governance). US researchers (e.g. Prawitt et al., 2009; Lin et al., 2011) have examined education, training, experience, certification of internal audits and material weaknesses. This thesis investigates the impacts of education, training, experience, certification and integrity of board members on internal control problems. In addition, it explores the influences of board behaviour and dominant shareholder nature on the relationship between internal control problems and board characteristics.

4 Theoretical framework and hypotheses development

4.1 Introduction

This thesis adopts relevant theory to facilitate discussion about the board and internal control. This chapter first presents the theoretical framework. Following that, the section develops the hypotheses. The eight hypotheses are then developed.

4.2 Theoretical framework

Corporate governance is a set of mechanisms, which affects decision-making when control and ownership are separated (Larcker et al., 2007). If effective internal control is imposed by owners, then the agency problem is mitigated. If corporate governance is effective in monitoring management, then internal control is good (Hoitash et al., 2009). Corporate governance greatly influences internal control. The objective of governance is to assess and improve internal control, change the agency relationship and improve efficiency. Strong internal control restricts management discretion through which corporate governance can succeed in reducing agency costs. The board of directors is one of the governance mechanisms that are used to make sure that the interests of shareholders are closely related to managers and to discipline and may even remove ineffective management (Kang et al., 2007). A well-functioning board offers an organizational culture and supportive environment (Jensen, 1993). In contrast, if there is no reliable external governance mechanism, the owner reduces the risk control of the company (La Porta et al., 2001) and managers are driven by the motivation of maximizing their value. A major problem with internal control mechanisms is ineffective governance. If corporate governance cannot solve the agency problem of owners and managers, then internal control is ineffective.

Specifically, the agency problem arises when an organization's management and ownership are separated (Jensen & Meckling, 1976) and when managers' objectives are not in line with the owners' objectives (Eisenhardt, 1989). Due to information asymmetries, managers are better informed about the day to day business and, therefore, at the expense of shareholders' utility, can use this knowledge to maximize their utility. Board monitoring is one of the mechanisms to reduce the loss of proxy access (Dalton et al., 2007). Monitoring and other control activities including auditing and formal control systems control the behaviour of the owner-manager (Jensen & Meckling, 1976). The board's duty is to oversee management and look out for the interests of the owners (Imhoff, 2003). Competent board members can understand the influencing factors of management bias and how to moderate it. A competent board can reduce the incentive for management to manipulate earnings.

According to the shareholder primacy model²⁰, the board of directors needs to represent the interests of the owners and help management in decision-making to protect the interests of the shareholders (Hart, 1993). The board has a fiduciary responsibility to the shareholders and is charged with promoting shareholder interests. SOX increases the independence of boards to support this requirement (Campbell et al., 2012). The management is delegated by the board of directors. The management manages the resources of firms to explore the change in the balance of power between shareholders and the board of directors (Berle & Means, 1932). The board hires, fires and compensates the CEO and provides high-quality counsel (Jensen, 1993).

Second, the board has final responsibility for the functioning of the company and it is at the apex of the internal control system. Serving as a monitor, the board independently determines

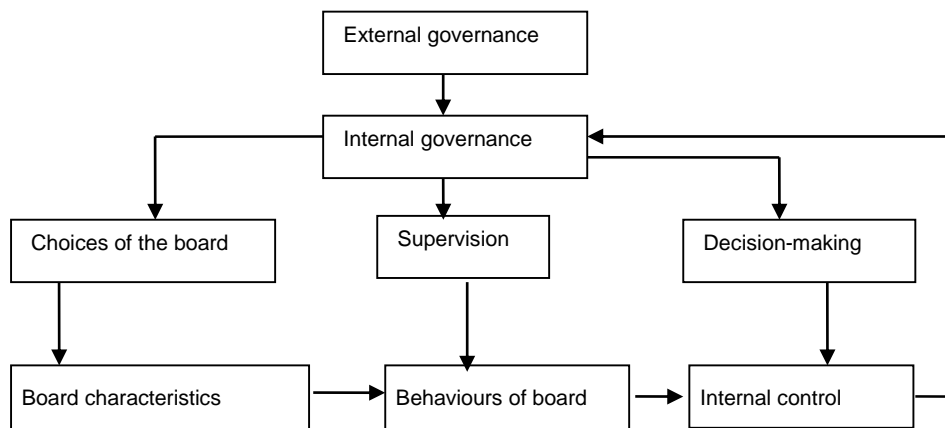
²⁰ The shareholder primacy model argues that the legal owners of the firm are the shareholders. They hold the rights to the residual value and hold primacy over any other stakeholder in the company (Bebchuk 2005; 2006).

internal control or interacts with other monitors to influence internal control (Krishnan, 2005). The board's responsibility is the oversight of the adequacy of internal controls (Srinivasan, 2005) and plays a vital role in internal control (Farber, 2005; Krishnan, 2005). The quality of internal control is a function of the quality of the internal control environment including the board of directors and non-governance-related controls (Krishnan, 2005). The problems with internal control begin with the board. An effective board and good internal control culture (wealth-maximization orientation) are better able to reduce agency conflicts and loss in contracting with shareholders and the litigation risks for directors, auditors, and managers (Goh & Li, 2011).

Finally, the ability of the board to monitor and advise management is influenced by its incentives and competence. The board is often motivated by substantial legal liabilities initiated by shareholders and others that are caused by unexpected declines in stock price. The board is also motivated by threats of adverse publicity from the media or the political authorities (Jensen, 1993). This research assumes that board members have incentives to improve the level of internal control and reduce internal control problems due to regulation effects. Therefore, this research expects that the individual characteristics of board members are related to internal control problems in a mandatory disclosure environment.

The majority of past studies regarding internal control (e.g. Ge & McVay, 2005; Defond et al., 2005; Naiker & Sharma, 2009; Rice & Weber, 2012) are based on regulation backgrounds such as SOX 302 and 404. However, past work lacks a strong theoretical foundation. Some papers (e.g., Krishnan, 2005; Wang, 2003; Van de Poel & Vanstraelen, 2011) base their investigation on corporate governance theory. They argue that decision rights are separated by some control mechanisms such as corporate governance and debt covenants. On the other hand, decision rights are complemented by other mechanisms including internal and external auditing.

Figure 4.1: Corporate governance, board characteristics and internal control



Following earlier work, based on corporate governance theory especially agency theory, this research explores the relationship between board characteristics and internal control. I

designed a theoretical framework for this research, which is presented in Figure 4.1.

Corporate governance includes both internal governance and external governance. Corporate governance (internal governance), it may be argued, has a great impact on the choices of board members, and the supervision and decision-making roles of boards of directors.

Specifically, the choices of board members are important because different members have various individual characteristics. Supervision can effectively restrict the behaviours of board members in the firm. Issues about internal control constitute an important matter in the firm.

In addition, board characteristics influence internal control through the behaviours of the board. Therefore, the characteristics of boards are closely related to internal control based on Chinese corporate governance.

4.3 Hypotheses development

In previous research, the characteristics of audit committees, board of directors, internal auditors, top management and experts in the USA and China were found to be associated with material weaknesses. The literature provides compelling evidence, but with several

limitations. First, prior studies mainly focus on the audit committee members and have examined some characteristics of corporate governance. Few of them investigated the influence of other monitors such as the board members and board chairman. The earlier work identifies the relationship between internal control and the board of directors, but it does not further study their correlation. In addition, past literature considers that the association between the board and internal control is direct and also does not analyze how board characteristics influence internal control. The relationship between internal control and the board may be indirect, and their association might be mediated or moderated by other variables such as ownership, board meetings and board independence. Finally, most prior research uses data from the USA. Previous research does not consider the influence of different internal control regulations and corporate governance mechanisms in different settings, for example, the Chinese environment. China SOX regulates that the board of directors is responsible for internal control, which is different from US SOX. This study examines specific characteristics of board members and their association with internal control weaknesses.

4.3.1 Board of directors and internal control

The role of the board of directors in internal control has been mentioned in both American and Chinese regulations. The NYSE and NASDAQ's listing requirements are about the conduct and oversight of boards of directors. According to the definition of internal control of SEC, the board of directors affects the process of internal control. US SOX (2002, p3) requires the board of directors to set an appropriate tone at the top. SEC (2009b, 92) requires the board to monitor financial statement quality and supervise internal control quality. This internal control regulation makes the board pay more attention to internal control. The board of directors is one part of the internal control system (AS5, 25). In terms of China, Implementation Guidelines (2010, p3) demonstrate that the board of directors is in charge of

the management development strategies. Directors need to set a good example through the establishment of effective internal control. They should lead and influence the whole team with their good characteristics and earnest attitudes to create a positive working environment (Implementation Guidelines, 2010, p16). In particular, China SOX regulates that the board of directors is responsible for the establishment and implementation of internal control and to disclose the effectiveness of internal control in self-assessment reports. It also points out that the board of directors should strengthen the guidance and supervision of the establishment and implementation of internal control (Basic Standard, Section 2).

The board of directors has been widely investigated in academic research, in particular, its impact on firm performance and earnings quality. Directors have a direct impact on organizational processes and strategic results in both small (Daily & Dalton, 1993) and large firms (Johnson et al., 1993). The association between the board and internal control has also been examined in prior research. As representatives of owners, the board of directors plays a vital role in financial reports and internal control quality (Beasley, 1996; Farber, 2005; Krishnan, 2005). The board plays a control role to monitor managers as fiduciaries of stockholders (Johnson et al., 1996). As one of the monitors, the board determines internal control independently or interacts with other monitors to influence internal control (Krishnan, 2005).

Firms with poor governance do not have proper oversight by the board to maintain a comprehensive internal control system (Doyle et al., 2007a). Internal control problems are found in accounting fraud cases with high risk and personnel issues (Schneider et al., 2009). Ren (2010) considers that the inefficiency and failure of internal control are mainly caused directly or indirectly, by directors, managers and executives.

Contrary to weak boards, strong boards are negatively related to earnings management, restatements, fraud and are positively related to audit efforts and earnings quality (Klein, 2002b; Xie et al., 2003; Vafeas, 2005; Hoitash et al., 2009; Campbell & Vera, 2010). In addition, a well-functioning board may do well in strategy development (Gabrielsson & Winlund, 2000) and management control (Johannisson & Huse, 2000). The oversight and monitoring role of the board positively influence the firm value (Brick & Chidambaran, 2007). Larcker et al. (2007) studied 14 dimensions of corporate governance including board size, board age, board meeting and insider power. They found mixed results with abnormal accruals and little association with accounting restatements.

4.3.2 Individual characteristics of board members and internal control

The competence and incentives of a board of directors affect its abilities to monitor and advise management. An individual's experience and skills are defined by Becker (2009) as individual characteristics. Individual characteristics are the unique skill set of every board director (Hillman & Dalziel, 2003) and consist of abilities, knowledge and skills (Becker, 1983; 2009; Coleman, 1988; Hitt et al., 2001). It is believed that what makes any board member attractive as a director derives from a combination of the person's individual characteristics. The foundation of value creation is a resource that the directors provide to the company (Hillman & Dalziel, 2003). The individual characteristics of directors play a key role in management advising and decision-making (Haynes & Hillman, 2010).

There is a vast literature that suggests personal characteristics are important in financial decision-making. Tihanyi et al. (2000) studied the association between international diversification and top management team of firms. They found that some characteristics of top management team relate to international expansion. International diversification is associated with low average age, high average tenure, high average international experience

and high average education level. They provide strong evidence that the composition of top management teams is important in international decision-making. Using US data, Goll et al. (2008) examined whether the demographic characteristics of top management influence business strategy and firm performance. They used age, tenure, education and salary to measure the characteristics of managers. They found that management characteristics are significantly linked with firm performance and business strategy. In terms of Chinese data, Chen and Sun (2008) investigated how the background characteristics of entrepreneurs influence diversification strategy. They found a high education level of entrepreneurs leads to diversified strategy while financial background results in low diversification.

The characteristics of boards are related to internal control (Hoitash et al., 2009). In particular, prior research examined some characteristics of boards such as independence, experience, expertise, tenure, turnover, fraud tendency and former audit partners separately (Abbott et al., 2000; Abbott et al., 2004; Beasley et al., 2009), but the results are mixed. Based on the above analysis, this research attempts to analyse the relationship between the board and internal control from the perspective of individual characteristics.

There are different ways to describe board characteristics. Statement of Auditing Standards (SAS) No. 65 points out that competence includes professional experience, certifications and training (AICPA 1997)²¹. The more competent, the more likely they are to understand the influencing factors of management bias and how to moderate it. Further, management has less incentive to manipulate earnings if there is a competent board to monitor them. Prawitt et al. (2009) explored the association between earnings management and internal audit quality. They used three variables to measure quality: training, experience and certification. They

²¹ American Institute of Certified Public Accountants (AICPA). 1997. *The Auditor's Consideration of the Internal Audit Function in an Audit of Financial Statements*. Statement on Auditing Standards No. 65.

concluded that internal audit quality relates to low earnings management. This suggests that high-quality internal auditing tends to deter managers from managing earnings.

Furthermore, Lin et al. (2011) examined the association between internal auditing and material weaknesses under SOX 404. They expected that the quality of internal auditing (measured as education, experience, certification and training) prevents the incidence of material weaknesses. Using data of 214 American firms from 2003 to 2004, they found that material weakness is negatively related to the education level (measured as average number of years of undergraduate and graduate training). However, they failed to find a strong association between experience, certification, training and internal control problems. That may be because the small size of the sample.

Consistent with the research of Prawitt et al. (2009) and Lin et al. (2011), individual characteristics of the board include education, training, experience and certification. Following Krishnan (2005) and Chen & Wang (2008), I also include integrity as an individual characteristic of board members. Thus, the individual characteristics of the board of directors in this thesis include five aspects. As follows, I separately raise five hypotheses.

4.3.3 Hypothesis 1 to 5

4.3.3.1 Hypothesis 1

Poor governance may be solved by better education and training (Hartmann, 2008). The level of education represents the abilities of people. Entrepreneurs with a high level of education are often open-minded (Chang & Zhang, 2005) and tend to support the development of internal control (Cooper & Slagmulder, 2004). Learning and knowledge acquisition can be embedded in the management control structure (Anderson & Dekker, 2009). Learning during the selection process facilitates subsequent management control design (Dekker & Abbeele, 2008). Beverly Topping (the President of the Canadian, Institute of Corporate Directors, June

3, 2008) argues that some directors recognize that it is important to accept formal education in order to obtain the knowledge, skills and behaviours needed for addressing complex governance problems. It is important for directors to accept continuing education (Canada, Saucier Report, 2001, p.16). Education level reflects cognitive skills, information processing capacity, and the capacity to innovate and discriminate. Boundary spanning, tolerance ambiguity, and integrative complexity ability are associated with educated individuals (Dollinger, 1984). Education backgrounds show differences in underlying attitudes and expertise (Westphal & Laurie, 2000). Formal education affects the background and personality, in turn they affect management style. The leader of a company must prepare knowledge to make internal control become enterprise culture. Board members who are responsible for a company should study relevant knowledge such as internal control, finance, accounting, relevant laws and regulations (Li, 2001). If the education background of an entrepreneur is poor, then he or she will lack the right understanding of internal control so internal control effectiveness will be low (Cooper & Slagmulder, 2004).

The relationship between education level and corporate governance, as well as internal control has been examined by previous research. Lichtenstein & Fischhoff (1977) find that the education level can avoid overconfidence in decision-making. Tihanyi et al. (2000) point out that education level positively relates to management prestige and innovation consciousness. Gradstein & Justman (2000) and Soutaris (2002) find that formal education contributes to thoughtful decisions and creative solutions for the organization. Carpenter & Westphal (2001) conclude that the appropriate strategic knowledge and perspective of corporate leaders benefit corporate governance. The survey of Shen (2004) shows that the education level of American board members is high. Goll et al. (2008) found that managers with a high education background have a better ability to deal with a complex environment, have stronger confidence, study ability and adaptation ability. Slater & Dixon-Fowler (2010)

identify that a Master of Business Administration (MBA) education significantly improves the business quality of the student, which benefits firm performance. Bhagat et al. (2010) provide evidence that the education background of general manager can improve short-term firm performance but has no effect on long-term firm performance. They found that educated management have high-level social network resources, and they can easily get professional guidance and aid. High education level has a signal transmission function, which can attract more educated persons to join the firm. This is beneficial to the development of internal control.

In terms of Chinese setting, Wang (2003) points out that the key personnel in Chinese private, small and medium enterprises have a weaker educational background compared to state-owned and large firms. The quality of the former is low, and they do not know how to implement internal control. In contrast, board members in Chinese foreign-funded enterprises have a comparably high education level and internal control effectiveness is high (Li, 2007). Chen & Li (2005) found that accounting information quality has significant negative correlation with the level of education of chairman. If the degree of education of managers is higher, then the possibility of fraud is lower, and the quality of accounting information is higher. Furthermore, Lu (2012) examined the relationship between the education background of chairman and internal control efficiency in China. The findings show that degree of education is positively correlated with internal control efficiency. This leads to my first hypothesis:

H1: The education level of board members has a negative relationship with internal control weaknesses.

4.3.3.2 Hypothesis 2

External auditing standards and IIA standards require that both external auditors and internal auditors should have professional experience. Learning curves show that experience helps firms make better decisions. The working background regarding finance and management of boards can greatly improve the efficiency of an enterprise (Li et al., 2011). Professional background characteristics have more significance in the implementation and control of strategy compared to other characteristics (Xue & Li, 2009). Anthony (2004) believes that professional experience influences management style. The prior experience of directors can avoid biases and help them make right judgments (Westphal & Milton, 2000). Naiker & Sharma (2009) argue that experience is a proxy for knowledge of internal control. If board members have professional skills, then the board will be able to judge and identify the behaviour of managers better, reduce information asymmetry and implement internal control effectively (Li & Lai, 2004).

Past work provides mixed evidences for the impact of experience on internal control. For example, Krishnan (2005) found that the past working experience of the controller is closely linked to internal control problems. Naiker & Sharma (2009) found that the experience of members on the audit committee contributes to effective internal control. Hoitash et al. (2009) note that fewer audit committee members with supervisory and accounting experience, delegating financial experts without accounting experience or multiple financial experts as audit committee members are related to material weaknesses. They also found that Section 404 material weakness disclosure is related to more audit committee members having accounting experience. In addition, the nature of the material weakness varies with experience types.

On the other hand, Prawitt et al. (2009), Lin et al. (2011) and Pizzini (2011) included the experience of the internal auditor to evaluate the function of internal audit. However, they did not find significant results between the experience of internal auditors and the incidence of

earnings management and material weaknesses. Johnstone et al. (2011) argue that the work experience of a CFO benefits weakness remediation. Following prior studies, I investigate whether the accounting experience of the board of directors can effectively mitigate the incidence of internal control weaknesses. Thus, I posit the following hypothesis:

H2: The accounting experience of board members is negatively related to internal control weaknesses.

4.3.3.3 Hypothesis 3

Effective monitoring requires expertise (Beasley, 1996). The greater expertise of boards may diminish the problems of financial reporting (Agarwal & Chadha, 2005; Farber, 2005). Beasley (1996) considers that director expertise influences the ability of monitoring management of the board effectively. The presence of accounting experts on the audit committee is negatively associated with internal control deficiencies (Bédard, 2006; Zhang et al., 2007). Supervisory expertise is linked to better internal control (Chen & Wang, 2008).

A large body of literature provides evidence that financial expertise is useful for internal control. For example, Krishnan (2005) examined whether audit committee quality influences internal control, and found that the audit committees with accounting expertise are associated with fewer internal control problems. Zhang et al. (2007) present evidence that the disclosure of material weakness is positively associated with poorer audit committee financial expertise, and especially linked with poorer accounting and non-accounting financial expertise. Naiker & Sharma (2009) found that the expertise possessed by former partners offers significant contributions to effective internal controls. Particularly, Hoitash et al. (2009) provide evidence that only accounting financial experts are related to the disclosure of account-specific control problems, while only supervisory financial experts are related to the disclosure of management-oriented issues on personnel and information technology. Both

supervisory and accounting expertise are correlated with high-level internal control. While “user” financial experts link to material weakness disclosure.

In terms of weakness remediation, Li et al. (2010) examined the interrelationships between the qualification of the CFO and weakness remediation. They found that qualified CFOs are not likely to be related to receiving adverse SOX 404 opinions, and a qualified CFO is required to improve opinions. Johnstone et al. (2011) further evaluated whether the financial expertise on boards would improve weakness remediation. The results show that the accounting expertise of the CFO benefits weakness remediation. If more board members have accounting certification such as CA or CIA, internal control quality in this firm should be better. Consequently, the relevant hypothesis is

H3: The accounting certification of board members has a negative relationship with internal control weaknesses.

4.3.3.4 Hypothesis 4

Good ethical governance embraces good corporate governance (Hong Kong Institute of Certified Public Accountants, 2005). Integrity and ethical values are relevant to effective internal control (COSO, 1998). SOX 404 requires auditors to assess the integrity of management and issue an adverse internal control report about an unethical work environment (Kizirian et al., 2005). Internal control effectiveness directly relies on the integrity and ethical value of the controller (Chen & Wang, 2008). Moral statements and actions by managers prompt and reinforce appropriate decisions and behaviour by staff (Shaw & Zollers, 1993). Management risk and superior performance rely on ethical culture in a firm and everyone is responsible for ethical behaviour (Stear, 2006). Ethical, political and integrative theories indicate that managers have the incentive to be ethical in business processes, which relates to a high standard of behaviour (Linthicum et al., 2010). There is a

moral imperative for managers to do right things (Phillips et al., 2003). Management risk and superior performance rely on ethical culture in a firm, and everyone is responsible for ethical behaviour (Stear, 2006). A controller should have good integrity and be ethical, which is a basic requirement and influences the design and operation of important business processes (Ding & Wang, 2005). In contrast, lack of integrity may result in internal control weaknesses (AS/NZS, 2004).

Ethical intentions and actions are positively related. PricewaterhouseCoopers (2006), for example, reports that 25 per cent of frauds are committed by top managers. Treviño & Youngblood (1990), Hunt & Vasquez-Parraga (1993) suggest that ethical judgments are positively related to the intention to intervene. Management integrity is a major determinant of control effectiveness (Krishnan, 2005). Krishnan (2005) examined the association between internal control and auditing committee quality. She found that management's tendency to engage in fraud, auditor tenure and financial stress is consistently associated with internal control weaknesses. Skaife et al. (2013) studied the relationship between ineffective internal control and insider trading, and they observe that top managers are lacking in integrity in firms that disclosed material weaknesses.

In terms of China, the moral quality of some directors is comparably poor. They abuse power, and break the law, which damages the efficiency of internal control (Li, 2007). Yu (2009) considers that philosophy of management, leadership styles, ethics, values and the effectiveness of human resources have significant positive correlations. Cheng & Wang (2008) tested the determinants of effective internal control and found that the integrity, ethics and values of managers and the degree of attention of managers paid to the competence of employees are positively related to internal control effectiveness in China. Similarly, based on legal, reporting and operating goals, Zhang & Zheng (2010) found that the integrity, ethics, and values of managers are the determinants of internal control effectiveness. As such,

I hypothesize that moral board members are less likely to be related to internal control problems. On the contrary, board members who were penalized by Stock Exchanges or China Securities Regulatory Commission due to individual violation are considered to be more likely to be related to more internal control weaknesses.

H4: The integrity of board members has a negative relationship with internal control weaknesses.

4.3.3.5 Hypothesis 5

SAS No.65 requires that training time should be considered to evaluate the competence. China SOX also encourages firms to train their managers and boards of directors about corporate governance and internal control. The Chinese government also organizes some internal control training for Chinese firms on a regular basis. Herman (1989) points out that a good board needs to train board members, particularly new employees. Whether the training of board members is available should be included in the board structure. The training of managers has multiple sources such as on-the-job learning, formal in-house training, and outside training in schools (Yan & Gray, 1994). Cornforth (2001) states that training influences knowledge and skills. The availability of training has a substantial impact on control practices and management accounting at the organization level. It develops the absorptive ability to acquire and exploit information about appropriate innovation (Cohen & Levinthal, 1990). The extent of formal accounting training of management influences the incidence of control problems (Krishnan, 2005). Inadequate or poorly trained personnel is the root of internal control weaknesses (Ge & McVay, 2005).

On-going training of boards of directors may result in better businesses (Hartmann, 2008). Cornforth (2001) examined the association between board and organization effectiveness. He found that the training of board members can improve the effectiveness of the board of

directors. O'Connor et al. (2004) found that more training increases the quality of management control. They explain that increased usage of western management controls implies greater responsibility by managers. It requires managers to have relevant training. The management must attend training at university in order to gain promotion in multinational companies in Western countries (Shen, 2004). More training of the board is positively related to an effective board. Specially, Deng (2004) studied boards in Chinese owned enterprises and pointed out that the training of the board in China can contribute to good internal control environments and an effective internal control system.

Prawitt et al. (2009) included the amount of time spent on training during the year to proxy for the quality of internal audit. They found that more professional training of the internal auditor can effectively reduce the incidence of earnings management. Based on the above analysis, I hypothesize that internal control training of boards leads to fewer internal control weaknesses.

H5: The internal control training of board members has a negative relationship with internal control weaknesses.

4.3.4 Board chairman and internal control

Western research defines management as entrepreneurs and the senior managers' team. They focus on the study of CEOs and their team. Unlike the Western world, China is in a transition period. In Chinese companies, all important decisions are only made by the main entrepreneur (Wu et al., 2012), so in China, researchers prefer studying one entrepreneur rather than the team. In China, the top two executives of a firm are board chairman and general manager. The general manager is elected by and reports to the board. The general manager is often regarded as the equivalent of the CEO in western firms. The board chairman is the firm's legal representative under China Corporate Law (Jiang & Kim, 2014; Shi, 2007).

Since 1999, according to the regulations of the CSRC, listed companies began to separate the duty of the chairman and general manager. After that, the chairman was mostly retained. This means that compared to the general manager, the chairman may contribute more benefits to the firm, so the chairman is more likely to be the main operator of a company. The chairman bears more violation responsibility than the general manager. For these reasons, some researchers consider the Chairman as the top manager (Firth et al., 2006; Liao et al., 2009). Some Chinese firms also have a CEO.

Chinese chairmen are commonly internal executives (Larcker et al., 2007). As a link between physical capital and intangible capital, the chairman is the most important and specific human resource (Barnard, 1968; Hambrick & Mason, 1984) and the first capital of the enterprise (Drucke, 2004). They own power and are final decisions-makers of enterprise strategies (Hambrick, 1989; Wu & Olson, 2009; Li et al., 2011). The chairman is the highest authority in a company and is responsible for overall operations. The board chairmen of small and medium enterprises control the whole enterprise, and they have a great influence on the organization (Wang, 2003). They control the company mainly by virtue of personal authority and experience (Cheng, 2003). Entrepreneurial human capital can be transformed into productivity (Yang, 2008), which contributes to internal control effectiveness.

In China, internal control is a “boss” project. The entrepreneur is the key to decide whether a company establishes a sound internal control system or not. The higher ranks of a company bear responsibility for the plan and control of enterprise operations. The chairman is the head of the internal control team and is responsible for the construction of the internal control system (China SOX, p1). The board chairman recognizes the responsibility of internal control, strengthens the establishment and implementation of the guidance and supervision of internal control, and evaluates the effectiveness of internal control in an annual internal control report (Wang, 2010). In fact, the final controller and the top executive of internal

control systems in Chinese firms is the board chairman (Li, 2002). The board chairman, as the ultimate practitioner of the enterprise system arrangements, is the determinant as to whether control mechanisms exert their effect (Michel & Hambrick, 1992; Gupta & Govindarajan, 1986). The one most responsible for internal control in Chinese enterprises is the board chairman (Li, 2002; Chen & Wang, 2014). The board chairman is at the core of the internal control framework and has the greatest influence on the centre of power (Dalton & Kesner, 1985). He or she commands and controls an enterprise to reach its goals. The people with the power in the company are responsible for internal control, which can break through the mechanical division between the corporate governance and internal control.

In terms of board chairman and internal control, the relevant research is scattered. Most investigations are purely theoretical studies, and the evidence is sparse in this area. Sandberg & Hofer (1988) acknowledge that the variables at the individual level of chairman lead to the success of the business. Hambrick & Mason (1984) found a negative correlation between the lead director and abnormal accruals. But insider power is significantly positively associated with accounting information quality.

In regard to Chinese research, Wan & Qu (2012) investigated the impact of the personal characteristics of board chairmen on voluntary disclosure of revenue plans. They found that firms with older chairmen and female chairs are more likely to disclose revenue plans voluntarily. Chen & Wang (2014) examined the association between board chairmen characteristics and internal control. The results show that older, longer tenured, high salaried, and highly educated board chairmen correlate with good internal control quality.

The chairman of Chinese Aviation Oil in Singapore failed to pay enough attention to risk control and had no ideas about risk management and internal control, so the internal control system the company spent heavily to build was ineffective (Li, 2008). Board chairmen should

be aware of the important role of internal control to maintain stability and sustain development (Wang, 2008). It is only when the chairman of the board knows the importance of internal control, that they pay more attention to internal control and its implementation as well as take the initiative to improve internal control efficiency, which is a professional quality that modern leaders must have (Li, 2007). The demographic characteristics of chairmen influence the behaviours (Tsui & Reilly, 1989; Boone et al., 2007) and the function of internal control mechanisms; their personal characteristics are essential to achieve internal control goals (Xue & Li, 2009). As key personnel, individual characteristics of Chinese chairman may play an invaluable role in internal control (Firth et al., 2007). Thus, given the unique role of the Chinese board chairman in internal control, I expect that the individual characteristics of board chairman closely relate to internal control, a hypothesis is:

H6: The individual characteristics of board chairman are related to internal control weaknesses.

4.3.5 The moderating impact of the nature of the dominant shareholder

The ownership structure (inside ownership, institutional ownership, and block holder ownership) influences the level of agency costs. Firms with a low level of insider stock ownership tend to disclose internal control information. Large institutional shareholders have an incentive to monitor management (Shleifer & Vishny, 1997) and play a vital role in corporate governance (Coffee, 1991; Bethel et al., 1998). Well-dispersed ownership is relatively rare outside America, and large block holders control most Asian firms. In China, listed firms usually have a dominant shareholder. In most legal systems including China, the directors are voted by the shareholders (Shivdasani & Yermack, 1999) at a general meeting or by proxy statement. The dominant shareholder has a substantial influence on board members.

In this research, I focus on whether the dominant shareholder of a company is the government or not.

The majority of internal control literature focuses on the American market (Ashbaugh-Skaife et al., 2006; Doyle et al., 2007; Beneish et al., 2008; Goh, 2009). But in China, investor protection is weak. Jiang et al. (2010) examined the tunnelling behaviour of large shareholders in China. They found that there are severe corporate governance problems in local government controlled firms compared to central government firms, and non-state controlled firms have worse corporate governance than state-controlled firms. Wang (2013) investigated the impact of dominant shareholder nature on the association between diversification strategies and cash holding level. They found that when the dominant shareholder is the government, the positive impact of diversification on cash holding level becomes weak. That is because government controlled firms have fewer limitations on external finance, and they do not have enough motivation to finance outside.

In particular, Li (2007) and Wang (2003) argue that internal control is more effective in state-owned enterprises than non-state-owned enterprises. The controlling shareholders of state-owned firms tend to pay more attention to internal control compared to those of non-state owned firms. Yu (2009) surveyed family firms in Zhejiang Province in China and found that internal control effectiveness is low in family firms. In Chinese family firms, the owners often ignore internal control. Similarly, Lin & Rao (2009) investigated why listed firms disclose internal control verification (auditing) reports voluntarily. They found that state-owned firms are more likely to disclose internal control auditing reports. Tong et al. (2012) suggest that the characteristics of control and degree of market concentration influence the disclosure of reports. However, Cheng & Wang (2008) found that the controlling power of the largest shareholders has no significant influence on internal control effectiveness. Liu et al. (2012) studied the association between ownership and internal control. They found that

internal control quality is lower in local government controlled companies than in central government controlled companies. But there was no significant difference between non-state owned firms and centrally governed firms.

By contrast with America, as an emerging market, China provides a research opportunity about the influence of external governance environment on internal control. In the Chinese stock market, more than half of listed firms are controlled by the government. The operation of listed firms is influenced by the incentives of the government. Listed firms bear the responsibility for many tasks such as solving employment issues, economic development, social stability and taxation. Recently, the Chinese government attempted to control the risk of company development by improving the quality of internal control. The external environment influences internal control quality (Chen & Wang, 2014). Since dominant shareholder nature influences both board of directors and internal control, I hypothesize that dominant shareholder nature influences the relationship between the board and internal control.

H7: Dominant shareholder nature affects the relationship between board member characteristics and internal control weaknesses.

4.3.6 The mediating impact of board behaviours

Cornforth (2001) developed a conceptual framework to analyse the association between board input (measured as the time, skills and experience of board members) and organization effectiveness (measured as management outcomes). He proposed that the board's skill, experience and working time influence board process and structure such as board size and meeting practices, then board behaviours affect board performance. According to his theory, prior research only identifies the direct relationship between board characteristics and internal control. Prior research also mixes board behaviour and board characteristics together. In fact,

board characteristics (education, work experience and training) influence “tone at the top” (attitude, whether boards pay attention to internal control) (Ogneva et al., 2007) and board behaviours (diligence, composition and independence). In turn, board attitude and board behaviours affect internal control effectiveness (Offstein, 2005). This explains how the board affects internal control, there is not a direct relationship between them.

The core problem of internal control is to establish a complete internal control system to control potential risks from the behaviour of different people, then to ensure that risk is controllable and bearable, which is the core problem that needs to be considered in order to control risk and protect the security of operations (Li, 2007). The nature and form of the internal control system are materially affected by the views on human behaviour that are held by those who design, operate and audit it (Rockness & Rockness, 2005). Control spirit and concept will be formed in the company, which will directly affect the effectiveness and efficiency of internal control. A manager’s behaviour is a guide for decision-making and employee behaviour (Shaw & Zoellers, 1993). According to Murphy (2005), Morgeson et al. (2007), Ones et al. (2007), and Burch & Anderson (2008), personality is a predictor of work-related behaviour and performance. I anticipate that board characteristics influence internal control by board behaviours. The board behaviours include board diligence (the numbers of board meetings) and board independence (independent directors) in this research. To the best of my knowledge, this is the first study to examine the mediating influence of board behaviour on the relationship between the board and internal control.

Interest in meeting frequency is motivated by the Blue Ribbon Committee on Improving the Effectiveness of Corporate Audit Committees (BRC) (1999). Boards of directors make decisions at board meetings and monitor the management of the firm. The diligence of the board includes the frequency of board meetings and the behaviour of individual board members in regard to such meetings (preparation, attentiveness and participation before and

after meetings) (Carcello et al., 2002). Only the number of board meetings is observable. More meetings indicate the board are more diligent in playing a controlling and monitoring role (Zhang et al., 2007; Hoitash et al., 2009). However, more meetings may signal problems such as restatements or SEC enforcement letters.

There is a lot of research regarding board meetings. Conger et al. (1998), Vafeas (1999) and Conger et al. (1999) found that more board meetings increase board effectiveness. Abbott et al. (2000) found that companies with fewer board meetings tend to have fraudulent or misleading financial reports. Abbott et al. (2004) found that the diligence of the audit committee is negatively linked with restatements. Klein (2002) and Sarkar & Sarkar (2009) report the evidence of a strong positive association between higher diligence and less earnings management by using the proportion of board meetings attended by the chairman to measure diligence. Carcello et al. (2002) investigated the relationship between board diligence and audit fees for Fortune 1000 firms. They found that a more diligent board demands greater assurance, higher audit quality and more audit work. Kelton & Yang (2008) studied the relationship between corporate governance and disclosure transparency. They found that diligent audit committees link to more disclosure of internal financial reporting. However, Goh (2009) did not find a significant association between the numbers of board meeting and weakness remediation.

The evidence from China is similar. Zhang et al. (2007) found that companies with internal control problems tend to have more meetings to solve their internal control problems. By taking advantage of China's voluntary disclosure setting, Fang et al. (2009) studied the determinants of voluntary disclosure from the viewpoint of firm characteristics and external audit. Based on the data from 1436 companies listed on the Shanghai Stock Exchange from 2003 to 2005, they found that the percentage of independent directors is positively related to disclosure decisions.

However, Yang et al. (2009) did not find a significant relationship between frequent board meeting and financial fraud. Song & Rong (2012) examined whether the realization of internal control goals depends on the frequency of board meetings, but they found that there were no strong findings to support the expectation. Based on the preceding arguments, although the findings in past work are mixed, the numbers of board meetings can reflect the activity of the board (Conger et al., 1998). Thus, I expect that board diligence can influence the relationship between the quality of internal control and board characteristics.

With regard to board independence, before SOX, BRC (1999) provided recommendations to ensure the independence of the audit committee. The policymakers in many countries such as the USA and China pay attention to the independence of the board of directors. The China Securities Regulatory Commission (CSRC) requires listed firms to establish an independent director system and this ratio should be higher than one-third (Clarke, 2006). The independent board can maintain the effectiveness of its monitoring function to improve corporate governance structure, reduce proxy cost and protect shareholders' interests. The high percentage of independent directors may improve the quality of information disclosure and monitor opportunistic behaviours by top management (Song & Rong, 2012).

Extensive research has been devoted to independent directors. Beasley (1996), Abbott et al. (2000), and Klein (2002) found that firms with more independent audit committees are negatively related to fraud, misleading financial statements and abnormal accruals. Similarly, Abbott et al. (2004) argue that the independence of the audit committee is not likely to be correlated to restatements. Furthermore, Krishnan (2005) tested the correlation between internal control quality and audit committee quality. She found that independent audit committees can reduce the occurrence of internal control weaknesses. Goh (2009) collected data to conduct an empirical analysis of whether the effectiveness of governance mechanisms

influences weakness remediation. He concluded that the proportion of independent boards can in time remediate weaknesses.

In terms of China, Cai (2007) found that more independent directors relate to better operation. Yang et al. (2009) found that an independent board of directors reduces the incidence of earnings management. Hu et al. (2010) reported that a high percentage of independent directors can improve the quality of accounting information. Cheng & Wang (2008) investigated the influence of corporate governance structure on the effectiveness of internal control. They found that the attendance at annual shareholders meeting is positively related to internal control effectiveness. In particular, Zheng (2009) examined the interaction effects among independent director systems and other governance institutions. They found that the independent director system indirectly plays a role in corporate governance and significantly improves the effectiveness of large shareholder monitoring and management compensation incentives.

The system of independent directors is beneficial to corporate social responsibility without the greater cost of external regulation (Brudney, 1982). Independent directors have independence outside of the firm and thus can effectively monitor the operations of firms, and ensure that internal control is effective. Therefore, this study expects that board independence has an influence on the association between internal control and board characteristics.

To my best knowledge, no relevant study in the past has investigated how the board of directors influences internal control. The board characteristics influence board behaviours, and then the behaviours of the board affect internal control. Thus, my final hypothesis is that board behaviours have a mediating influence on the relationship between the board and internal control.

H8: Board behaviours influence the relationship between individual characteristics and internal control weaknesses.

5 Research design

5.1 Introduction

This chapter explains the methodology²² applied in the study. Section Two shows the empirical models for the hypotheses, and then Section Three elaborates on the measurement of all variables in the models. The fourth section discusses additional analyses. The next section describes data and the sample selection procedures. The final section serves as the conclusion.

5.2 Models

5.2.1 Models for Hypothesis 1-6

Most previous studies use logistic regression models as the presence of control problems is an indicator variable. Internal control problem is the dependent variable. Doyle et al. (2007a) constructed a material control weakness model. They put size, complexity, restructuring, governance, rapid growth, financial health, firm age and industry effects in the model. Based on their model, apart from these firm characteristic variables, I include other possible factors about corporate governance mechanisms, economic condition, firm characteristics, managers' characteristics, audit status and ownership structure of the model. I also control year and industry effects because my panel data consists of seven years and five industries. Borrowing from the research on the determinants of internal control problems (Ge & McVay 2005, Bronson et al., 2006, Lin & Rao, 2009), I model the causes of internal control weaknesses.

²² In the management area, it is quite common to study person characteristics using surveys and questionnaires. However, that would be a different study. Following previous research (e.g. Doyle et al. 2007), I have chosen to use published data instead. Maybe someone should do that questionnaire study in future. The relevant data is available from a Chinese database. I test using different methods, test samples and test models. I use a substantial amount of data and based on this test eight hypotheses. Therefore, it is practicable to use regression models and second-hand data to examine my research questions.

The models include both a logit model and OLS (Ordinary Least Squares) regression model because I study not only whether a firm discloses control weaknesses and weakness remediation, but also the extent of control weaknesses. H1-6 were tested using the regression analysis based on Model 1. Variables are defined in Table 5.2. Model 1-1 is the basic model to test the association between disclosure decision and board characteristics.

$$\begin{aligned}
ICW_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
& \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + \\
& \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \\
& \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \\
& \beta_{16} Big4_{i,t} + \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \\
& \beta_{20} Education - m_{i,t} + \beta_{21} Integrity - m_{i,t} + \beta_{22} Training - m_{i,t} + \\
& \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
\end{aligned}
\tag{Model 1-1}$$

Based on the above basic model, other similar models are applied to investigate the impact of chairmen and various dependent variables (internal control index, internal control weakness numbers, and internal control weakness remediation). Based on Model 1-1, I add the characteristics of board chairmen including experience, certification, education, integrity, training, age, gender, compensation, stockholdings and busyness in Model 1-3. Model 1-3 is the model to study the relationship between board chairmen's characteristics and disclosure decision.

$$\begin{aligned}
ICW_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
& \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Age_{i,t} + \beta_7 Gender_{i,t} + \beta_8 Compensation_{i,t} + \\
& \beta_9 Stock_{i,t} + \beta_{10} Busyness_{i,t} + \beta_{11} Meeting_{i,t-1} + \beta_{12} Duality_{i,t} + \\
& \beta_{13} Independence_{i,t} + \beta_{14} Owner_{i,t} + \beta_{15} Growth_{i,t} + \beta_{16} Financial\ health_{i,t} + \\
& \beta_{17} Leverage_{i,t} + \beta_{18} Restructure_{i,t} + \beta_{19} Firm\ age_{i,t} + \beta_{20} Size_{i,t} + \\
& \beta_{21} Big4_{i,t} + \beta_{22} Audit\ fee_{i,t} + \beta_{23} Experience - m_{i,t} + \beta_{24} Certification - m_{i,t} + \\
& \beta_{25} Education - m_{i,t} + \beta_{26} Integrity - m_{i,t} + \beta_{27} Training - m_{i,t} + \\
& \beta_{28} Experience - b_{i,t} + \beta_{29} Certification - b_{i,t} + \beta_{30} Education - b_{i,t} + \\
& \beta_{31} Integrity - b_{i,t} + \beta_{32} Training - b_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
\end{aligned}
\tag{Model 1-3}$$

Based on Model 1-1, I change the internal control index as the dependent variable in Model 1-

2. Model 1-2 is the model to investigate the relationship between internal control quality and board characteristics.

$$\begin{aligned}
 ICI_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
 & \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + \\
 & \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \\
 & \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \\
 & \beta_{16} Big4_{i,t} + \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \\
 & \beta_{20} Education - m_{i,t} + \beta_{21} Integrity - m_{i,t} + \beta_{22} Training - m_{i,t} + \\
 & \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}
 \tag{Model 1-2}$$

Model 1-4 examines the relationship between board chairman characteristics and the extent of internal control weakness.

$$\begin{aligned}
 ICI_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
 & \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Age_{i,t} + \beta_7 Gender_{i,t} + \beta_8 Compensation_{i,t} + \\
 & \beta_9 Stock_{i,t} + \beta_{10} Busyness_{i,t} + \beta_{11} Meeting_{i,t-1} + \beta_{12} Duality_{i,t} + \\
 & \beta_{13} Independence_{i,t} + \beta_{14} Owner_{i,t} + \beta_{15} Growth_{i,t} + \beta_{16} Financial\ health_{i,t} + \\
 & \beta_{17} Leverage_{i,t} + \beta_{18} Restructure_{i,t} + \beta_{19} Firm\ age_{i,t} + \beta_{20} Size_{i,t} + \\
 & \beta_{21} Big4_{i,t} + \beta_{22} Audit\ fee_{i,t} + \beta_{23} Experience - m_{i,t} + \beta_{24} Certification - \\
 & m_{i,t} + \beta_{25} Education - m_{i,t} + \beta_{26} Integrity - m_{i,t} + \beta_{27} Training - m_{i,t} + \\
 & \beta_{28} Experience - b_{i,t} + \beta_{29} Certification - b_{i,t} + \beta_{30} Education - b_{i,t} + \\
 & \beta_{31} Integrity - b_{i,t} + \beta_{32} Training - b_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}
 \tag{Model 1-4}$$

Based on Model 1-1, I use the number of internal control weaknesses as the dependent variable in Model 1-5. Model 1-5 examines the relationship between board characteristics and extent of internal control weakness.

$$\begin{aligned}
 ICN_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
 & \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + \\
 & \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \\
 & \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \\
 & \beta_{16} Big4_{i,t} + \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \\
 & \beta_{20} Education - m_{i,t} + \beta_{21} Integrity - m_{i,t} + \beta_{22} Training - m_{i,t} + \\
 & \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}
 \tag{Model 1-5}$$

Based on Model 1-1, I use internal control weakness remediation as the dependent variable in Model 1-6. Model 1-6 examines the relationship between board characteristics and internal control weakness remediation.

$$\begin{aligned}
ICR_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
& \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + \\
& \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \\
& \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \\
& \beta_{16} Big4_{i,t} + \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \\
& \beta_{20} Education - m_{i,t} + \beta_{21} Integrity - m_{i,t} + \beta_{22} Training - m_{i,t} + \\
& \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
\end{aligned}$$

Model 1-6

Model 1-7 and 1-8 examine the relationship between board chairman characteristics and internal control weakness numbers and remediation.

$$\begin{aligned}
ICN_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
& \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Age_{i,t} + \beta_7 Gender_{i,t} + \beta_8 Compensation_{i,t} + \\
& \beta_9 Stock_{i,t} + \beta_{10} Busyness_{i,t} + \beta_{11} Meeting_{i,t-1} + \beta_{12} Duality_{i,t} + \\
& \beta_{13} Independence_{i,t} + \beta_{14} Owner_{i,t} + \beta_{15} Growth_{i,t} + \beta_{16} Financial\ health_{i,t} + \\
& \beta_{17} Leverage_{i,t} + \beta_{18} Restructure_{i,t} + \beta_{19} Firm\ age_{i,t} + \beta_{20} Size_{i,t} + \beta_{21} Big4_{i,t} + \\
& \beta_{22} Audit\ fee_{i,t} + \beta_{23} Experience - m_{i,t} + \beta_{24} Certification - m_{i,t} + \\
& \beta_{25} Education - m_{i,t} + \beta_{26} Integrity - m_{i,t} + \beta_{27} Training - m_{i,t} + \\
& \beta_{28} Experience - b_{i,t} + \beta_{29} Certification - b_{i,t} + \beta_{30} Education - b_{i,t} + \\
& \beta_{31} Integrity - b_{i,t} + \beta_{32} Training - b_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
\end{aligned}$$

Model 1-7

$$\begin{aligned}
ICR_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \beta_4 Integrity_{i,t} + \\
& \beta_5 Training_{i,t} + \beta_6 Age_{i,t} + \beta_7 Gender_{i,t} + \beta_8 Compensation_{i,t} + \beta_9 Stock_{i,t} + \\
& \beta_{10} Busyness_{i,t} + \beta_{11} Meeting_{i,t-1} + \beta_{12} Duality_{i,t} + \beta_{13} Independence_{i,t} + \\
& \beta_{14} Owner_{i,t} + \beta_{15} Growth_{i,t} + \beta_{16} Financial\ health_{i,t} + \beta_{17} Leverage_{i,t} + \\
& \beta_{18} Restructure_{i,t} + \beta_{19} Firm\ age_{i,t} + \beta_{20} Size_{i,t} + \beta_{21} Big4_{i,t} + \beta_{22} Audit\ fee_{i,t} + \\
& \beta_{23} Experience - m_{i,t} + \beta_{24} Certification - m_{i,t} + \beta_{25} Education - m_{i,t} + \\
& \beta_{26} Integrity - m_{i,t} + \beta_{27} Training - m_{i,t} + \beta_{28} Experience - b_{i,t} + \\
& \beta_{29} Certification - b_{i,t} + \beta_{30} Education - b_{i,t} + \beta_{31} Integrity - b_{i,t} + \\
& \beta_{32} Training - b_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
\end{aligned}$$

Model 1-8

5.2.2 Models for Hypothesis 7

The second model is used to test Hypothesis 7. Since I predict that the individual characteristics of board members influence internal control weaknesses by behaviours, I introduce board behaviours (independence and board meeting) into the new model. A relationship between board characteristics and control problems is expected to be insignificant in the new model as the characteristics affect board behaviours, and then the behaviours influence control weaknesses. Variables are defined in Table 5.2. First, I compare Model 2-1-2 with board meeting and Model 2-1-1 without it. Then I compare Model 2-2-2 with board independence and Model 2-2-1 without it.

$$\begin{aligned}
ICW_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
& \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Duality_{i,t} + \beta_7 Owner_{i,t} + \beta_8 Growth_{i,t} + \\
& \beta_9 Financial\ health_{i,t} + \beta_{10} Leverage_{i,t} + \beta_{11} Restructure_{i,t} + \\
& \beta_{12} Firm\ age_{i,t} + \beta_{13} Size_{i,t} + \beta_{14} Big4_{i,t} + \beta_{15} Audit\ fee_{i,t} + \beta_{16} Experience - \\
& m_{i,t} + \beta_{17} Certification - m_{i,t} + \beta_{18} Education - m_{i,t} + \beta_{19} Integrity - m_{i,t} + \\
& \beta_{20} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
\end{aligned}
\tag{Model 2-1-1}$$

$$\begin{aligned}
ICW_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
& \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + \\
& \beta_8 Owner_{i,t} + \beta_9 Growth_{i,t} + \beta_{10} Financial\ health_{i,t} + \beta_{11} Leverage_{i,t} + \\
& \beta_{12} Restructure_{i,t} + \beta_{13} Firm\ age_{i,t} + \beta_{14} Size_{i,t} + \beta_{15} Big4_{i,t} + \beta_{16} Audit\ fee_{i,t} + \\
& \beta_{17} Experience - m_{i,t} + \beta_{18} Certification - m_{i,t} + \beta_{19} Education - m_{i,t} + \\
& \beta_{20} Integrity - m_{i,t} + \beta_{21} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
\end{aligned}
\tag{Model 2-1-2}$$

$$\begin{aligned}
ICW_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
& \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Duality_{i,t} + \beta_7 Owner_{i,t} + \beta_8 Growth_{i,t} + \\
& \beta_9 Financial\ health_{i,t} + \beta_{10} Leverage_{i,t} + \beta_{11} Restructure_{i,t} + \\
& \beta_{12} Firm\ age_{i,t} + \beta_{13} Size_{i,t} + \beta_{14} Big4_{i,t} + \beta_{15} Audit\ fee_{i,t} + \beta_{16} Experience - \\
& m_{i,t} + \beta_{17} Certification - m_{i,t} + \beta_{18} Education - m_{i,t} + \beta_{19} Integrity - m_{i,t} + \\
& \beta_{20} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
\end{aligned}
\tag{Model 2-2-1}$$

$$\begin{aligned}
ICW_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
& \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Independence_{i,t} + \beta_7 Duality_{i,t} + \\
& \beta_8 Owner_{i,t} + \beta_9 Growth_{i,t} + \beta_{10} Financial\ health_{i,t} + \beta_{11} Leverage_{i,t} + \\
& \beta_{12} Restructure_{i,t} + \beta_{13} Firm\ age_{i,t} + \beta_{14} Size_{i,t} + \beta_{15} Big4_{i,t} + \beta_{16} Audit\ fee_{i,t} +
\end{aligned}$$

$$\beta_{17}Experience - m_{i,t} + \beta_{18}Certification - m_{i,t} + \beta_{19}Education - m_{i,t} + \beta_{20}Integrity - m_{i,t} + \beta_{21}Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon$$

Model 2-2-2

5.2.3 Models for Hypothesis 8

In order to examine whether different dominant shareholder types influence the relationship between the board and internal control weaknesses, I build a new model by adding ownership as an independent variable. In model 3, β_2 indicates the coefficients between internal control weaknesses and ownership. I expect the sign of β_2 is negative. More importantly, I use Characteristics*Owner to measure the interaction effect between board characteristics and dominant shareholder nature. I predict the coefficient on the interaction variable β_3 is significant.

$$ICW_{i,t} = \beta_0 + \beta_1Characteritcs_{i,t} + \beta_2Ownership_{i,t} + \beta_3Owner * Characteritcs_{i,t} + \beta_4Meeting_{i,t-1} + \beta_5Duality_{i,t} + \beta_6Independence_{i,t} + \beta_7Growth_{i,t} + \beta_8Financial\ health_{i,t} + \beta_9Leverage_{i,t} + \beta_{10}Restructure_{i,t} + \beta_{11}Firm\ age_{i,t} + \beta_{12}Size_{i,t} + \beta_{13}Big4_{i,t} + \beta_{14}Audit\ fee_{i,t} + \beta_{15}Experience - m_{i,t} + \beta_{16}Certification - m_{i,t} + \beta_{17}Education - m_{i,t} + \beta_{18}Integrity - m_{i,t} + \beta_{19}Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon$$

Model 3

5.3 Variables

5.3.1 Dependent variables

5.3.1.1 Internal control weakness

Recent articles obtained internal control data from Audit Analytics database, EDGAR database, Compliance Week and SEC filings. Internal controls are the dependent variable, independent variable or control variable in different research. If the internal control problem is the dependent variable, most studies build logistic regression models as the presence of control problems is an indicator variable.

The disclosure of internal control weaknesses and their remediation is a dummy variable in the majority of papers (Ge & McVay, 2005; Bronson, 2006; Ashbaugh-Skaife et al., 2007; Johnstone et al., 2011), which is coded as 1 if the firm discloses relevant information, and 0 otherwise. For instance, in the paper by Chang (2012), whether the firm disclosed internal control deficiencies is an indicate variable, which is coded as 1 if the firm discloses internal control defect and 0 otherwise. Likewise, Dong & Zhu (2012) define that if there are negative opinions about internal control in the internal control assessment report, then there are internal control problems in the firm.

The detailed degree of internal control assessment and types of audit opinions are also used to proxy for internal control weaknesses (Kong, 2012). If internal control evaluation is in detail and the audit opinion is clean, then there is no internal control weakness in that firm. On the contrary, if internal control assessment is in detail and the auditor opinion is not clean, then there is weakness in that firm.

Many studies use an indirect measure of internal control weaknesses. Li (2011) carried out a survey about the realization of the goals of internal control. He measured internal control deficiencies using the results of the survey. This method was based on the definition of internal control deficiencies in Basic Standard. Qi et al. (2010) used material accounting errors as the proxy variable of internal control defects, and it is a dichotomous variable. In the paper of Wang & Zhu (2011), a firm that was punished by Exchange or China Securities Regulatory Commission links to internal control weaknesses. If the punishment is not serious, for example, senior managers illegally buy and sell stock of the firm, then there are control deficiencies. If the penalty is significant, for instance, internal capital operation violations, deliberately withheld or delayed notice, there are significant weaknesses. If the firm discloses restatement reports or capital operation violations are serious, then there are material weaknesses. Similarly, if the firm failed in the assessment of the Shenzhen Stock Exchange

due to illegal internal control disclosures, then internal control weakness is considered to be material (Tian, 2011).

More particularly, in order to measure the specific type of control weaknesses, a number of studies developed a series of indicators. Doyle et al. (2007a; 2007b), Beneish et al. (2008), Naiker & Sharma (2009) and Kim et al. (2011) used account-specific and company-level weakness indicators. In addition, Doyle et al. (2007a) classified material weaknesses depending on the reasons for the weaknesses: staff, complexity and general issues.

Hammersley et al. (2008) coded control problems from five aspects: severity, effectiveness, auditability, vagueness, discovered by and Big Four auditor. Li et al. (2011) classified internal control problems into company-level weakness and account-specific weakness. They used the numbers of deficiencies to proxy for the seriousness. Firms without material weaknesses were assigned 1. If the numbers of weaknesses were less than the mean numbers, the authors assign 2. If weaknesses were equal or more than the average values, they are assigned 3.

In terms of remediation, Johnstone et al. (2011) and Bedard et al. (2012) studied specific remediation type. Johnstone et al. (2011) measured material weakness types according to the COSO framework elements and Bedard et al. (2012) defined multiple deficiencies by checking whether the number of different problem types was larger than the mean value. Other papers (Ashbaugh-Skaife et al., 2007; Naiker & Sharma, 2009) used unqualified audit opinions as the proxy variable of internal control problems.

Distinct from other researchers, Johnstone et al. (2011) took into account the extent and nature of control problems according to the COSO framework elements. They not only examined whether control problems were disclosed, but also studied the degree of weakness disclosure. They used the sheer number of material weaknesses to proxy for the extent of

control weaknesses. With regard to the nature of material weaknesses, they employed six dummy variables. Apart from general material weaknesses, they also controlled particular elements including control environment, control activity, risk assessment, internal supervisor, information and communication. Chang (2012) also measured the extent of disclosure (the numbers of internal control deficiencies) according to the twenty-one classifications of internal control weaknesses of Grant (2000). Grant (2000) summarized the number of internal control deficiencies based on the 21 categories²³ reported in the Audit Analytics database. In my study, I also examine specific internal control weaknesses according to the classifications of internal control weaknesses.

In agreement with previous studies, internal control weaknesses and whether they are remediated are examined through the disclosure of internal control weaknesses and weakness remediation. It is an indicator variable, coded 1 or 0 according to the absence or presence of internal control problems and remediation. Furthermore, this research employs the numbers of internal control deficiencies as an additional measure for the severity of internal control problems.

5.3.1.2 Internal control quality

The quality of internal control is a key research topic. Most prior work measures the quality of internal control by whether the firm discloses material weaknesses (Ge & Mcvay, 2005;

²³ They include Accounting documentation policy and/or procedures, Material and/or numerous auditor year end. “Adjustments, Accounting personnel resources (competency, training), Restatement or non-reliance of company filings, Untimely or inadequate account reconciliations, Information technology (software, security, access issues), Non-routine transactions control issues, Segregation of duties, design of controls, Restatement of previous 404 disclosures, Journal entry control issues, Senior management (competency, tone, and reliability issues), Ethical or compliance issues with personnel, Scope (disclaimer of opinion or other limitations), Management, board, or audit committee investigations, Insufficient or non-existent internal audit function, Ineffective or understaffed audit committee, Ineffective regulatory compliance issues, SEC or other regulatory investigations and/or Inquiries, Inadequate disclosure controls (timely, accuracy, and complete), SAB 108 adjustment issues and Remediation from material weakness identified”.

Krishnan, 2005; Ogneva et al., 2007; Ashbaugh-Skaife et al., 2009). There are two reasons for the use of material weaknesses (Doyle et al., 2007b). First, material weakness is the most severe type of internal control problem. Second, self-selection issues may exist in the US with regard to significant deficiencies because significant deficiency disclosure is unambiguously voluntary under US SOX Section 302. For research in China, internal control quality is measured by whether firms disclosed both verification reports (Lin & Rao, 2009; Tong et al., 2012) and self-assessment report (Lu, 2012). Further, internal control quality is also calculated as both whether the firms disclose internal control auditing reports and auditor opinions on internal control (standard or non-standard) (Fang & Jin, 2011) as well as ways of controlling weakness remediation (Lai & Qiu, 2012). They (Fang & Jin, 2011; Lai & Qiu, 2012) view the detection and disclosure of control problems as a process. But Rice & Weber (2012) separate them into two sequential processes.

Apart from whether firms disclose internal control reports, Fang & Dai (2012) also employ scope of disclosure (overall internal control or internal control over financial reporting), degree of verification (reasonable guarantee or negative guarantee), auditor opinions (standard or non-standard) to analyse internal control disclosure. Internal control quality is measured by the completeness (size of the supervisory board) and effectiveness (non-ST, no loss and standard auditor opinions). If the size of the supervisory board is more than a quartile mean, with non-ST, no loss, standard auditor opinions and no legal risk, internal control of this firm is of high quality. Similarly, Chi et al. (2010) examine internal control seriousness (account-level and company-level) and detailed level of disclosure (simple or detailed descriptions).

Zhang (2009) partitions internal control quality into four types. First, if the firm discloses positive internal control self-assessment reports and obtains standard auditor opinion, then its internal control is of high-quality. Second, if the firm discloses positive internal control self-assessment reports and gets the consent of the board of directors and board of supervisors, then

the quality of this firm is medium. Third, if the firm discloses positive internal control self-assessment reports, but it does not accept any independent opinion of internal control, then the quality of this firm is lower. Finally, if the firm does not disclose internal control information, then the quality of this firm is the lowest. However, the measure of high-quality internal control may not suit a Chinese setting. The sub-sample of high-quality might not have sufficiently high internal control quality. That is, according to self-selection theory, it is possible that the firms with internal control problems select to report positive internal control self-assessment reports and to get standard auditor opinion with the aid of auditors and/or accounting firms. Few listed firms disclose internal control deficiencies, but, in fact, their internal control quality is not high (Yang & Li, 2011). Auditors may collude with firms in order to realize the opportunistic benefits of maintaining a long-term partner-client relationship (Chen, 2009). In that case, the disclosure information of internal control may be untrue and unreliable.

Other researchers also design different internal control indexes. Among past work, Cassar & Gerakos (2010) built an index to measure the overall quality of hedge internal control. But this index is only based on whether management involvement is included in internal control. Similarly, Bodnar (1975) proposed internal control evaluation models. Widener (2004) designed a set of survey questions to measure management control. Van de Poel & Vanstraelen (2011) designed a disclosure score of internal control. It includes nine items: the purpose of the control system, internal audit function, the supervisory board discussed the internal control systems in at least one meeting, management's responsibilities for internal control risk management activities, audit committee, conduct code, accounting manual and "whistle blower" policy. In China, Yang (2010) designed an assessment system of internal control disclosure quality and built an internal control information disclosure index. The core of this index is information transparency. Three aspects including timeliness, authenticity and completeness comprise this system. This system is based on five elements of internal control

and there are 5 second-level indexes and 29 third-level indexes. They used the Delphi method to assign first-level indexes and employed the entropy weight method to assign second and third level indexes.

The internal control index of Sun et al. (2011) and Li et al. (2011) are based on five elements of COSO. There are 21 indexes in the paper of Sun et al. (2011) including independent director, the largest shareholder, stated-owned stock, chairman duality, top management shareholding, social responsibility, culture and law, risk consciousness, risk analysis, risk response, accounting system, budget management, operating analysis, performance assessment, emergency, information sharing, anti-fraud, auditing report, board of supervisors and internal control assessment. According to relevant internal control regulations in China and the USA, Li et al. (2011) pointed out fifteen indexes of internal control deficiencies. Control environment problems include poor audit committee, punishment and actions of top managers who are not under control. Risk assessment problem includes material risk. Control activity problems include material authorization issues, illegal related party transactions, illegal guarantees, illegal loans, deficiencies of money usage, capital occupancy and deficiencies in the financial reporting process. Information and communication problems include illegal disclosure and restatements. Li et al. (2011) also classify internal control problems into account-specific weaknesses and company-level weaknesses. Finally, they use the number of deficiencies to proxy for the weaknesses. Those firms without material weaknesses are assigned 1. If the number of weaknesses are less than the mean numbers, the authors assign 2. If weaknesses are equal or more than average values, they are assigned 3.

Based on the realization level of internal control goals, Zhang & Dai (2011) built an internal control assessment index. The indexes include sales, growth rate of sales, rate of long-term asset, equity ratio, sustainable growth rate, Tobin Q value, stock turnover rate, receivables turnover ratio, total assets turnover rate, operating profit ratio, average sales, net assets income

rate, net profit cash content, abnormal business, the absolute value of abnormal accruals, auditor opinion of financial reporting, restatements, fraud, fines, payable debt, illegal actions, shortage and damage of asset, asset devaluation loss, capital occupancy of related party, and external guarantee. Then the authors used element analysis to get ten factors and compute realization degree of internal control goals by using the variance proportion of each factor as weight. In sensitive test, they also used the disclosure level of internal control information to measure internal control quality. According to the ways and degrees of internal control disclosure, there are five disclosure types including verification report, self-assessment report, detailed statements, general descriptions and simple disclosure. The last three types are defined by detailed levels of internal control information that is disclosed in the “important issues section” in the annual report. Some factors of internal control are more important than others. It is not exact to count equally all factors and add directly the values of internal control factors. Zhang & Dai (2011) overcome this defect by using the variance proportion of each factor as a weight to measure internal control.

The internal control assessment index of Zhang & Dai (2011) describes internal control over non-financial reporting. In similar vein, Cheng & Wang (2008) measure internal control effectiveness not only by core return on equity and reliability of financing reporting, but also legitimacy. Further, Zhang & Zheng (2010) took advantage of the five-level Likert Scale to measure the implementation of internal control. The contents include the goals of reporting, the effectiveness and efficiency of operations, compliance with applicable laws and regulations and development strategy. This method is similar to the definition of internal control weaknesses in Basic Standard (2008).

Unlike American research, more Chinese internal control measures focus on overall internal control quality. A variety of studies design internal control index systems. Shenzhen Dib Enterprise Risk Management Technology Limited Company and Xiamen University Internal

Control Index Research Group release internal control indexes every year, and their indexes have been used in academic research. For instance, Lin & Rao (2009) and Yang & Hu (2010) took advantage of the internal control information disclosure index of listed firms (China Shenzhen DIB Internal control index). Likewise, Dong & Chen (2011) measure internal control quality by the internal control index (Xiamen University Internal Control Index Research Group) and restatement. The internal control index is based on the Enterprise Internal Control Basic Standard and Guidelines. It includes five first-level indexes (internal environment, risk assessment, control activities, internal supervision, information and communication). Then it is divided into 24 second-level indexes, 43 third-level indexes and 144 fourth-level indexes. The authors use analytic hierarchy process and variation coefficient method to assign internal control index. This set of indexes is a hundred mark system. The bigger the index is, the higher internal control quality is. Dong & Chen (2011) also divide the internal control index into five parts according to numbers. Then those indexes are divided by 4 and become the numbers from 0 to 1.

Based on a mandatory disclosure setting, American studies focus on the measure of control problems, material classifications, and the extent and nature of control problems. However, Chinese internal control research is quite different. More Chinese studies use various measures and propose internal control evaluation models in order to describe internal control quality from an overall perspective. They include not only good internal control and control problems, but also measure middle-level and lower-level internal control. This is consistent with the overall conception of internal control in China. In this study, I use the internal control index released by China Internal Control Database to proxy for the quality of internal control.

5.3.1.3 Internal control weaknesses over financial reporting and non-financial reporting

According to China SOX, internal control includes financial control and non-financial control. Internal control over non-financial reporting refers to other controls apart from internal control over financial reporting. There is no American research about non-financial weaknesses, and it is also rare in China. That may be because financial weaknesses are considered to be more important than non-financial weaknesses, and non-financial weaknesses are very costly (Bai & Gao, 2011).

Based on the realization level of internal control goals, Zhang & Dai (2011) built an internal control assessment index. The index includes sales, growth rate of sales, rate of long-term asset, equity ratio, sustainable growth rate, Tobin Q value, stock turnover rate, receivables turnover ratio, total assets turnover rate, operating profit ratio, average sales, net assets income rate, net profit cash content, abnormal business, the absolute value of abnormal accruals, auditor opinion of financial reporting, restatements, fraud, fines, payable debt, illegal actions, shortage and damage of asset, asset devaluation loss, capital occupancy of related party and external guarantee. Then the authors used factors analysis to get ten elements and computed the realization degree of internal control goals by using the variance proportion of each factor as weight. In the sensitivity test, they also use the disclosure level of internal control information to measure internal control quality. There are five internal control types including verification report, self-assessment report, detailed statements, general descriptions and simple disclosure. The last three types are defined by detailed levels of internal control information that are disclosed in the “significant issues section” in the annual report. The internal control assessment index of Zhang & Dai (2011) describes internal control over non-financial reporting.

In this research, I measure internal control quality not only from general efficiency (internal control index) and specific type especially financial and non-financial weaknesses. I choose the firms that disclosed financial or non-financial weaknesses separately as the research objective. I investigate the numbers of weaknesses and internal control indexes in different

sub-samples separately.

5.3.1.4 Conclusion

The mandatory disclosure of internal control information provides more data for empirical research regarding internal control weakness. However, there are some caveats. First, the use of cross-sectional data may fail to consider annual changes (Doyle et al., 2007a) and cause endogeneity problems (Ogneva et al., 2007; Johnstone et al., 2011). Cross-sectional data may also cause the economy-wide effects of SOX to go undetected. Internal control is based on a going-forward requirement, which might make companies change behaviours. That is, managers might improve the quality of internal control to benefit themselves because capital market participants would be well informed (Ogneva et al., 2007).

What is more, it is hard to identify those companies that did not disclose control problems, which influences the size of sample and the reliability of results (Doyle et al., 2007a; Naiker & Sharma, 2009). It is difficult to control the incentives whether firms disclose or not. Some firms have internal control deficiencies, but they do not discover or disclose them, which cannot be observed (Naiker & Sharma, 2009). In fact, the choice to disclose and the actual presence of weaknesses are two different things. This may cause the under-identification of true samples and influence the results. Third, it is difficult to identify the exact time of deficiencies (Doyle et al., 2007b).

In conclusion, this research focuses on internal control deficiencies and their severity as well as weakness remediation. The disclosure of internal control problems is a dummy variable. I partition samples according to many classifications. Listed in increasing order of severity, there are control deficiencies, significant deficiencies and material weaknesses. In terms of contents, the first classification is practice, bookkeeping and fraud weaknesses. Especially, I also examine financial reporting weaknesses and non-financial reporting weaknesses. With

regard to the extent of weakness, I use the internal control index as a proxy²⁴. Finally, regarding weakness remediation, if a firm mentioned that it remediated control weaknesses, I assign 1, otherwise 0.

5.3.2 Independent variables

In this research, the independent variables are the individual characteristics of board members and chairmen as well as board behaviours and ownership. Table 5.2 reports all of the variables, their measurements and sources. The following discusses each construct.

5.3.2.1 The individual characteristics of board members

Some characteristics are used to measure each dimension of board characteristics. Hillman & Dalziel (2003) point out that board capitals include human capital and social capital. Human capital includes the abilities, expertise, experience, knowledge, reputation and skills, education and training (Becker, 2009; Hitt et al., 2001). Consistent with the research of Prawitt et al. (2009) and Lin et al. (2011), individual characteristics include education, training, experience and certification. Following Krishnan (2005) and Cheng & Wang (2008), I also include integrity as one individual characteristic of board members. Accordingly, individual characteristics of the board members in this research include five aspects. As follows, I separately explain the five characteristics.

5.3.2.1.1 Education

Education background acts as signal transmission function of education level. Tihanyi et al. (2000) examined the majors and degree of education experience. Bhagat et al. (2010) measured education by undergraduate school ranking, MBA, law or master's degree. Lu

²⁴ Internal control index is based on the extent of realization of internal control goals. Internal control index database is a sub-database of internal control database.

(2012) investigated whether Chinese board chairmen had overseas educational experience, whether their majors were in business and their education levels. Differing from them, this study only focuses on education level.

There are different ways to measure education background while most research employs degrees to proxy for education levels (Cheng, 2003). The first method is to use years of education, the longer they are educated, the more experience they have. Prawitt et al. (2009), Lin et al. (2011) and Wu et al. (2012) use average years of different education levels. College, Graduate, Postgraduate and Doctoral degrees usually take 2, 4, 6 and 8 years, respectively. Wu et al. (2012) measure manager's education by the natural logarithm of mean years of chairmen and CEO at schools. This is an easy and exact method, but the time value differs during various education stages (Lu, 2012). Another measure is to assign values according to the ranking of education background. Goll et al. (2008) and Chen & Wang (2014) divide education into five scales including primary school, high school, undergraduate and postgraduate. Yu (2009) also classifies education level into high (postgraduates), medium (bachelor level) and low (others) scales. It is a common way to measure education degrees. Consistent with Lu (2012), education background is the average number of education levels of the board members, assigning 5 to 1 respectively according to PhD, postgraduate, undergraduate, college, high school and lower levels. In an additional test, I also use an alternative measure: high or low education level. It is a dummy variable equalling one if the education level is masters or Ph.D., otherwise zero.

Wiersema & Bantel (1992) argue that high levels of education have a positive relationship with strategic change. Lin et al. (2011), Lu (2012), Chen & Wang (2014) found that material weakness is negatively related to education level of internal audit and board members. I

expect that the average education of board members is negatively related to internal control weaknesses.

5.3.2.1.2 Experience

Deshpande & Zaltman (1982) used years of experience to represent working experience. Prawitt et al. (2009) and Lin et al. (2011) employed average years of auditing experience of staff to measure professional experience of internal audit. Krishnan (2005), Naiker & Sharma (2009) measured experience as a dummy variable, 1 if they had previous experience in accounting, otherwise 0. In my research, experience is equal to 1 if at least one board member is responsible for financial and accounting issues, 0 otherwise.

Xie & Huang (2003) found more board members with financial backgrounds is positively related to earnings quality. Krishnan (2005), Naiker & Sharma (2009) found that the past working experience of directors is closely linked to internal control problems. However, Prawitt et al. (2009) and Lin et al. (2011) did not identify any significant results. I expect that the accounting experience of board members is related to internal control weaknesses and its remediation.

5.3.2.1.3 Certification

Hoitash et al. (2009) examine accounting financial experts, supervisory financial experts and “user” financial experts. I only study accounting financial experts. Following Krishnan (2005), Zhang et al. (2007), Prawitt et al. (2009) and Lin et al. (2011), certification is measured as the percentage of board members with one or more professional certifications such as CPA (Certified Public Account) or CIA (Certified Internal Auditor). Srinivasan (2005) used an indicator variable (whether the director is a financial expert) to identify the financial expert. In this study, certification equals the number of directors with the certifications divided by total numbers of board directors. I also use an alternative measure in

an additional test. It is a dummy variable that equals one if at least one of the board members has accounting certification, otherwise zero.

Beasley (1996), Zhang et al. (2007) and Naiker & Sharma (2009) indicate that the disclosure of material weakness is positively related to less financial expertise, especially when linked with less accounting financial expertise. I, therefore, anticipate that signs of accounting and auditing certification of board members are negative.

5.3.2.1.4 Integrity

Krishnan (2005), Naiker & Sharma (2009) and Skaife et al. (2013) assign fraud 1 if management in the company is against a SEC action or restated financials because of GAAP violation, otherwise 0. Following Chen & Wang (2008), board members who are punished²⁵ by China Securities Regulatory Commission or Stock Exchanges due to violation or irresponsibility (individual reasons rather than company reasons) can proxy for integrity. I use an alternative measure in an additional test. It is a dummy variable that equals one if at least one of the board members has a violation history, otherwise zero.

Krishnan (2005), Naiker & Sharma (2009) and Skaife et al. (2013) observed top managers' lack of integrity in those firms that disclosed material weaknesses. In terms of China, Cheng & Wang (2008) and Zhang & Zheng (2010) found that integrity, ethics and values of managers and the degree of attention managers paid to the competence of employees are positively related to internal control effectiveness.

5.3.2.1.5 Training

²⁵ In China, there are different ways of punishment. Apart from fine, the firms could be forced to close, the CSRC may prohibit them from entry into the securities market, they may even be put into jail. What is worse, their reputation is ruined and their political promotion may be influenced negatively (Zhu & Wu, 2009).

According to Lin et al. (2011) and Prawitt et al. (2009), training is measured as annual hours of training for every internal auditor. In the research of Cornforth (2001), whether the training for new board members is available or not is a dummy variable. However, they did not find any strong association between training and material weaknesses. Differently, O'Connor et al. (2004) document that more training increases the quality of management control. The hours of training is not available in China. In this thesis, following Cornforth (2001) and Deng (2004), I measure training²⁶ by whether board members received internal control training that year. I predict that training is negatively related to internal control weaknesses.

5.3.2.1.6 Characteristics

Prawitt et al. (2009) combined aspects of internal audit quality into a single construct by survey. It included experience, education, certification and training. Similarly, the competence of the board of directors was measured using four variables namely experience, education, certification and training. Scores in an index can be either weighted or un-weighted, and there are no differences in either index (Botosan, 1997). An equal value of one was assigned to each item for the weighted index. This method is simple and unquestioned (Freedman & Jaggi, 2005). I measure every aspect then combine them together with equal weighting. Li et al. (2010) indicate that CFO's quality is negatively related to internal control. I expect that the characteristics of board members relate to internal control problem and remediation.

5.3.2.2 Characteristics of board chairmen

²⁶ In general, Chinese firms tend to report positive information and avoid negative information. However, perhaps some firms have internal control training but they do not disclose it. It could be that the biggest and best firms do not disclose training because they know that they are already highly respected. This is a limitation and there is really nothing that can be done.

Consistent with the characteristics of board members, I also examine the experience, education, certification, training and integrity of board chairmen. The test variables measuring the characteristics of board chairmen are as follows. Experience is measured by whether the chair has accounting experience. Education is the education level of the board chair, as is the case with board members. Certification is also whether the chairman has accounting certification. Training is a dummy that equals one if the chairs accepted internal control training that year. Lack of integrity is whether chairmen had disciplinary actions taken against them. The signs of coefficients on those characteristics of board chairmen are expected to be in the same direction as those of the board of directors.

5.3.2.3 Nature of Dominant shareholder

In order to identify firms with different ownership, Jiang et al. (2010) included three dummy variables. First, an indicator variable was used to measure state-owned enterprises. This variable took the value of 1 when its dominant shareholder is the government, otherwise 0. Second, for the government-controlled firms, it took the value of 1 if the object firm was a local government controlled firm. It took the value of 0 if it was a central-government-controlled firm. Third, it was coded as 1 if the company was a family company, and 0 otherwise. Differently, this study does not distinguish between central and local government. Instead, I only look at whether the firm is controlled by the government or not. Similar to Firth et al. (2007), Cheng & Wang (2008) and Zhang & Zheng (2011), dominant shareholder nature is a binary scale of 1 if it is controlled by government, 0 otherwise.

Using the data from Chinese firms listed in Shenzhen and Shanghai A Stock market from 2009 to 2012, Hu et al. (2015) studied the association between management power and internal control effectiveness from the perspective of ownership system. They found that management power is positively significantly related to internal control effectiveness for

local state-owned firms. For central state-owned-firms, there was no strong correlation. This means that the fierce political competition among local government results in state governments giving more residual control rights to management and this also motivates the entrepreneurship of management, which is useful for the construction of internal control. They also found that management power and internal control quality has a positive correlation for family firms. That is because the manager is also an entrepreneur, and the ultimate controller has the essential attributes of the entrepreneur. However, they failed to find a close correlation between management power and internal control quality in private enterprises listing by merging and restructuring.

Li (2007) and Wang (2003) argue that internal control is more effective in state-owned enterprises than non-state-owned enterprises. Contrary to their conclusions, there is no significant relationship between ownership and internal control effectiveness for Chinese firms according to Cheng & Wang (2008) and Zhang & Zheng (2011). Differently, Firth et al. (2007) and Deng (2004) point out that internal control quality in Chinese government-owned corporations is low. The results are mixed in prior research. On the other hand, the findings of Li (2007) show that quality of chairmen in Chinese SOEs is high. Lu (2012) compared the association between education and internal control quality in state-owned firms and non-state owned firms. She found that the result is more significant in non-state firms. As such, I anticipate dominant shareholder nature influences the relationship between internal control and board characteristics. The correlation is more significant in non-government owned firms.

5.3.2.4 Board behaviours

According to Wu & Wang (2007), board behaviours include diligence, composition and independence. This study uses diligence and independence to describe the behaviours of the board.

Similar to Carcello et al. (2002), Sarkar & Sarkar (2005), Cheng and Wang (2008), Zhang et al. (2007) and Hoitash et al. (2009), I measure diligence by the numbers of board meetings every year. In particular, because the effects of events are always delayed, in order to control for time effects, this year's weaknesses could be caused by last year's board meetings. I use the data of last year, that is, the meeting frequency of the previous year rather than this year.

The frequency of board meeting is vital to the improvement of the effectiveness of the board (Conger et al., 1998). Dechow et al. (1996), Xie & Huang (2012) and Abbott et al. (2000) found that firms with more frequent meetings tend to have less misleading reporting, while Vafeas (1999) consider that high frequency of meetings is negatively related to firm value. In regard to internal control, Zhang et al. (2007) found a positive relationship between board meetings and material weaknesses while Goh (2009) found no relationship. The findings on the impact of meetings are not consistent. Board meeting is determined by other factors such as financial performance and firm characteristics (Brick & Chidambaran, 2007). Thus, I expect that board meeting frequency influences internal control weaknesses but do not predict a sign for it.

According to Fang et al. (2009), Johnstone et al. (2011) and Richardson et al. (2013), independence is the number of independent directors divided by the number of board directors. Following them, Independence in this research is the percentage of independent directors. In an additional test, I employ whether the independent directors ratio is higher than one-third to proxy for independence because since 2003 Chinese listed firms are required to have at least one-third of independent directors in their firms.

Bhagat & Black (2002) found no strong relationship between firm performance and board independence in the long term. Klein (2002), Peasnell et al. (2005) and Xie & Huang (2012) point out that firms having more independent board members are related to fewer earnings management. Goh (2009) provides strong evidence that more independent boards are more

likely to be related to internal control weakness remediation. Therefore, I expect that the independence of the board of directors has a positive influence on the correlation between internal control and board characteristics.

5.3.3 Control variables

Empirical findings consistently indicate that internal control deficiencies are often related to firms characteristics including internal factors (firm size, firm age, business complexity, profitability, organizational changes, financial distress, financial health, accounting risk, growth, structure, resource availability, past weaknesses and restatements, change in qualifications and turnover of CFOs, management changes, corporate governance and monitoring technology) and external factors (external finance, audit firm size, auditor resignations and changes, auditor effort and non-audit fees).

Apart from sharing similar determinants with American research, China's unique setting creates particular research opportunities. First, Chinese corporate governance is weak and quite different from that in Western countries. Listed firms have a unique two-tier corporate governance structure. It includes not only board of directors, but also the supervisory board²⁷. The board of supervisors oversees the board of directors. The impact of board of supervisors, concentration of management, percentage of independent directors, size of supervisory board, the attendance at annual shareholders meetings, the existence of an audit committee, ownership and its concentration, the agency conflict between major shareholders and minor shareholders, the characteristics of control power and ownership are different compared to America. Second, China has a long history, and traditional culture has a far-reaching impact on business. Chinese

²⁷ China SOX requires that internal control is the responsibility of the board of directors, not the supervisor. This research focuses on the board of directors, and I do not examine the role of the supervisory board. But this could be done in future research.

internal control includes the financial aspect and non-financial aspects. Cultural factors and the individual characteristics of key firm personnel may play an invaluable role in Chinese internal control.

Following prior research (Dechow & Ge, 2006; Doyle et al., 2007a; Lin & Rao 2009; Rice & Weber 2011; Wu et al., 2012), I include the following internal factors in the model: the characteristics of top management (education, experience, certification, training and integrity), chairmen' characteristics (gender, age, compensation, stock, busyness), corporate governance (duality, meeting and independence), ownership structure (ownership), financial condition (growth, restructure, leverage, financial health), firm characteristics (firm age, firm size). I also control external factors including audit status (big 4 and audit fee), year and industry effects.

5.3.3.1 Top management's individual characteristics

Management independently influences internal control of the firms (Krishnan, 2005).

Krishnan (2005) controlled for certification, experience and integrity of management, and she found the past experience and fraud tendency of management are correlated with internal control weaknesses. In line with characterises of board members and board chair, I also control for experience, education, certification, training and integrity of board chairmen.

Consistent with Bantel & Jackson (1989) who report a link between the education level of management teams and innovation, education is measured as the education level.

Certification is whether top management has accounting and auditing certification or not.

Training is measured as one if the managers have accepted professional training. Integrity is whether management has violation actions or not. I expect that the coefficients on the characteristics of management are in the same direction with that of the board. I employ the alternative measures in the sensitive examinations.

5.3.3.2 Chair's characteristics

Apart from education, experience, certification, integrity and training, other characteristics including age, gender, compensation, stockholdings and business are also included in my study and are measured as follows.

5.3.3.2.1 Gender

Nowadays, countries increasingly have incorporating recommendations for gender equality in the corporate governance codes or disclosure regulations. In particular in developed countries, boardroom gender quotas are becoming the norm. A female board has four main advantages. First, female directors exhibit greater diligence and accountability for management performance (Adams & Ferreira, 2009). Furthermore, they are more likely to have independent thinking and activism than their male counterparts (Carter et al., 2003), which is important for effective oversight. Second, females bring various viewpoints to the board and facilitate informed decisions compared to all-male boards (Daily et al., 2000), thus reducing information asymmetry and increasing information transparency. Women can also improve the scope of board discussions by challenging traditional practices. Third, females show lower tolerance of opportunism (Thorne et al., 2003; Bernardi & Arnold, 1997; Krishnan & Parsons, 2008).

Finally, females use a more trust-building leadership style than males (Klenke, 2003; Trinidad & Normore, 2005). Female directors are more averse to reputation loss and litigation and act more decisively in improving earnings quality. Accordingly, this thesis investigates the impact of female chairpersons.

Srinidhi et al. (2011) and Giannetti et al. (2012) measured the percentage of female directors and Giannetti et al. (2012) also used a dummy variable equal to 1 if the director was female,

and 0 otherwise. Following them, I employ a dummy variable that is equal to 1 if the chair on the board is female, and 0 if male.

Srinidhi et al. (2011) found that female directors contribute to high earnings quality. On the contrary, Ahern & Dittmai (2012) argue that the introduction of females causes a significant drop in short and long term financial performance including stock price and Tobin's Q. However, by using Chinese data, Giannetti et al. (2012) failed to find a strong link between woman directors and firm performance. Female directors can improve board governance and earnings quality, which in turn is likely to improve internal control quality. To my best knowledge, there is no study regarding the correlation between gender of chairperson and internal control. Thus, I expect firms that have a female on the board have fewer internal control problems.

5.3.3.2.2 Age

Age affects the perspectives and choices of decision-making. Hitt & Tyler (1991) suggest that age influences the strategic evaluation of the acquisition candidate. Security becomes particularly important to older executives because they tend to avoid risk (Vroom & Pahl, 1971). Younger managers may be riskier while older managers may lack confidence in their decisions (Taylor, 1978).

Age is negatively linked to the ability of new information integration (Taylor, 1978).

Wiersema & Bantel (1992) found that older management reduces the degree of diversification of the firm. Core et al. (1999) report that former directors may be less active in internal control compared to young ones. The survey of Shen (2004) showed that most of the chairmen in western multinational companies are young. Forbes (2005) argues that older managers need more time, and collect more information in order to avoid errors when they make decisions. He & Liu (2010) found that the average age of managers has a negative

impact on over-investment and financial reporting restatement. Lin et al. (2014) point out that age is negatively related to annual report quality. Chen & Wang (2014) provide evidence that an older Chinese chair is negatively related to internal control weaknesses. Former directors are risk-averse (Loe et al., 2000) and ethical (Wimalasiri, 2001), are less likely to have financial restatements and engage in earnings management (Huang et al., 2012). Therefore, I anticipate that the age of chairmen negatively relates to internal control problems. Following Wiersema & Bantel (1992), Forbes (2005), Lin et al. (2014), Chen & Wang (2014), I use the natural log value of age to proxy for the age of chairmen.

5.3.3.2.3 Compensation

Salary produces a financial reason to keep staff in the company. In any particular way, the staff directs the firm to use human and social capital. Following Core et al. (2003), Armstrong et al. (2012), Kobelsky et al. (2013), I use total annual compensation of board chairmen to proxy for the compensation variable.

Offstein et al. (2005) studied firm competitive behaviour from the perspective of human resource. They examined whether executive compensation affects competitive behaviour and suggested that compensation policies motivate human assets to engage in actions. Smith & Watts (1982), Cheng & Warfield (2005), Bergstresser & Philippon (2006) and Armstrong et al. (2012) found that managers with high compensation tend to engage in earnings management and have poor corporate governance. However, Armstrong et al. (2010) report a negative relationship between accounting irregularities and the compensation of the CEO. Erickson et al. (2006) also failed to find strong results. This is because earnings management could be changed to the level of CEO pay by CEO incentives and monitoring by a good board. Henry et al. (2011) found that compensation regarding firm performance is related to internal control

while salary without performance has no correlation with internal control. The findings of US data are inconsistent.

In regard to China, Zhang et al. (2009) found that high salary level is an effective incentive to chairmen because it encourages them to pay more attention to internal control and in turn improve firm performance. Similarly, Chen & Wang (2014) found that high compensation of chairmen relates to fewer internal control problems. Thus, I expect that compensation of the chair of the board is related to internal control weaknesses, and the sign is negative.

5.3.3.2.4 Stockholdings

Following Cheng & Warfield (2005), Bergstresser & Philippon (2006), Erickson et al. (2006), LaFond & Roychowdhury (2008), stockholding is measured as the log of the numbers of shares that the board chairman holds.

Equity ownership by directors creates powerful incentives to monitor management (Jensen & Meckling, 1976). Stock-price-based incentives dominate earnings because the objective of stockholders is firm value maximization. Compensation and holdings based on equity provide managers incentives to manipulate earnings (Bergstresser & Philippon, 2006; Harris & Bromiley, 2007; Efendi et al., 2007). Cheng & Warfield (2005) found more earnings management occurs when managers have higher stock ownership. Both of them take stock into consideration. Differently, LaFond & Roychowdhury (2008) found a negative correlation between the need for accounting conservatism and management stock ownership. This is consistent with the theory that agency problems are solved by the alignment of management and shareholder on stock. Johnson et al. (2009) studied the association between managerial incentives and fraud. They found that unrestricted equity holdings increase accounting fraud. However, Burns & Kedia (2006) consider that equity incentives may lessen the desire of managers to manipulate earnings. Erickson et al. (2006), Harris & Bromiley (2007) did not find

CEO equity incentives are related to accounting fraud. Hoitash et al. (2009) show that there revealed a negative association between stock options of CFOs and material weaknesses. I anticipate that the stockholdings of chairmen of the board are related to internal control weaknesses, and the sign is negative.

5.3.3.2.5 Busyness

Fich & Shivdasani (2006) define the busyness of a board as when outside directors hold at least three directorships. They found a negative relationship between busy boards and corporate governance. Armstrong et al. (2012) used the percentages of board members who are busy to measure a busy board. Being busy means board members are served on two or more boards of directors at the same time. They found that busy boards result in high consultant usage and weak corporate governance. However, Ferris et al. (2003) argued that the busy director is good news for shareholders because busyness means more experience and busy boards are as effective as non-busy boards. Their method results in low statistical power.

Following previous study, this dissertation uses a dummy variable to measure the busyness of chairmen. If a chairman also works in other companies, he or she is busy. Busy boards are inclined to be distracted. Thus, I also predict a positive relationship between busy chairmen and internal control weaknesses.

5.3.3.3 Corporate governance

Chairman domination is likely to lead to conflict, high internal risk, weak internal control and governance function, poor accounting information systems and firm performance (Boyd, 1995; Messier, 2000). The Cadbury Committee Report (1992) strongly recommended that the Chairman should be separated from the CEO.

SEC (2009b) requires listed firms to disclose CEO duality and to give reasons. CEO duality is defined as when CEO and board chairmen are the same person in a firm (Rechner & Dalton, 1991). According to agency theory, duality impairs the monitoring role and the independence of the board (Boyd, 1995).

By contrast with the US, in China, duality means a firm's chairman and general manager (similar to CEO) is the same person (Rechner & Dalton, 1991). Following Cheng & Wang (2008), I use whether the general manager and board chairman are separated to proxy for non-duality.

Prior studies found that CEO duality threatens financial reporting quality, low firm value and firm performance (Hu & Kumar, 2004; Krishnan, 2005, Cheng & Warfield, 2005; Bergstresser & Philippon, 2006; Sarkar, 2008; Naiker & Sharma, 2009). Dechow et al. (1996) analyzed the causes and consequences of earnings manipulation and argued that the company whose CEO chairs the board is more likely to be subject to accounting enforcement action by the SEC. Lin et al. (2014) show a negative result between CEO duality and weakness remediation. However, Goh (2009) and Xie & Huang (2012) found that the association between CEO duality and material weaknesses and weakness remediation is insignificant. Song & Rong (2012) examined the relationship between board characteristics and internal control goals. They found that duality can improve the operation goals of the firms, but it is negatively associated with the goals of both financial reporting reliability and laws and regulation compliance. Following Lin et al. (2014), I expect that non-duality is good for reducing the incidence of internal control weaknesses.

5.3.3.4 Financial condition

5.3.3.4.1 Growth

A quickly growing firm might outgrow internal control and need time to establish a new procedure (Kinney & McDaniel, 1989; Stice, 1991). Following Ashbaugh-Skaife et al. (2007) and Cheng & Wang (2014), growth is measured by the growth rate of operating revenue. Previous work had different results. Doyle et al. (2007a) show that a firm with internal control weakness tends to grow rapidly while Ashbaugh-Skaife et al. (2007), Cheng & Wang (2014) did not find a strong relationship between growth and internal control deficiency. On the other hand, Cai (2008) argues that rapid growth relates to strong internal control in China because those firms have good performance and enough funds to invest in internal control. Another explanation could be that Chinese firms with a rapid growth rate tend to be young firms and they are under strict control by the government and the internal control system is comparably complete (Lin & Rao, 2009). Therefore, I anticipate a negative relationship between growth and internal control weaknesses.

5.3.3.4.2 Restructuring

Doyle et al. (2007a) measured restructuring as the aggregate scale by market capitalization and found that undergoing restructuring is related to internal control deficiencies. Similar, Ashbaugh-Skaife et al. (2007) coded restructure one if a firm had recently been involved in organization change and they also found a positive association. On the contrary, Lin et al. (2011) employed the percentage of years that firms had been involved in restructuring but they found no strong relationship between organizational change and internal control material weaknesses. In this research, restructure is a dummy variable that equals to one if there were organization changes that year, otherwise 0.

Restructuring enables internal control to match the new organizational structure. It also involves difficult accrual estimations and adjustments (Dechow & Ge, 2006). This may result in more control deficiencies. Following Dechow & Ge (2006), Lin & Rao (2009), in this

research, it is assigned one if the firm reported non-zero charges of restructuring, zero otherwise. Restructuring is expected to be positively associated with the possibility of internal control problems. There are two reasons, first, restructuring likely causes disarray, downsizing and loss of employees. It also involves hard accounting estimations and adjustments, for example, impaired goodwill (Dechow & Ge, 2006). In turn, insufficient staff and accrual estimation result in internal control problems. I expect that restructuring is positively related to internal control weaknesses.

5.3.3.4.3 Financial health

Ashbaugh-Skaife et al. (2007) measured how many years a firm reported negative earnings during the sample period. They found that loss is not linked to the discovery and reporting of internal control weaknesses. In contrast, in the papers of Johnstone et al. (2010) and Lin & Rao (2009), it is an indicator variable that equals one if a firm has a net loss and zero otherwise. They report a positive influence of loss on internal control weaknesses. My research uses a dummy variable, similar to Johnstone et al. (2009), Lin & Rao (2009) and Rice & Weber (2011), whether the firm reports a positive net profit or not, to proxy for financial health.

Firms with poor financial health lack the resources to conduct internal control. Lys & Watts (1994) demonstrate that financial distress enables managers to have greater incentives to mislead and tend not to disclose internal control information. Unhealthy finance can simply prevent a firm from investing time and money in internal adequate control (Krishnan, 2005). Management time and financial resources are required for strong internal control while unhealthy firms, are concerned about whether they can stay in business rather than internal control (Doyle et al., 2007a). My expectation is that healthy finance is negatively related to internal control weaknesses.

5.3.3.4.4 Leverage

Dichev & Skinner (2002), Begley & Freedman (2004), Cheng & Warfield (2005) found no significant association between leverage and earnings management. As argued by Roychowdhury (2006), prior evidence indicates that leverage is not a particularly good proxy and questions whether leverage can be used as a proxy for earnings management incentives. Naiker & Sharma (2009) found that leverage is positively related to internal control deficiencies. Thus, this study controlled for financial leverage ratio (debt/total assets) and I expect internal control weaknesses to be more prevalent as firms have higher financial leverage rates.

5.3.3.5 Firm characteristics

5.3.3.5.1 Firm age

I calculate firm age as the natural log of the numbers of years of a firm's history. Ge & McVay (2005) and Doyle et al. (2007a) reported that younger firms tend to have more internal control problems. On the contrary, Lin et al. (2011) found a positive relationship between firm age and internal control material weaknesses. They explain that it is because their sample is small. Myers (2003) found that weak internal control exists in old firms as they have more fraud and restatements. Similarly, Lin & Rao (2009) demonstrate that old Chinese firms are not willing to disclose internal control reports voluntarily, and they have low internal control quality. That is because, in China, the old firms tend to have many historical problems. In the past in China, there were no relevant laws and regulations. Compared to young firms, old firms have no effective internal control system because internal control was first started less than ten years ago. Old firms do not know what internal control is while when new firms are set up, they are under a strict control environment.

Therefore, I expect that there is a positive relationship between internal control weaknesses and firm age.

5.3.3.5.2 Firm size

Montgomery (1979), Wiersema, & Bantel (1992) used the revenues of the firm to measure organization size. Anderson et al. (2004) employed the natural log of the sum of the debt and equity to measure size. Aboody & Kasznik (2000), Krishnan (2005) and Doyle et al. (2007ab) measured firm size by market value. Different from them but similar to Krishnan (2005), Naiker, & Sharma (2006) and Kim et al. (2011), I measure firm size using the natural logarithm of total assets.

Larger firms are likely to have good internal control (Krishnan, 2005; Doyle et al., 2007). Beasley et al. (2000) argue that there is a negative association between size and fraud. Bryan & Lilien (2005) and Ge & McVay (2005) report that firms with material weaknesses are positively related to firm size before SOX while, after US SOX, the sign becomes negative. Defond & Jiambalvo (1991) and Zhang et al. (2007) found no significant association between accounting errors and firm size. Large firms are widely considered as having more lawsuits and report problems (Palmrose & Scholz, 2004, Bronson et al., 2006). Large firms also may have complex organization and reporting structures, which makes it difficult to detect internal control weaknesses (Quinn & Cameron, 1983; Rice & Webber, 2012). Li et al. (2003) argue that Chinese big companies are more likely to disclose internal control information than small firms. Accordingly, I anticipate firm size is positively related to internal control problems.

5.3.3.6 Audit status

5.3.3.6.1 Big 4

Rice & Weber (2012) used Big 4 to proxy for audit quality because large auditors tend to have strong incentives and great competencies to provide high-quality audit service (DeAngelo, 1981). Similarly, in my research, Big 4 is a dummy variable that equals 1 if the auditor is a member of the Big 4 international accounting firms (Pricewaterhouse Coopers, Deloitte & Touche, Ernst and Young, KPMG) and 0 otherwise. Past work (Ji et al., 2015) also used China Big 10²⁸, but the results are not significant. That could be because competition in the audit market in China is very fierce (Chen & Ma, 2014).

Auditors play a role in the assessment of internal control. High-quality auditors are more likely to detect control deficiencies. Findings on the effect of Big-4 firms are somewhat mixed. There is a negative association between Big 4 and internal control weaknesses in the research of Teoh & Wong (1993) and Ashbaugh-Skaife et al. (2007) but no strong sign according to the findings of Zhang et al. (2007). As differentiated, high-quality, brand-name providers, Big-4 audit firms can enhance the disclosure quality in reporting information (Ahmed & Courtis, 1999) due to good reputation, independence and experience. A priori, they do better than non-Big 4 in detecting and reporting internal control problems (Krishnan, 2005). Problem firms tend to avoid Big 4 while Big 4 also want to choose good firms (Zhang et al., 2007). Accordingly, I anticipate Big 4 has a negative influence on internal control weaknesses.

5.3.3.6.2 Audit fee

²⁸ Ji et al. (2015) use both big 4 and big 10 to proxy for audit quality. The result of big 4 is significant while the result of big 10 is not significant. They argue that there are differences between ICW firms and non-ICW firms in the choice of big 4 international firms rather than big 10 local firms. Big 4 impose stronger international standards on behalf of shareholders, and their clients have fewer ICWs. As a result I do not use big 10 in this research. A great many Chinese research studies have used big 4 and the results show that big 4 is a good measurement. Big 4 has considerable market share in the Chinese audit market, especially of Top 100 firms.

Greater audit effort is positively correlated to the detection of control deficiencies. Rice & Weber (2012) measured audit effort by audit fee. Auditors increase audit fees to reduce the risk of material misstatement. Alternatively, auditors charge a fee premium to pass this risk on to the client (Lawrence et al., 2011). In the same way, the audit fee is defined as the natural log of audit fee in this study.

Francis (2004) argues that a high audit fee often relates to high audit quality by more audit effort (more work hours) or greater auditor expertise. Raghunandan & Rama (2006) report that audit fees positively relate to a material weakness disclosure in 2004 but not in 2003. Moreover, the relationship between audit fees and material weakness disclosure does not vary in either systemic or non-systemic weaknesses. Munsif et al. (2011) further studied how audit fee changes after remediation. The results show that remediating firms have low audit fees. However, a significant audit fee premium appears in the year of remediation and in one or two years subsequent to remediation. This suggests that audit fees are sticky for problem firms. Li (2014) also found that the audit fee is higher in firms with internal control deficiencies in China and this association is more significant in state-owned firms. From the view of audit effort, I anticipate a negative relationship between internal control weaknesses and audit fee in Chinese firms.

5.4 Additional Analyses

This research employs several sensitivity analyses to investigate the robustness of the findings. First of all, the incentives of board members may change in different situations, which influences the relationship between internal control and board members. In order to investigate the influence of incentive changes of board of directors, I do the following tests.

First of all, I compare the firms in different industries and years and stock exchanges and ownership, geographical locations and sizes. The full sample is partitioned into different

subsamples, and I run the regressions separately. Young et al. (1996) claimed that competitive behaviour of the firm is industry-related. Fang et al. (2009) point out that the determinants of internal control disclosure differ in various years and industries. Internal control in the financial industry is more effective than in the non-financial industry due to strict regulations (LaFond & You, 2010). Kim et al. (2011) include industry indicators to control for potential differences across industries. I anticipate the main results are consistent with five industry sectors and seven years from 2007 to 2013. Krishnan (2005) controls whether a firm is listed on New York Stock Exchange because listing requirements are different for various Exchanges. Lin & Rao (2009) control for each firm listing stock exchange and found that listed firms on the Shanghai Stock Exchange tend to report internal control information than those on the Shenzhen Stock Exchange due to strict rules in the Shanghai Stock Exchange. I anticipate board characteristics play a more important role in firms listed on the Shenzhen Stock Exchange than on the Shanghai Stock Exchange.

Chinese listed firms have high ownership concentration, and a single investor controls the firm. In China, board members in large state-owned enterprises mostly have better education and have studying experience overseas. They bring advanced ideas and concepts of management and control from Western countries. Because they are open-minded and are willing to accept advanced concepts, they attach great importance to internal control and risk management (Li & Nie, 2007). They grasp the awareness of modern management better and design internal control mechanisms by the introduction of well-known intermediaries. Every year, in Chinese central enterprises, the leaders have a chance to accept education and training or go to foreign countries to learn advanced management and control (Li, 2007). Chen & Wang (2008) found that the financial reporting quality of state companies is better than other enterprises. Lin & Rao (2009) found that companies controlled by central government are more likely to disclose internal control reports. Since the personnel is more

important than systems for a private firm, I expect the main results are stronger in non-government controlled firms. To analyze the influence under different owners more deeply, I divide the data into two parts including state-owned firms and non-state-owned firms.

Insider environment can influence accounting behaviours of firms. La Porta et al. (2001) examined how laws protect investors differently in 49 countries, how the enforcement quality of these laws varies and whether these variables are important for corporate patterns. They aimed to establish whether laws regarding investor protection differed across countries and whether these differences influenced corporate finance. They found that ownership concentration in the largest public firms is negatively correlated with investor protection.

Furthermore, Leuz et al. (2003), Bartov & Cohen (2007) found that a good law environment restrains earnings management. Using China's data Zhang et al. (2009) found that for firms in different regions, governmental policies are different (Lin et al., 2012). Furthermore, in large cities, there exists a knowledge spillover effect (Christoffersen & Sarkissian, 2009) and information advantage. The different institutional and legal environments of each division may influence internal control effectiveness (Doyle et al., 2007). Doyle et al. (2007) point out that institutional environment affects internal control. Gong & Li (2009) found that there are more internal control weaknesses in firms in areas with weak investor protection. There are significant differences between institution environment and the marketization process in China's provinces (Fang et al., 2009). The developed areas have a faster marketization process, complete market competition, open local government and fewer interventions. Thus, the firms in those places tend to get profits by operation and risk controls rather than through other ways of meeting the requirements of government. A good external institutional environment is beneficial because it allows firms to focus on internal control. Therefore, I expect the results will be better for the Eastern coastal district of China.

The results are mixed for the relationship between firm size and internal control effectiveness. Miu & Hu (2014) found that big and small firms have better internal control than middle-sized firms. The SEC is concerned that small firms lack sufficient internal and external qualified people to address disclosure requirements. In 2005, the SEC recommended that small firms should not be subject to further acceleration of Form 10-Q and 10-K filing (SEC Advisory Committee on Smaller Public Companies, 2006). In 2008, the SEC expanded the number of firms disclosing by size (SEC, 2008). The Dodd-Frank Act (Public Law, No: 111-203) permanently exempts small (non-accelerated) files from Section 404 of US SOX. Similarly, in China, in 2012, China SOX amended its disclosure requirement, non-state owned mainboard listed firms (also the total market value is more than 1 billion at the end of 2011 and average net profit from 2009 to 2011 is over 30 million) disclose internal control reports since 2013. Compared to large firms, qualified personnel are more important in corporate governance and internal control in small firms. To my best knowledge, this is the first research to focus on specific size and industry. Therefore, I expect the relationship between internal control and board characteristics to be more significant in SMEs than in big firms. Following Krishnan et al. (2011), I define the ranking of 25th and 75th size quartile of firms as big and small firms, and the other firms are medium sized firms separately.

What is more, in relation to the issue of endogeneity, better board members might be attracted to better firms. And reverse causality could mean bad performance leads to improvement in governance. I address this problem using a sample consisting of firms that changed board members. A change test is more powerful. If the directors change and quality is better, do weaknesses decrease? The turnover of the audit committee and directors is related to material weakness (Goh, 2009; Johnstone et al., 2011). Companies change board composition to acquire different human capital in response to environment changes (Hillman et al., 2000). The incentives for, and influence and competence of the board of directors, have an impact

on its ability to monitor and advise management. Stronger boards of directors are negatively related to fraud, restatements and earnings management and are positively linked with earnings quality and audit effort (Carcello et al., 2002; Klein, 2002; Vafeas, 2005).

Improvement in the overall quality of boards of directors (tenure, independence and the score based on size) results in high-quality internal control (Hoitash et al., 2009). Johnstone et al. (2011) found a positive relationship between turnover and characteristics improvement of boards and weakness remediation. Rice and Weber (2011) found that new managers tend to disclose control deficiencies. I anticipate that individual characteristics in firms with changed board members are still significantly related to internal control problems. The examination also has been extended by conducting the fixed effects at the firm-level of the model.

Fourth, China SOX advises listed firms to set up an internal control team. Basic Standard (2008) regulates that specialized or allocated appropriated organizations such as internal control leading teams should be set up to bear the responsibilities of the organization and coordination of establishment, implementation and daily operation of internal control. The internal control team oversees internal control work in a firm. The chairman is often the head of the internal control leading team. In order to investigate whether the function of internal control teams is effective, I anticipate that an internal control team has a positive influence on internal control.

Next, I compare the difference before and after the implementation of China SOX. Firms had a greater incentive to improve internal control after the enactment of the new regulation. The full sample is divided into two subsamples before and after 2012. It is anticipated that the relationship is significant after the implementation of China SOX. It is noted that in 2012, the government of China changed its internal control regulations pertaining to mandatory disclosure requirements.

- 1) Since 2012 state-owned firms disclose internal control reports.
- 2) Non-state owned mainboard listed firms (total market value of more than 1 billion at the end of 2011 and average net profit from 2009 to 2011 of over 30 million) have disclosed internal control reports since 2013.
- 3) Other mainboard listed firms have disclosed internal control reports since 2014.

Also, at the beginning of 2012, the Ministry of Finance and the China Securities Regulatory Commission issued a new regulation about how to disclose internal control information. Before this document, there was no relevant regulation and internal control disclosure in China is very free and disordered. This regulation made internal control regulation disclosure more standard and comparable. Chinese regulations change quickly, which may result in a lot of “noise” when empirical studies based on Chinese issues are conducted. Therefore, I also study the changes in my results before and after 2013.

Sixth, China SOX requires that Chinese mainboard listed firms report material weaknesses over non-financial reporting if they exist. And, since 2013 they need to distinguish between non-financial and financial internal control and disclose different weaknesses. The internal control database discloses whether firms disclose internal control weaknesses over non-financial reporting and also the numbers and the contents. For example, the firm did not learn the new internal control regulations; they did not carry out internal control very well, they lacked experts in internal control and risk control; management did not understand internal control. Non-financial reporting internal control weakness is also an important part of internal control problems. Bai & Gao (2012) is the only paper about non-financial weaknesses but uses Chinese data before 2010. They demonstrate that financial reports are not one sub-set of internal control as financial and non-financial weaknesses are a whole system. They merely use descriptive statistics to compare differences rather than a regression model, so the results

are not reliable. I use the firms which disclosed only financial weaknesses or only non-financial weaknesses matching the healthy firms to run the regression model. I expect my results are more significant in internal control weaknesses over non-financial reporting because non-financial reporting is more about boards of directors, corporate governance and internal control.

Next, a large body of literature (Abbott et al., 2000; Abbott et al., 2004; Beasley et al., 2009) finds that audit committees are significantly related to internal control problems. Xie & Huang (2012), Abbott et al. (2004), and Krishnan (2005) found that the financial expertise of the audit committee is significantly associated with earnings management, internal control weaknesses and restatements. China SOX states that the audit committee supervises internal control. Furthermore, Lin & Rao (2009) examined whether management power influences the association between internal control and the audit committee. They found that more management power negatively affects the supervisions of the audit committee expertise on internal control. Similarly, I investigate the influence of the audit committee on internal control weaknesses and the relationship between the board and internal control, but I make no direction prediction. I also examine the impact and moderating effect of internal audit.

Internal audit influences internal control by knowledge, competencies and skills (Clark, 2000). The results of Lin et al. (2011) indicate that internal audit function relates to material weaknesses disclosure. I further expect that the internal auditor also moderates the association between internal control and board characteristics.

Eighth, in 1966, Chairman Mao Zedong started a purge of Communist Party. It was a campaign that depended on the mobilization of people, in particular young people. However, the Cultural Revolution was gradually changed to a “fundamentalist revival of political orthodoxy” (Vogel, 1969). In other words, political loyalty became the key principal criterion. The key goal of the Maoist attack was the high-status class. In particular, the

intelligentsia and businessmen and their children were considered as having “bad” class backgrounds (Bernstein, 1977). The Cultural Revolution caused a long-term disruption of education in China. Nearly all schools were shut down from 1966 to 1968 and universities remained closed until 1972 (Bernstein, 1977). At the beginning of the Cultural Revolution, teachers and researchers were driven from their positions (People’s Daily, 1966). With the comment of Mao that it was necessary for the young people to be re-educated by their poor countrymen, millions of youth were forced to live and work in rural areas from 1967 to 1978. Davis (1992) and Zhou & Hou (1999) examined how this experience influenced the life course of those children who worked as peasants. They found that all social groups were negatively influenced.

According to the division of the labour theory (Emile Durkheim and Max Weber), change of social structure results in change of social relationship, in turn, the ideology of humans changes. Large-scale social changes influence an individuals' life experience (Elder, 1985, 1995; Hogan, 1981; Moen, 1968; Sorensen et al., 1986). The state shapes the life course of individuals (Mayer & Muller, 1986). The shifting policies in China often dramatically influenced the life course of people (Zhou & Hou, 1999). Thus, I examine the impact of the Cultural Revolution on youth in China during that period. Those people who were influenced by the Cultural Revolution, might have different attitudes toward internal control if they became chairman in a firm. I contribute to past work by studying the correlation between state policies, social changes and the life course of individuals in a socialist setting. The Cultural Revolution is a dummy variable that equals to one if the board chairman was aged 13 to 25 years during the Cultural Revolution, 0 otherwise.

Especially, in order to measure the specific types of control weaknesses, a number of studies developed a series of indicators. In terms of materials, the first classification is based on the severity of control problems including company-level and account-specific weakness (Doyle

et al., 2007a; 2007b; Beneish et al., 2008; Naiker & Sharma, 2009; Kim et al., 2011). In addition, material weaknesses are classified depending on the reasons for weakness: staff, complexity and general (Doyle et al., 2007a). While Hammersley et al. (2008) code control problems from five aspects: severity, effectiveness, auditability, vagueness and discovered by Big Four auditor. Krishnan (2005) considers internal control weaknesses to include reportable conditions and material weaknesses. But Basic Standard (2008) states that the contents of internal control deficiencies are design and operation deficiencies.

I analyse the specific type of internal control reporting weaknesses including three aspects.

The first way is to divide them according to the contents of internal control weaknesses.

According to the China Internal Control Database, there is practice weakness, which includes daily operations in the firm. Book-keeping weaknesses are problems about accounting journals. And fraud issues include accounting fraud and violation actions. The second classification is the extent of internal control deficiencies. They contain control deficiencies, significant deficiencies and material weaknesses.

Ge and McVay (2005) categorize material weaknesses into nine deficiency types: training, account-specific, revenues recognition, period-end reporting and accounting policy, segregation of duties, senior management, account reconciliation, subsidiary-specific and technology issues. They found that account-specific weakness is the most common and it is related to accrual accounts. They also found that accounting policy and period-end reporting, segregation of duties, and account reconciliation relate to material weaknesses. Ashbaugh-Skaife, et al. (2007) examined all three kinds of internal control weaknesses (control deficiencies, significant deficiencies and material weaknesses). Doyle et al. (2007a) and Hermanson & Ye (2009) found that more firms have entity-level problems than account-level weaknesses. Scarborough & Taylor (2007) and Roybark (2008) argue that the failures of accounting rule application, auditor or year-end adjustments, accounting personnel,

accounting documentation, policies and procedures are related to the most common material weaknesses. Badard & Graham (2011) report that the severity of internal control weakness is related to Section 404 process. I study different kinds of weaknesses to see which one is serious. I divide financial weaknesses into three types: financial reporting and policies, accounting and revenue recognition, subsidiary firms. I also classify non-financial weaknesses into six types: information disclosure, corporate governance, internal control, regulations and rules, human resources and training, others (investor relationship, budgeting and social responsibility).

Finally, I use additional measures of board characteristics to run the regression models. I expect the results are still significant.

5.5 Data and Sample

In this research, data comes from multiple sources. The data on internal control was electronically collected from China Internal Control Database²⁹ (<http://www.ic->

²⁹ China Internal Control Database includes data about internal control assessment, internal control auditing, internal control deficiencies and internal control information disclosure index. It consists of six sub-databases: internal control evaluation database, internal control auditing database, internal control evaluation weakness database, internal auditing weakness database, internal control information disclosure database and internal control index database. The data starts from 2007. It covers all listed companies in China. I got the data directly from the database (whether a firm disclosed control weaknesses and type). Deficiencies include design and operation deficiencies, financial reporting weaknesses and non-financial reporting weaknesses, control deficiencies, significant deficiencies and material weaknesses. Compared to other resources, this database is considered to be reliable.

China Internal Control Database is the first and only database about internal control in China. It was developed by China Shenzhen DIB Company and supported by Sun Yat-sen University and the China Ministry of Finance. It provides access to functions of data searching, browsing, analysing and exporting the internal control databases series to all subscribers. The mandatory disclosures of internal control weakness opens the door for empirical research regarding internal control in Chinese firms. By internal control data becoming available to researchers, there has been a growing body of empirical research in internal control studying the Chinese listed firms published in China's leading academic journals. For example, Lin and Rao (2009) and Yang and Hu (2010) both took advantage of the internal control information provided by the internal control database and got significant results. Likewise, Dong and Chen (2011) measured internal control quality by internal control index and restatement.

erm.com/pro2.html). The data on education, experience, certification, integrity, dominant shareholder nature, board meetings and independence is available from China Stock Market Accounting Research (CSMAR) Database (<http://csmar.gtadata.com>). The data on training, internal control team and internal auditors was collected from annual reports by hand. I read through each of the annual reports and searched key words. Reports are available from the websites of the Shenzhen and Shanghai Stock Exchanges and the website of Juchao Information (www.cninfo.com.cn). The other control variables are available from CSMAR Database. If there was some missing data, I manually searched for it from the Sina finance and economy (<http://finance.sina.com.cn/person/>) and company website. If I still could not find relevant information, I used Google and Baidu to search keywords (the name of company and directors). The sources of variables are listed in Table 5.2.

I collected the data of the recent years before and after the implementation of China SOX from 2007 through 2013, which allowed me to consider the impact before and after China SOX came into effect. The first year for which internal control data is available is 2007 because Chinese firms started to disclose internal control information from that year. The most recent year with available data for this research is 2013. My sample period is much longer than other work as I tested seven full years, before and after China SOX. I selected my sample firms from the mainboards of the Shenzhen Stock Exchange and the Shanghai Stock Exchange in China.

The sample selection steps are as follows. First, all firms disclosed at least one internal control weakness from 2007 to 2013 and were identified on the China Internal Control Database. It yielded an initial sample of 2382 observations. Next, similar to other research

In order to make sure that this database is reliable, I also checked internal control self-assessment reports, internal control auditing reports, and the financial reports of some firms and I found that the internal control database is correct, complete and valid.

(Jiang et al., 2009), I excluded the financial and insurance industry³⁰ as well as cross-listed firms³¹ (B shares and H shares) because they are considered to have strong internal control and different regulation systems (Lin & Rao, 2009; LaFond & You, 2010). After deleting 131 financial and cross-listed observations and eliminating 558 firm-years with missing data, there were 1693 observations. This sample consisted of Chinese listed firms that disclosed internal control problems.

With regard to the control sample, I employed a matched-pair design. It is a one-to-one matching approach. Each problem firm and non-problem firm was matched closely according to criteria based on industry, size (Ge & McVay, 2005) and ownership³². For each firm in the problem sample, a choice for the control sample was matched with a firm without problems using three criteria. Firstly, each problem firm was matched with a non-problem firm by industry. Ge & McVay (2005) and Fang et al. (2009) argue that internal control disclosure is different in certain industries. Second, each problem firm was matched with a non-problem firm by size. As mentioned elsewhere in this study, firm size influences internal control weaknesses. Finally, each problem firm was matched with a non-problem firm by ownership. As for Chinese listed firms, ownership has a great impact on internal control. This resulted in a pool of 1693 matching firms.

³⁰ Internal control in the financial and insurance industry is more effective than other any industry due to strict regulations (LaFond & You, 2010; Li, 2007)

³¹ Cross-listed firms face the same reporting environment as their foreign counterparts (Sun et al., 2011) and their internal control is heavily influenced by the enforcement, regulation and litigation environment of that country. The firms listed both domestically and abroad are considered to have better internal control (Accounting Department of the Ministry of Finance, China Securities Regulatory Commission, 2012). Cross-listed firms have a greater incentive to improve internal control.

³² I matched on size, industry and ownership so that I could then test whether differences in person characteristics are associated with differences in internal control.

The final sample for my hypotheses contains 3386 firm-year observations (1693 problem firms and 1693 matching firms). Table 5.1 outlines my sample selection process.

Table 5.3 presents the sample composition. The results are presented by year, by firm, by industry and by categories of disclosures.

Panel A presents the distribution of the numbers of firms that disclosed internal control weaknesses by year. What is observable is that in 2007, 232 Chinese listed firms disclosed internal control problems voluntarily in my sample. This number keeps decreasing each year from 303 to 121 in 2011. The decreasing trend could be because those firms remediated internal control problems, so the weaknesses no longer existed. In particular, in 2011, the numbers of firms that disclosed control problems was only 121. That maybe because, to a certain extent, new internal control regulations were in the air. The firms were not sure about the disclosure requirements in regard to internal control. In 2012, the figure increased sharply to 353. Clearly, the mandatory disclosure requirement of China SOX was effective in the first year of its implementation. However, the number dropped to 210 in 2013. The reason could be that internal control disclosure requirements changed in 2012. The implementation date of mandatory disclosure was postponed again and again.

Panel B of Table 5.3 indicates that among 1693 problem firms, 391 disclosed only one internal control problem. Generally, fewer and fewer companies tended to report more internal control numbers. The number of firms saw a gradual decrease from 489 to only 7. The biggest number of internal control weaknesses was 11 reported by just 20 firms. This result is similar to Li (2014).

Panel C of Table 5.3 shows that in public utilities, comprehensive (mixed) and the real estate industry, internal control numbers are 154, 203 and 140 respectively. In the business industry, the number is only 122. This suggests that internal control quality is best in the commercial

industry compared to other sectors because this industry was subjected to strict regulations (Ge & McVay, 2005). The manufacturing sector reported 1074 internal control weaknesses. According to the internal control index of Xiamen University, the internal control index of this industry is also lower compared to other industries. The reasons for low internal control effectiveness in this industry may be explained by the fact that the largest numbers of firms are in this industry and it is the most important industry in China.

Panel D provides a breakdown of internal control weakness numbers by categories. The China internal control database categorises internal control weaknesses by different types. First, the contents of internal control weaknesses include practice problems, book-keeping weaknesses and fraud weaknesses (fraud risk related and ethics code related issues). The mean value of these are 0.032, 0.065 and 0.005. As can be seen, the standard deviation of practice weakness is 0.231, and the max value is 4. For book-keeping problems, the standard deviation is 0.3159. The standard deviation of fraud problems is 0.1239. The maximum amount of both book-keeping and fraud problems is 4.

Second, in increasing order of severity, internal control levels include control deficiencies, significant deficiencies and material weaknesses. I assign them 1, 2 and 3 separately. The mean value of level of severity is about 1, that is, on average, the individual firms report control deficiencies, the least severe type of internal control deficiency. The standard deviation is 0.328.

Specifically, only 278 firms disclosed internal control weaknesses over financial reporting. In other words, the majority of firms disclosed non-financial reporting weaknesses in China. 205 firms disclosed both financial and non-financial reporting weaknesses. 1415 firms only disclosed internal control weaknesses over non-financial reporting and 73 firms just disclosed financial reporting weaknesses. This indicates that unlike the US, Chinese firms have more

non-financial weaknesses than financial issues. Thus, Chinese requirements about non-financial weaknesses are effective and efficient. However, instead of, the firms may disclose deliberately non-financial reporting weaknesses because compared to internal control weaknesses over financial reporting, non-financial reporting is less important.

I checked the contents of non-financial weaknesses³³ and found some of them to be specific. For example, in 2007, “000006” firms (Shenzhenye) disclosed six non-financial weaknesses:

1) The firm sent ownership reports to controlling shareholders (Shenzhen State-owned Assets Supervision and Administration Commission) before July 2007. In 2007, they sent 21 reports including 12 requests for instruction and 9 reporting issues.

(Information disclosure: inside information)

2) The firm sent monthly financial reports to controlling shareholders (Shenzhen State-owned Assets Supervision and Administration Commission) before July 2007.

(Information disclosure: inside information)

3) The firm reported annual economic indicators such as operating income, operating costs, total profits, net profits, ROE, period expenses and investment amounts at the beginning of 2007.

(Information disclosure: inside information)

4) The authorization was not clear and the decision-making process is inappropriate about the land bidding

³³ These are from internal control reports of Chinese listed firms, actual disclosure. They are actual examples from reports.

(Corporate governance: board committee)

5) Dismissal clause in the situation of anti-takeover, the terms for usage of board funds, the terms for new temporary issue of board meetings do not conform to the requirements of relevant laws and regulations.

(Corporate governance: system)

6) Labour union of Mother Company holds stock nominally of property management firm of Mother Company, Guangxi firm and Huyang firm.

(Corporate governance: ownership)

In 2013, ‘601958’ (Jinmu Stock) disclosed two non-financial weaknesses:

1) The project assessment process was not good. The firm did not assess investment projects and research projects. There was no project process, the effects of important points and post-evaluation report.

(Corporate governance: system)

2) No department is responsible for contact management.

(Corporate governance: system)

In particular, studying different dimensions of financial weaknesses and non-financial weaknesses could bring new insights. I categorise financial weaknesses into three types: financial reporting and policies, accounting and related party transactions, the subsidiary firm. 42 firms disclosed accounting related (accounts receivable, accounts payable, assets, liabilities, expense, tax, investment and inventory accounts) and revenue recognition weaknesses, which is the most common area. This is consistent with the results of Ge & McVay (2005). 35 and 14 firms disclose financial reporting and subsidiary firm weaknesses

separately. I then divided non-financial weaknesses into six types: information disclosure, corporate governance, internal control, regulations and rules, human resources and training, others (investor relationship, budgeting and social responsibility). 702 firms disclosed internal control related problems and 559 firms disclosed weaknesses about rules and regulations. 398 firms and 327 firms disclosed other types of weaknesses and corporate governance problems separately. 268 firms disclosed human resources weaknesses including staff selection, appointment and training.

5.6 Conclusion

In sum, this chapter discusses the research design employed in this study. This research uses regression analysis to investigate the impact of the individual characteristics of board members on the internal control weaknesses of Chinese listed firms. Data was obtained from databases, annual reporting, company websites, and measured by different means. Finally, hypotheses are tested using clearly specified models. Several additional tests are conducted. The results are reported in Chapter 6.

6 Results

6.1 Introduction

This chapter presents the research findings. The findings are presented in three parts covering descriptive statistics, multivariate results and additional tests. More specifically, Section 6.2 discusses the descriptive statistics of each variable and univariate analysis between initial firms and matching samples. The following section reports and discusses the main regression analyses. In the multivariate regression model, internal control weaknesses and their extent, weakness remediation and internal control quality are regressed on board characteristics, chairmen characteristics, top management characteristics and control variables. In Section 6.4, the regression tests are repeated for several sensitivity analyses and robustness. The final section presents a summary of all these results.

6.2 Descriptive statistics

6.2.1 Descriptive statistics for the firms disclosing internal control problems

Table 6.1 and Table 6.2 provide the descriptive statistics and comparison analysis for each variable. I winsorize³⁴ all continuous variables at 1 and 99 percentiles of that variable's distribution.

Table 6.1 reports the descriptive statistics of the firms that disclosed internal control weaknesses from 2007 to 2013. Panel A presents descriptive statistics for the internal control variables. It shows that the log of the mean value of the numbers of internal control problems is 0.86. On average every firm had two internal control weaknesses in recent years. This

³⁴ This practice is a common method of screening data in empirical accounting research. One advantage of winsorizing is that the calculation may be more efficient. Following prior research, I winsorize all continuous variables at 1 and 99 percentiles of that variable's distribution. Winsorizing data means to replace the extreme values of a data set with a certain percentile value from each end, while Trimming involves removing those extreme values. So I did not leave out the extremes. I did a sensitivity test of the data without winsorizing, and the results proved still significant.

suggests that internal control is ineffective to some extent for some firms as they have several problems. The mean of internal control remediation is 0.36, which indicates that only 36% of firms remediated internal control weaknesses in China recently.

Panel B shows descriptive statistics for the individual characteristics of board members. As can be seen, Average Education is 3.15, which indicates that the education level of Chinese chairmen is at the bachelor level. Certification has a mean of only 0.071, indicating that only 7% of board members are CPAs qualified. Similarly, the Experience variable has an average value of 0.093. This means that in each firm, the board members with a background as a financial officer make up about 9% of all directors. The mean lack of integrity is 0.0198, suggesting on average 2% of board members had an individual violation history. Finally, about 9% of firms trained their board members about internal control.

Panel C reports descriptive statistics for the individual characteristics of board chairmen. It can be seen that the average education level of Chinese board chairmen is the bachelor level, as Education has a mean of 3.43. This is higher than the average education level of board members, which is consistent with the results of Lu (2012). Only 1.2 % of chairmen have an accounting certification such as CPA. The mean lack of integrity for chairmen is 0.13. This means that 13% of chairmen have a history of individual violation. Only 8% of chairs accepted internal control training. For the other characteristics of chairmen, the natural logarithm of age is about 4, which means the average age of chairs is 50 years old. Firms with weaknesses have a mean value of 0.97 for chair gender. This means that the majority of chairs in firms with internal control weaknesses are males. These results are similar to those of Srinidhi et al. (2011), which suggests more female board members may lead to better accounting information quality. We can see from Panel C that the average amount of salary

(compensation) is 2949.527 (log value 7.9894). The stock holding has an average value of 36.62020 (log value 3.6006). Nearly 80% of chairmen also work in other firms.

In Panel D, I report descriptive statistics for control variables. For corporate governance, the board met on average 9 times per year (log value 2). The mean value of 0.22 for non-duality indicates that board chairman and general manager are not the same person in 22% of problem firms. This suggests that separation is not common in China although government encourages firms to separate chairman and general manager. There are about 34% independent members on the boards. The China Securities Regulatory Commission (CSRC) in 2003 regulated that the percentage of independent directors should be at least one-third. I find on average, Chinese firms meet the requirements. However, this ratio is still below 30% in some firms. In regard to financial condition, the growth rate of operating revenue has a mean of 55%. 86% of problem firms are financially healthy. Leverage has a mean value of 2.38, meaning that the financial condition of Chinese firms is not strong and they may suffer from financial distress. 70% of problem firms experienced restructuring. In relation to the ownership structure, 60% of such firms are state-owned enterprises. In terms of corporate characteristics, the average Ln (size) of samples firms is 21.6261. The firm age average is 13 as the log value is 2.57. For audit status, the mean value of the log auditing fee is 13.3892. Only 3% of sample firms employed one of the big 4 accounting firms, which means most of the problem firms did not choose big 4 international accounting firms. This could be because the audit fee is high. In China, the Big 4 has a small market share, but its audit fees are higher than other firms and their customers are often big firms. The Big 4 dominates the market in the West, but in China, the concentration of the audit market is low (Lu, 2008). In terms of characteristics, 23% of managers have accounting experience. The mean education level is the bachelor level. About 8% of managers have accounting certification. The percentage of managers who lack integrity is 1%. 8% of managers have internal control training every year.

6.2.2 Comparison between firms with and without internal control problems

Table 6.2 shows the comparisons of means and medians between firms with and without internal control problems. In each panel, I present the mean and median values for both samples. Panel A presents the basic descriptive statistics for the dependent variable.

According to Panel A, the matching sample has higher internal control index (mean value 635.2382, log value/10=0.6454) than the initial samples (mean value 542.9406, log value/10=0.6297), which means the quality of internal control in the firms without internal control weaknesses is better than in their counterparts.

Panel B presents the comparison results of board characteristics. The results show that at least one of the variables for board members with accounting experience is 23% in matching samples, which is significantly higher than in the initial samples (9%). Non-problem firms have 11% board members with accounting certification such as CPA, which is higher than problem firms (7%), although the difference is only at the 5% level. This reflects the situation where the firms which disclosed internal control problems are less likely to have qualified chairmen.

Similar to Krishnan (2005), the matching sample has a larger number of directors with financial expertise. The firms without weaknesses trained 12% of board members, much higher than the firms with control weaknesses (9%) (significant at 1% level). The average education level of boards in matching firms is 3.5, which is much higher than those in initial firms with a value of 3. Similarly, on average, the board members had more disciplinary actions in initial samples than in the matching samples (the mean value 0.0036 and 0.0198 separately). To sum up, the mean value of all five individual characteristics of the board in the matching samples are significantly larger than in the initial samples, which is consistent with my hypotheses. In particular, I make a characteristic index based on the weighting of

individual characteristics, namely experience, certification, training and education. The mean characteristics of problem firms is 0.8870 while the value is 1.1704 in non-control problem firms. This means that board members with better characteristics are less likely to be related to internal control weaknesses.

In regard to chairmen, as can be seen in Panel C, the mean for experience in the matching samples is 2.8% and that for the initial sample is 1.2%. The percentage of board chairmen with professional certification is 0.063 (0.012 for the initial sample) and 14% (8% for initial sample) of chairs have been trained in the non-problem firms. On average, the education level of the matching samples is 3.45, which is higher than initial samples with 3.43. Also, board chairmen lack integrity in only 7% of matching samples compared to 13% in problem firms. Thus, the results of experience, certification, training and integrity of chairs are in line with expectation. This suggests that on average, board chairmen in non-weakness firms have more professional experience, certification, training, education and integrity. Of other characteristics, the average age of the chair in non-problem firms is slightly older than in problem firms (mean value 52 and 50; log value 3.9444 and 3.9036). Similarly, the mean value of chairmen compensation and stock holding in matching samples is 8081.235 and 137.4692 (8.9973 and 4.9234), much larger than that in the initial samples (2949.527 and 36.6206; log value 7.9894 and 3.6006). The results are consistent with Ashbaugh-Skaife et al. (2007) who argue that a large number of stock options may make a CEO not want to disclose internal control weaknesses. The descriptive statistics suggest that the chairmen of non-problem firms are slightly older, have higher compensation and hold more stock. However, the differences in gender and busyness are not significant between the two samples.

Of the control variables, as shown in Panel D, for matching firms, the lack of integrity of top management is only 0.26 % compared to 1%. 15% of managers accepted internal control training for non-problem firms compared to 8.3% for problem firms. On average, managers

went to university, which resembles board members and board chairmen. The ratio of management with accounting certification and experience is 0.0888 and 0.6438 for the matching sample (0.0764 and 0.2339 for the initial sample). As I expected, the results show that the management in matching firms have integrity, more training, higher education, more certification and more experience. In terms of corporate governance, this indicates, on average, the independent board members in the matching samples (mean value is 35%) are significantly more than in the initial samples (34%). This result lends strong support to the findings of Goh (2009) but contrasts with Krishnan (2005), and Zhang et al. (2007) who did not find a significant correlation. It is surprising that problem firms have more separation than the matching samples. In contrast with my anticipations, the matching firms had fewer board meetings, 8 (with the log of 2.1246) than the initial sample 9 (log 2.1552). This could be because the frequency of board meetings does not equal attendance at board meetings. The mean and the median value of non-duality of chairman and general manager in matching samples is 0.15 and 0, which are significantly different from those in the initial samples (0.22 and 0) at the 0.01 level.

For financial condition, the non-problem firms also grew faster (with the value 0.7881) than problem firms (0.5488). 89.5 % of matching firms are in healthy financial condition compared to 85.8% of initial firms. 66% of matching firms and 71% of the initial sample experienced restructuring, lending support to the idea that restructuring disrupts established process, makes accounting estimates difficult and causes personnel turnover. For corporate characteristics, however, the size of non-problem firms is 21.3478, apparently smaller than the size of problem firms (21.6276). This is inconsistent with the results of Kinnery & McDaniel (1989), DeFond & Jiambalvo (1991) and Ge & McVay (2005).

For auditing characteristics, I find that problem firms paid more auditing fee, which is also different from my expectations. In sum, compared to problem firms, matching firms have

more independent directors, a much healthier financial situation, less restructuring, faster growth, fewer audit fees, smaller size and less non-duality. The results indicate that corporate governance and financial condition in non-problem firms are not as bad as that in problem firms. However, there is no distinctive difference between matching and initial samples in the choice of big 4 accounting firms, firm age, leverage, meetings, growth and ownership structure. Taken as a whole, these differences indicate that potential factors identified in this research influence the reporting of existing internal control weaknesses.

Overall, the matched comparison results reveal striking contrasts for problem firms versus matching firms. Matching samples, compared to initial samples, have higher internal control index, and better individual characteristics of board members including more experience, more certification, more training, higher education level and less lack of integrity. The evidence lends credence to the validity of the matching procedure and provides preliminary support for my hypotheses that individual characteristics of board members and board chairmen are related to internal control weaknesses. I will conduct more formal examinations of the hypotheses using multivariate regressions.

6.2.3 Correlation matrix

Table 6.3 lists correlation analysis results between the independent variables employed in my regression analyses. Panel A exhibits correlations among the independent variables employed in board member samples. The Pearson (Spearman) correlation coefficients range from -0.202 (-0.171) (between Experience and Experience-m) to 0.734 (0.683) (between Integrity-m and Integrity). The high coefficients between violation history of board and management may be because they work together as a team in a company. Since they need to collude with each other if they elect to do bad things in the firm, it is not surprising that their integrity behaviours are related. The table shows that all other intercorrelation coefficients are below

0.7, suggesting that multicollinearity is not a concern (Tabachnick & Fidell, 2001). I also checked the variance inflation factors (VIF) of the independent variables, which are under 2, indicating that multicollinearity is not a severe issue.

Panel B indicates the correlation coefficients for the individual characteristics of board chairmen. In Panel B, the correlation relationship between characteristics of board chairmen range from -0.208 (-0.178) (between busyness and compensation) and 0.320 (0.349) (between stock holding and compensation). The chairmen with a higher salary often have a larger portion of stock. For that reason, it is not unexpected that stock holding is related to the amount of salary. Because the correlation coefficients between the other variables are all below 0.4, multicollinearity might not be a serious problem. I further investigate the VIF of the independent variables, and the values are under 2, suggesting right-hand variables are not collinear.

6.3 Main multivariate regression analysis

In this section, I show the regression results and also present a discussion of each finding for all my hypotheses. My first six hypotheses examine whether the individual characteristics of board members and board chairmen are related to internal control. The last two hypotheses predict the influence of board behaviour and ownership on the relationship between internal control and board members. All independent variables are defined in Table 5.2.

6.3.1 Regression analyses for full samples

Table 6.4 presents the results of main empirical analyses using full samples including the firms with internal control weaknesses and matched firms in Model 1. Model 1 contains all test variables. The dependent variables include whether this firm disclosed internal control

weaknesses (ICW) and an internal control index (ICI). Two models are presented including both logistic regression model in Column 1 and OLS regression model in Column 2.

6.3.1.1 Board members

Panel A evaluates hypothesis 1 to hypothesis 5, the impact of individual characteristics of board members on internal control weakness disclosure and internal control quality. The five individual characteristics measure the education, experience, certification, training and integrity of board members. The model is significant, as indicated by Log likelihood and F values (-1592.2134 ($p < 0.001$) and 7.8). The Pseudo R^2 and Adjust R^2 are 0.3216 and 0.0587, suggesting high goodness of fit.

Hypothesis 1 expects that the accounting experience of board members is related to internal control weaknesses. Consistent with this, the results in Column 1 show that the internal control weakness numbers are significantly negatively related to the experience data of board members (p -value < 0.01). This finding is consistent with Krishnan (2005), Naiker & Sharma (2009), Hoitash et al. (2009), and Johnstone et al. (2011).

Hypothesis 2 anticipates that the accounting certification of board members is related to internal control weaknesses. I find that the coefficient of certification is negative and significant, indicating that board members with more accounting certification such as CA and CIA are closely related to the incidence of internal control problems. This result is consistent with my hypothesis and the prior literature (Zhang et al., 2007; Hoitash et al., 2009; Naiker & Sharma, 2009), indicating that expertise on boards can detect material weaknesses.

The third hypothesis is that the education level of board members influences control weaknesses. The result shows that education is significantly negatively related to internal control weakness disclosure. Mirroring Cooper & Slagmulder (2004) and Hartmann (2008),

this evidence indicates that fewer educated board members lead to more internal control problems, which is consistent with my hypothesis. This provides evidence to support the theory that formal education contributes to thoughtful decisions and creative solutions in regard to the organization (Gradstein & Justman, 2000; Soutaris, 2002).

My fourth hypothesis is about the impact of integrity on internal control. I find that, as expected, the percentage of lack of integrity is significantly positively related to ICW. This means that the firms that disclosed internal control deficiencies are more likely to have more board members who have had disciplinary actions taken against them. The result is consistent with Skaife et al. (2012), who point out the lack of integrity of top managers in firms with material weaknesses. This finding provides support for the requirements raised by SOX 404 requiring auditors to issue an adverse internal control report about an unethical work environment.

The fifth expectation is that internal control training of board members is related to internal control problems. The result shows that the coefficient of training is not significant, which is not consistent with the prior research findings of Krishnan (2005), Ge & McVay (2005). This can be interpreted as meaning that fewer firms trained their board members (Yang, 2004). Apart from the lack of data, training in Chinese firms maybe not useful and not practical due to high costs and wrong attitudes (Huang, 2012). Most firms do not want to train their board because they face financial problems, and most board members are too busy to attend training courses (Yang, 2004). Even if board members are forced to attend training organized by firms or by government, they learn almost nothing because they either do not pay attention, or they just take advantage of the opportunity for other purposes such as to know more powerful people or to just relax (travelling).

For corporate governance variables, independence is significantly negatively related to ICW, indicating that boards with higher percentages of independent members are more effective in internal control monitoring. This finding is consistent with Goh (2009), who points out that companies with a large percentage of independent directors have internal control weakness remediation.

The coefficient on non-duality is positive and significant, suggesting that separation of board chairman and general manager is related to the possibility of internal control problems. This finding is contrary to the theory that duality can effectively overcome the agency problem (Fama & Jensen, 1983; Jensen, 1993). The explanation may be that duality enables chairmen to exercise more control over the firms (Hu & Kumar, 2004) and strong leadership can effectively enable the implementation of strategies and decisions. Another reason could be that the association between duality and internal control might be influenced by firm environment (Boyd, 1995), internal conditions (Kang & Zardkoohi, 2005), CEO characteristics (Faleye, 2007) and ownership (Braun & Sharma, 2007).

The coefficient on meeting is not significant, suggesting board meeting frequency has no relationship with the likelihood of control problems. Contradicting Vafeas (1999) and Brick & Chidambaran (2007) who think more meetings may suggest the boards are busy in playing a controlling role, and the company is suffering from serious problems that need to be solved. It is also contrasts to Zhang et al. (2007) and Hoitash et al. (2009), who believe meeting frequency means a diligent board.

For ownership attributes, I anticipate that less control by the government results in more internal control weaknesses. However, the result shows that the association is not strong, indicating ownership does not influence whether the firm discloses internal control weaknesses. It suggests that no difference exists in state-owned companies and non-state

owned companies about internal control disclosure behaviour. The insignificant result may be because I did one-to-one matching by ownership. This result is consistent with Liu et al. (2012). They argue that non-state owned firms get profit by non-market means so they ignore operational risk. However, this influence is weak. In China, non-state owned firms are responsible for operational risk by themselves and the government does not help them, but the government takes responsibility for the failure of state-owned firms. Compared to state-owned companies, non-state owned companies have more need to control risk. In order to reduce risk, non-government controlled firms attempt to improve internal control quality. This could reduce difference in regard to internal control between state-owned and non-state-owned firms (Liu et al., 2012).

In regard to financial condition, financial health has a negative and strong relationship with ICW. This indicates that problem firms tend to be financially weaker. The growth variable is not related to weakness disclosure. This result is not consistent with Bronson et al. (2006) that rapidly growing firms might strain internal control and are more likely to report internal control problems under Section 404 (Ashbaough-Skife et al., 2006). The coefficient on restructuring is strongly significant and positive, indicating that the firms with weaknesses are more likely to be undergoing organizational changes. However, leverage has a strong negative correlation with disclosure of ICW. This is contrary to the findings of Naiker & Sharma (2009) who argue that problem firms are highly levered. The possible explanation could be that it is difficult for Chinese firms to finance from banks and other resources (Li, 2001).

For corporate characteristics, the coefficient on firm size is strong and positive. This result indicates that large firms appear to have internal control problems. This is consistent with Krishnan (2005) who points out that firm size is positively associated with internal control weaknesses. But it runs counter to general expressed views such as those of DeFond &

Jiambalvo (1991) and Ge & McVay (2005) who think they have a negative relationship. It is possible that this correlation does not hold for small and medium sized firms. Another explanation could be that neither of those papers distinguished between the existence and disclosure of internal control problems. They considered size as internal control investment while my results show that control risk increases with firm size. For instance, big firms might be forced into restatements due to heightened government scrutiny (Rice & Weber, 2012).

Contrary to my expectation, the coefficient on firm age is not significant, suggesting that firm age has no relationship with internal control deficiencies. This finding contrasts with the negative relationship of Doyle et al. (2007a) and Ge & McVay (2005) who argue that older firm age means more experience of internal control. In regard to auditing status, contrary to my anticipation, the coefficient estimates are not strong for both auditing fee and Big 4. It means that the companies audited by one of the Big 4 accounting firms cannot guarantee effective internal control. In other words, no significant differences exist between problem firms and non-problem firms in the choice of international auditors in China. This is contrary to the argument that the Big 4 can impose strong internal control standards on their clients and monitor the implementation of internal control on behalf of shareholders. Also, high audit fees do not effectively reduce the disclosure of internal control problems. The sign is in the opposite direction as that reported by Ge & McVay (2005), this is perhaps attributable to the smaller firm size and the younger age of Chinese companies.

Finally, for characteristics of top management, the results indicate that firms with control problems are more likely to have management who are experienced and trained. However, the coefficient on education is positive, suggesting higher education level leads to more internal control weaknesses. This finding is contrary to my expectation and it could be because education has become more widely available in China. This means that it is not difficult for top management in China to go to university but a higher education degree does

not mean they know more about internal control. However, there are no strong results about the certification and integrity of managers. In summary, managers play a key role in internal control for Chinese problem firms.

Instead of using a binary variable, I code internal control quality as a continuous variable, internal control index. The results indicate that the coefficient on experience is positive and significant, which is consistent with my hypothesis. It suggests that the board with more qualified members can enhance the effectiveness of internal control. However, I fail to find any significant relationship between education, certification, integrity, training and internal control index.

In regard to control variables, non-duality has a negative relationship with the internal control index, suggesting that the duality of roles of chair and general manager is a good thing to high-quality internal control in China. Financial health is significantly positively associated with the internal control index, indicating that firms with healthy finance tend to have good internal control. Firm age is related to internal control index, which means that younger firms are less likely to have poor internal control. This finding is similar to Doyle et al. (2007a) who find a negative association between firm age and internal control. Firm size is positively related to ICW, indicating that larger firms have more effective internal control. This is consistent with the findings of Kinney & McDaniel (1989) and DeFond & Jiambalvo (1991) that greater resources and more employees might be helpful to strong internal control. The coefficient on audit fee also becomes significant, suggesting that higher auditing fees may relate to lower internal control quality. This is consistent with Lawrence et al. (2011) who use audit fee as a proxy of audit risk and find that audit fees increase in financial reporting control risk (SOX Section 404). Operational control risk is one part of internal control, thus, with the increase of internal control problems, more audit fees are needed. Finally, managers'

characteristics are statistically indistinguishable, the only exception being integrity, indicating that managers lacking integrity might lower the quality of internal control.

Combined, Table 6.4 Panel A suggests that individual characteristics namely, the experience, certification, education and integrity of board members are significantly related to the likelihood of internal control problems. The results support my Hypothesis 1 to Hypothesis 4. However, I find no correlation between internal control and training, which leads to the rejection of Hypothesis 5. The experience of board members also relates to internal control quality.

6.3.1.2 Board chairmen

Table 6.4 Panel B presents regression estimates for board chairmen on all explanatory variables. For board chairmen, I control remaining characteristics including age, gender, compensation, stockholdings and busyness. In order to examine the individual impact of board chairman, I also control characteristics of board members.

Other control variables are the same as Panel A. Overall, Panel B demonstrates that the explanatory power of the model is good (R^2 of 32.25 % and 6% respectively). R^2 for Column 1 is higher than that for Column 2, suggesting that the model explains internal control weaknesses better than internal control quality. As can be seen in Panel B, the coefficient on certification is negative and statistically significant. It provides significant evidence that chairs with more accounting certification are related to less chance that the firms have internal control weaknesses. This is consistent with Zhang et al. (2007) and Naiker & Sharma (2009) that accounting expertise can help chairmen to detect more internal control problems. Experience has a negative and significant relationship with internal control problems. It suggests that board chairs with accounting experience are good for internal control. However, I am unable to find a strong relationship between ICW and integrity, education and training.

For other characteristics, the coefficients on age, gender, compensation, stockholdings and busyness are not significant.

For corporate governance characteristics, the coefficients on non-duality are positive and significant, which is consistent with Lin et al. (2014) who report a negative relationship between weakness disclosure and CEO duality. This result is similar to Panel A, which indicates that duality has a negative relationship with internal control weaknesses. This offers new evidence to the debate on chairman duality since current research has mixed results. Similarly, independence has a negative and significant relationship to ICW, suggesting that with more independent directors, the less it is likely that firms would disclose internal control problems. However, the coefficient on meeting is not significant.

In terms of financial situation, the coefficients on financial health, leverage and restructuring change are significant, suggesting that firms with more healthy finances, a higher financial ratio, and fewer organizational changes are less likely to have more internal control weaknesses. However, growth rate has no strong relationship with ICW. Regarding size, the significant coefficient shows that larger firms often have more internal control weaknesses. However, I find no relationship between ICW and firm age and audit status.

Finally, when it comes to the characteristics of top management, the results are significant, as predicted, with three individual characteristics significant beyond the 0.01 level. These results suggest that managers with lower education levels, accounting experience and more internal control training are more effective in monitoring internal control.

Column 2 presents the regression of internal control index and board chairmen. The coefficient on education is negative and significant, suggesting higher education level is related to worse internal control quality. It is interesting that education has a negative effect here. Contrary to the results of Lin et al. (2011), the education level of board chairs in

Chinese problem firms has a negative influence on internal control effectiveness. This may also explain why those firms have control problems. This result is justified by the finding that “too much education is a bad thing” (Williams, 2011). The problem of higher education is that students are overqualified for particular jobs. There are too many students so the universities lower their requirements (Murray, 2008). In China, most chairmen can easily get a degree such as an MBA or EMBA, even an honorary doctorate if they are rich or famous. MBA education developed quickly in China, but qualified teachers and appropriate materials are lacking (Zhao, 2002). The purpose of those board chairmen attending MBA education in China could be to know more useful people such as businessman or political officers rather than education and knowledge. So even though the board chairman gets the high degree, they may still know little about internal control. The certification of board chairmen is positively related to internal control weaknesses, which is consistent with my expectation.

There are no strong coefficients on characteristics of experience, training and integrity. Among other characteristics, only stock holding has a significant coefficient (p-value <0.5), suggesting that the stock holdings of chairmen exercise a good influence on internal control quality. For corporate governance, similar to Column 1, duality is good for the improvement of the level of internal control. Consistent with my expectation, frequent board meetings contributes to better internal control. This suggests that boards which meet more frequently are more effective in monitoring internal control. As pointed out by Hoitash et al., (2009), Goh (2009) and Zhang et al., (2007), more meetings suggest more diligent board members. Again, ownership has no strong result, suggesting different ownership does not influence internal control weakness disclosure and internal control quality. The results of firm characteristics are very strong. The findings show that younger and larger firms tend to have higher internal control quality. Leverage has a positive coefficient. More audit fees are

related to lower internal control index. However, only the coefficient on integrity among five individual characteristics is significant and negative.

Overall, the accounting experience and certification of chairmen are moderately significantly negatively related to internal control weaknesses and the coefficients of education level and accounting certification of chairs are also striking when the dependent variable is the internal control index. The results in Panel B suggest that individual characteristics of board chairmen are related to internal control weaknesses. Thus, my sixth hypothesis is supported suggesting that Chinese chairmen play a vital role in internal control. At the same time, board members need to cooperate with top management to work on internal control as a team as the roles of managers are also important.

In summary, the results in Table 6.4 support my first four hypotheses and Hypothesis 6. The results confirm that individual characteristics including the education, experience and certification and integrity of board members have a strong relationship with whether the firm discloses internal control weaknesses. The characteristics of chairmen are also significantly associated with internal control. As mentioned in the Background Chapter, China SOX requires boards of directors to take the full responsibility and managers to take charge of internal control. The results of full samples demonstrate that Chinese internal control regulations are appropriate because both board members and top management have a great influence on internal control. It is necessary for Chinese firms to raise the quality of board members and top management in order to have a high-quality internal control system.

6.3.2 Regression analysis for firms disclosing weaknesses

Apart from full samples, I also employ problem firms to test my Hypothesis 1-6. Table 6.5 shows the results of regression analysis for firms which disclosed internal control problems. Unlike Table 6.4, the dependent variables here are the severity of internal control weaknesses

(the numbers of internal control weaknesses (ICN)) and internal control weakness remediation (ICR).

6.3.2.1 Board members

Table 6.5 Panel A reports the regression results of chairmen in the firms which disclosed internal control problems from 2007 to 2013. I only find a significant and negative coefficient on certification of board members in Column 1. This means there is a relationship between internal control numbers and the individual characteristics of board members. In Column 2, experience and certification have a significantly positive relationship with internal control remediation despite being weak at the significance of 0.1. These results are consistent with Johnstone et al. (2011) who argue that work experience and accounting expertise of CFO benefit weakness remediation.

For controls, only ownership is significantly related to the numbers of internal control weaknesses. Consistent with my expectation, a significant, positive relationship between ownership and internal control indicates that there are more internal control weaknesses in state owned firms than non-state owned firms. This finding is different from Jiang et al. (2010).

Consistent with Johnstone et al. (2011), I also find a strong relationship between internal control remediation and restructurings. I find significant results for managers' characteristics. The coefficients on experience, certification and integrity are strong. But it is strange that certification has a negative relationship with internal control weakness remediation. The reason could be that experts often believe in their judgments and deny changing their conclusions. Another reason could be management with certification helps the firm to tell lies.

I also find that the firms that use Big 4 audit firms more frequently are more likely to remediate their internal control weaknesses. This is consistent with the research of Rice & Weber (2012). Further investigation into this specific aspect is warranted in future studies. Consistent with Goh (2009), I find that board chairmen who also hold the general manager position do positively influence whether their firm remediates internal control weaknesses. It suggests that duality is good for weakness remediation. This is contrary to the findings of Goh (2009). In conclusion, the results (Panel A) provide support that the individual characteristics including experience and certification of board members are significantly related to material weakness remediation.

6.3.2.2 Board chairmen

I next examine the individual characteristics of board chairmen in Panel B. I also control the characteristics of board members. As can be seen in Column 1, I find the certification of board chairmen is negatively significantly related to internal control weakness numbers. It indicates that qualified chairmen can reduce the numbers of internal control problems. Also, the lack of integrity of board chairmen is significantly related to internal control problem numbers.

In relation to controls, gender has no relation to internal control weakness numbers. It indicates that female board cannot effectively reduce the probability of internal control problems. This result is different from Campbell & Vera (2010) and Srinidhi et al. (2011). The numbers of internal control weaknesses are negatively marginally strongly correlated to the certification of Chinese managers ($p < 0.5$). It is expected that accounting certification is related to more severe control problems. However, none of the coefficients on five characteristics is significant in Column 2. This demonstrates that the characteristics of board chairmen are not related to weakness remediation.

For other variables, only independence and leverage are significantly negatively related to ICN, indicating that the firm with an independent board and high leverage ratio tend to have fewer internal control problems. The coefficient of age, gender, restructuring, firm age and management characteristics are significant in Column 2, suggesting that the firms with aged and male chairmen, short history, fewer organizational changes and qualified management are more likely to be related to internal control remediation.

Together, Table 6.5 shows that the individual characteristics of board directors and board chairmen correlate significantly with the numbers of internal control weaknesses in Chinese listed firms across the models. Moreover, I find that board members' characteristics are closely related to internal control weakness remediation.

6.3.3 Board behaviour (H7)

For the tests of my Hypothesis 7, I re-estimate Model 2-1-2, Model 2-2-2 and compare them to Model 2-1-1, Model 2-2-1. I have board behaviour in Model 2-1-1, Model 2-2-1 and remove them from Model 2-1-2, Model 2-2-2. I expect the coefficients on characteristics to become insignificant as Hypothesis 7 predicts that board behaviour influences the relationship between internal control and board characteristics. Board behaviour is calculated by independence (the percentage of independent board directors) and diligence (the frequency of board meetings). Table 6.6 presents the results of how board behaviour affects the relationship between internal control and board characteristics.

Panel A reports the results of the mediating effect of board diligence measured by the number of board meetings. The results show that in both Model 2-1-2 and 2-1-1, the coefficients on board members' characteristics are significant. A relationship between board characteristics and control problems is expected to be insignificant when I put meeting in the model. I anticipate that the characteristics affect board diligence, then the diligence influences control

weaknesses. But the significance of board characteristics remains and my Hypothesis 7 is not upheld in this model. The results imply that board diligence does not influence the relationship between the board and internal control. As is shown in Table 6.6, the frequency of board meeting does not even affect internal control weaknesses.

Panel B reports the results of the influence of independence on the relationship between internal control weaknesses and board characteristics. The results show that the coefficients on the characteristics of board members remain significant after I add independence to the model. Experience, certification and education are negatively related to internal control weaknesses ($p\text{-value} < 0.01$). Lack of integrity is also positively related to ICW in both columns. This implies that independence does not influence the relationship between internal control weakness and the characteristics of board members, which leads me to reject Hypothesis 7. However, the coefficient on independence is negatively and significantly related to internal control problems (coefficient = -3.572, $p\text{-value} < 0.01$), implying that a board composed of more independent directors is more effective in reducing internal control weaknesses. It suggests that independent directors are effective in China. This result is different from the idea that although independent directors' modified opinions are informative in predicting firms' financial and legal risks, independent directors are more likely to resign rather than to say 'no' when they have private information about adverse corporate events in an emerging economy like China (Tang et al., 2013). However, the results in Column 2 show that independence does not influence the relationship between board characteristics and internal control, although an independent board is significantly related to the propensity to internal control weaknesses.

In sum, the results in Table 6.6 show that the behaviours of board members including board diligence (frequency of board meetings) and independence have no mediating effect on the relationship between board characteristics and internal control. Hence, I can conclude that

Hypothesis 7 is rejected. This could be because board characteristics have more direct influence on internal control and also the impact of independence on control weaknesses is direct. Internal control is not related to board meetings.

6.3.4 Dominant shareholder nature (H8)

In H8, I expect dominant shareholder nature has a moderating effect on the relationship between internal control weaknesses and board member characteristics. The results of my study into the impact of ownership are presented under Model 3 in Table 6.7. Table 6.7 uses a composite measure of characteristics, instead of using each measure. The last test involves interaction variables. The individual characteristics were interacted with ownership. Model 3 investigates the mitigating effect by adding an interaction Characteristics*Owner. I expect the coefficient on the interaction variable β_3 is significant.

We can see in Table 6.7 that the coefficient on characteristics is significant and negative, implying that the individual characteristics of board members are strongly related to internal control weakness disclosure. However, contrary to my hypothesis, the coefficient on the testing variable characteristics*owner is not significant. This means dominant shareholder nature does not have any moderating effect on the relationship between internal control and board characteristics. The ownership itself also has no strong relationship to the disclosure behaviour of internal control in Chinese firms. This result suggests no differences exist between state owned firms and non-state owned firms on whether they disclosed internal control weaknesses and on the relationship between board characteristics and internal control. This result is opposite to that of Li (2007), Yu (2009) and Jiang et al. (2010), who argue that in China, non-state owned firms are not well-governed firms compared to state-owned firms. My results imply that ownership has no relationship to internal control. But this could be

because I match the same numbers of samples according to the same ownership. I will further examine the impact of ownership on internal control weaknesses in additional texts.

In terms of control variables, I find that the firms with higher quality of corporate governance (more duality, fewer board meetings, more independent directors), stronger financial condition (healthy, less changes, higher financial ratio), smaller size and qualified managers (more experience, education, integrity and certification) are less likely to be related to internal control weaknesses.

In sum, the results in Table 6.7 suggest that dominant shareholder nature does not moderate the correlation between internal control weaknesses and board members' characteristics.

Thus, my last hypothesis is not confirmed. Regardless of whether it is a state owned or non-state owned firm, there is no difference in regard to internal control weaknesses. The insignificant results in Table 6.6 & 6.7 can be interpreted as meaning that board characteristics have a direct relationship with internal control weaknesses.

6.3.5 Conclusion

This section displays all main regression results in my research. Three models including the logistic regression model and an ordinary least square model are employed to test all my hypotheses. I use both full samples including the sub-group of firms which disclosed internal control weaknesses and the firms without internal control problems to run my models. Taken together, the overall results provide strong support for H1, H2, H3, H4 and H6. What we learn from our research findings is that board characteristics are related to internal control.

For the first five hypotheses, I predict that the individual characteristics of board members including experience, certification, education, training and integrity are significantly related to internal control weaknesses. My results show that the experience, certification, education

and integrity of board members are related to the disclosure of internal control problems. The directions are consistent with my expectation. However, Table 6.4 provides no support for the significant relationship between internal control weaknesses and internal control training. As a result, Hypothesis 1- 4 are supported but Hypothesis 5 is rejected. The results confirm that the presence of a board with better education, accounting experience, professional certification and integrity is useful in reducing internal control weaknesses in Chinese firms. It suggests that it is beneficial for Chinese firms to employ a high-quality board and to try to carry out measures to improve the quality of their board of directors by providing more professional aids as board's characteristics do affect the disclosure of internal control weaknesses in China.

In terms of the sixth hypothesis, specifically, I examine the characteristics of board chairmen. The results show that the certification of board chairmen is found to be significantly negatively related to an increased number of internal control weaknesses. It indicates that at least on the level of certification, the characteristics of board chairmen are correlated with internal control problems. The sixth hypothesis is confirmed. The results indicate that as the key person in the firm, Chinese chairmen do play a vital role in internal control. But it is not enough to rely on only the chair. He or she should align other board members and management to work together as a group in order to improve internal control quality and reduce material weaknesses. Hypothesis 6 is supported.

With regard to the last hypotheses, Hypotheses 7 & 8 examine how board members influence internal control. There is no suggestion that the relationship between board members and internal control weaknesses have been affected by either board behaviours (independence and diligence) or ownership. Thus, the results of logistic regression are against the last two hypotheses. This suggests that board members affect internal control by individual

characteristics, which is a direct relationship. This result adds to the literature pertaining to the influence of the board members on internal control.

6.4 Additional analyses

In this sector, I do a series of additional tests to check the robustness of my main results. First, I examine the relationship in each year, industry, ownership, Stock Exchanges, locations and size. Second, endogeneity and the fixed effects at the firm-level are tested. Next, I check the impact of the internal control team. Fifth, the effects of the changes in China SOX Act are tested. Sixth, I compare the differences in non-financial and financial weaknesses. Seventh, I investigate whether the expertise of the audit committee and internal auditors influences internal control and its association with board characteristics. Next, I study the influence of the Cultural Revolution. Ninth, I analyse specific internal control reporting weaknesses. Finally, I run the regression using alternative measures.

6.4.1 Regression analysis by year, industry, ownership, exchanges, locations and size

First of all, the regression is run separately for each year and each of the five industries, two ownership and the Shanghai and Shenzhen Stock Exchanges, eastern, western and central locations, and large size and small and medium sized firms respectively. Table 6.8 provides a breakdown of the different types of tests.

6.4.1.1 Regression analysis by year

The first analysis is extended by conducting regression tests for each year (Table 6.8 Panel A). The result provides an indication of whether the relationship between internal control and board characteristics differs in each year. Panel A shows that in 2007, the experience, education and training of board members are significantly associated with internal control weaknesses. This suggests that a board with more accounting experience, internal control

training and higher level of education is related to internal control problems. For controls, the results show that firms with a duality of chairman and general manager, that are state-owned, and have healthy finances, fewer organizational changes, and experienced, educated and certified managers are related to fewer internal control weaknesses.

In 2008, four characteristics of the board (experience, certification, education and integrity) have a close relationship with internal control. For controls, when non-duality exists, when independent boards are fewer, when firms have a longer history, when leverage is lower, when finance is unhealthy, when the managers are of lower quality, internal control problems will be greater.

In 2009 and 2012, experience, certification and education are negatively significantly related to internal control problems. For control variables, independent board members, the manager with education, certification and experience can help to reduce the possibility of internal control weakness disclosure. In 2009, the coefficients on restructuring and the training of managers are significant. In 2012, the firms that are not controlled by government, that have fewer independent board members, are of larger size, have lower audit fees, are audited by the non-Big 4, and where the managers lack integrity, tend to have more weaknesses of internal control.

In 2010, the education, certification, experience and training of board members are positively related to internal control weaknesses. For controls, good corporate governance (independent board, board meetings, non-duality), good financial condition (rapid revenue growth), qualified top management (accounting certification and experience, professional training) are found to be related to a low possibility of internal control weakness disclosure.

In 2011, lack of integrity, certification and education have strong coefficients. This suggests that board members with accounting certification and education and integrity are related to

internal control weaknesses. For controls, I find significant relationships between internal control weaknesses and corporate governance (independence), financial situation (growth), audit status (big 4) and managers' characteristics (training, education, and certification).

In 2013, two characteristics including the experience and education of board members are significant. In 2013, independent directors, younger firms, lower auditing fees, larger size, healthy finance, and a top management with high education and training show a strong association with less internal control weaknesses.

In general, the results in Table 6.8 Panel A suggest that the individual characteristics of board members are consistently related to internal control weaknesses in each column. This means the results in each year are analogous.

6.4.1.2 Regression analysis by industry

The regression results by industry are shown in Panel B. Industries are classified according to the CSRC Guideline on Industry Classification of Listed Companies. There are five industries: public utilities, real estate, comprehensive, manufacture and business industries. Generally, the results are similar across the five different industries.

For public utilities and the comprehensive industries, Columns 1 & 3 show that, the experience, education and training of board members are significantly negatively related to internal control weaknesses. In addition, the coefficient on certification is significant for the comprehensive industry. For controls in Column 1, independence, non-duality, financial health, leverage, audit fee, experience, and the education and training of managers are related to internal control problems. For the comprehensive industry, as a mixed industry, the factors involving internal control weaknesses include fewer independent directors, shorter history of

setting up, lower financial leverage, unhealthy finance, lower audit fees, larger firms, and the education, certification and accounting experience of top management.

The results in the real estate and business industry are similar. As can be seen in Column 2 & 5, the coefficients on experience and education are significant and negative. The coefficient on certification is significant for the real estate industry. For controls, corporate governance (independence) and managers' characteristics (experience and education), as predicted, relate to internal control weaknesses. China's real estate industry is a new industry and has high risk. Its businesses are complex, and management is difficult. The findings are consistent with the characteristics of the property industry pointed out by Deloitte (2013, Page 68):

- 1) The corporate governance structure is not complete in China's real estate industry
- 2) There is no good internal control culture
- 3) Internal monitoring mechanism does not work
- 4) Poor implementation and disorganized management
- 5) No detailed requirements

In the business industry, the regulation and system of corporate governance are much stricter than in other sectors although financial and insurance firms are deleted from my samples. For controls, independence, non-duality, size, leverage, lack of integrity and the education level of top management have a close relationship with internal control weakness disclosure.

Consistent with statistics in the preceding section, the numbers of internal control weaknesses are largest in the manufacturing industry. In this industry, as expected, the experience, certification, education and integrity of board members are significantly related to control weaknesses. The manufacturing industry is the biggest industry in China and has the largest

number of firms. Thus, it is not surprising that the relationship between internal control and board characteristics is most significant in the manufacturing industry. According to the internal control index (2006-2012) of Xiamen University, the internal control index of this industry is also lower when compared to other industries. For control variables, the coefficients on independence, leverage, growth, financial health, restructuring, size, and training, experience, education and certification of managers are significant.

6.4.1.3 Regression analysis by ownership

In order to control for the influence of ownership, I also run the regression model by ownership. Chinese state-owned firms have privileged access to private information. They pay more attention to profitability (Chen et al., 2012) and do not face a demand for voluntary disclosures (Xiao et al., 2004). Many state-owned firms exist in China, and some of them are extremely large (Chen & Schippe, 2008). State-owned enterprises play an important role in China's national capital today (Tang et al., 1999). Many dominant investors link closely to government. Private companies have no connection to the government. The government appoints directors and top management and affects decision making of state owned firms. This may influence the enforcement of relevant regulations and lead to weak governance and internal control. The quality of information disclosure may also be influenced (Firth et al., 2007). In order to examine the influence of the nature of ownership, I divide full samples into two parts: state-owned and non-state owned firms.

According to the results in Panel C, the coefficients on experience, certification, education and lack of integrity of board members are significantly related to internal control problems in both state-owned and non-state-owned firms. The results are similar for different ownership. By contrast with earlier work, I do not find any difference on internal control weaknesses no matter what the kind of ownership is. This study provides evidence that

ownership does not influence the disclosure behaviour of internal control weaknesses in Chinese listed firms. There appears to be no influence stemming from ownership. The Chinese government has adopted a laissez-faire strategy for small state-owned firms (O'Connor et al., 2004). Like state-owned firms, non-state-controlled firms are also becoming clearly important in the Chinese economy. The characteristics of the board in both state owned firms and non-state owned firms influence internal control quality. Therefore, the findings are consistent for firms in different types, suggesting my results are moderate.

In terms of control variables, the results in both state and non-state owned firms are mostly consistent. Internal control problems are reduced in firms with an independent board, duality of chairman and general manager, smaller size, healthy financial condition and high quality of management.

6.4.1.4 Regression analysis by stock exchanges

There are two stock exchanges in mainland China, the Shenzhen Stock Exchange and the Shanghai Stock Exchange. They have different regulations and rules. In order to examine the differences between the two stock exchanges, I partition the samples into two sub-samples.

The findings in Panel D show a significant influence of the characteristics of board members on internal control weaknesses in Column 1. The results show that, for the firms listed on the Shenzhen Exchange, all of the five characteristics education, certification, experience, training and integrity of board members have a strong correlation with internal control weaknesses. For control variables, the results indicate that there will be more internal control problems if the firms have independent directors, more board meetings, non-duality roles, are much older, are of larger size, have more change, are in an unhealthy condition, have higher audit fees, non-Big 4 and have managers without integrity and education.

For the Shanghai Stock Exchange subset, the results are slightly different from the findings for the Shenzhen Stock Exchange. The coefficients on experience, certification and education are significant. For controls, corporate governance, financial condition, firm characteristics and management characteristics have a significant relationship with internal control weaknesses. Thus, it is shown that in the Shanghai Stock Exchange, the listed firms with qualified board members are also related to fewer internal control problems.

In sum, Panel D shows that the results are both significant in different stock exchanges, but the relationships between internal control and board characteristics are relatively more significant for the firms listed on the Shenzhen Stock Exchange compared to the Shanghai Stock Exchange. This is largely consistent with the research of Lin & Rao (2009) who found that firms on the Shanghai Stock Exchange are more likely to disclose internal control evaluation reports voluntarily. It suggests that the Shanghai and Shenzhen Stock Exchanges have some differences in regard to monitoring firms, and that the Shanghai Stock Exchange has more rigid regulations. For example, in 2007, the Shanghai Stock Exchange encouraged listed firms to disclose internal control information, while one year later, the Shenzhen Stock Exchange started to encourage their listed firms to disclose information about internal control voluntarily.

The firms listed on the Shenzhen and Shanghai Stock Exchanges are considered to have different characteristics. There are more state owned firms, new firms, main body, big firms, and manufacturing firms on the Shanghai Stock Exchange. For the firms listed on the Shenzhen Stock Exchange, there are more small firms, IT firms, and private firms (Chi & Zhu, 2009). The quality of firms listed on the Shanghai Stock Exchange is better than those listed on the Shenzhen Stock Exchange, so the differences between the initial sample and matching sample are not significant in regard to the Shanghai Stock Exchange.

6.4.1.5 Regression analysis by location

As discussed above, the economic development levels are uneven in different districts in China. According to different economic conditions, there is an Eastern area, which is the most developed place; a Central area, which is a less developed region and Western China, an under-developed area. Compared to developing places, developed places are often considered to have better corporate governance, more highly-qualified managers and better investor protection (Gong & Li, 2009). To examine whether my main results are different in those three regions, I separate the samples on the basis of the Eastern, Centre and Western regions.

Panel E shows, except for the Western Region, the results are consistent in the columns. The correlation coefficient values of experience, lack of certification and education are significant. In addition, certification also has a significant relation to internal control disclosure in Eastern and Central China. This provides evidence that board characteristics are related to internal control weaknesses in different areas. Moreover, the correlation is more significant in the Eastern developed region as this district has the majority of listed firms.

For control variables, overall results are consistent in each area. Smaller size and manager's education decrease the tendency of disclosing internal control weaknesses. For the Eastern area, the certification and experience of managers has a strong correlation, suggesting the firms in developed areas tend to have more experience regarding internal control. While the auditing fee, firm age, leverage, restructure and Big 4 also show a strong relationship with internal control weakness disclosure in Eastern China. For Central China, the coefficients on independence, firm age and growth are significant. In Western China, the lack of integrity and certification of management are related to internal control weaknesses.

6.4.1.6 Regression analysis by size

Both US SOX and China SOX are size based regulations because they have different requirements about internal control disclosure for the firms of various sizes. US SOX exempts small firms because of the high cost of implementing internal control (Gao et al., 2009). Similarly, since 2013 China SOX has regulated that non-stated owned large sized firms should disclose internal control weaknesses. The findings regarding the correlation between firm size and internal control are mixed in previous research (Ge & McVay, 2005; Doyle et al., 2007b). Firm size has a significantly positive influence on internal control weaknesses in Table 6.4 Panel A. To investigate the impact of firm size on my results, I separated my sample into small, medium and large sized firms.

From Panel F, we can see that the first column reports the results for large firms. The coefficients on education, lack of integrity and experience are significant. For controls, corporate governance, firm characteristics, financial condition, audit status and the characteristics of top management are significantly related to internal control weaknesses.

However, the results for small and medium sized firms are more significant. All five characteristics of board members are significantly related to internal control problems for medium sized firms. The coefficients on ownership, independence, non-duality, firm age, leverage, restructuring, growth, financial health, audit fee, and the education and certification of managers are significantly related to internal control weaknesses for medium sized firms. The significant results could be explained by the large sample of medium-sized firms. In relation to small firms, problem firms are often linked to less education, certification and experience among board members, with separated chair and general managers, more organizational changes, higher auditing fees, with fewer educated and experienced managers.

Panel F indicates that the relationship between internal control and board characteristics is more significant in small and medium sized firms than in large sized firms. In Chinese small

and medium sized firms, personnel are more important than system. Boards of directors, as key personnel in Chinese companies, play a more important role in small and medium sized enterprises than in big firms. The results indicate that it is effective for China SOX to have different regulations for large and smaller sized firms. What is more, it is necessary for Chinese small and medium sized firms to pay more attention to the quality of board members because their personal characteristics greatly influence internal control quality. Resources are limited in small firms and they have difficulty in hiring highly-qualified directors and managers, factors which are related to internal control weaknesses. Small firms also face challenges in regard to finance (Beasley et al., 1999), so my research produces new insights on the internal control of small firms.

In conclusion, Table 6.8 shows that the regression results across similar seven years and five industries as well as different ownership. The results are more significant for the firms listed on the Shenzhen Stock Exchange than on the Shanghai Stock Exchange. The firms located in the Eastern region have stronger results than those in Western and Central areas. The relation is stronger for SMEs than large firms. Therefore, the main regression results are robust.

6.4.2 Firms that changed board members

Endogeneity is always an issue in all empirical papers (Heckman, 1979). It is the possibility that the dependent variable might influence the independent variables. It is a potential problem that may occur in my main model. The individual characteristics of board members are related to internal control. The firms which disclosed internal control weaknesses might have been firms with low-quality board members. The choice of board members of a firm is exogenous. The presence of any self-selection may introduce a bias in the regression model from the perspective of econometrics (Maddala, 1983).

Table 6.9 investigates the possibility of this problem by using the samples consisting of firms that changed board members. 962 firms changed their board members from 2007 to 2013.

The results indicate that the coefficient on characteristics (education, experience, certification and lack of integrity) remain the same in the model, suggesting that with an increase in board member's quality, internal control problems are reduced. This indicates that my results have not been affected by endogeneity. The results for the controls are also significant. The coefficients of firm age, non-duality, size, financial health, audit fee, and the education and experience of board members show a strong relationship with internal control weaknesses.

To account for selection bias, this thesis performs a regression based on the samples consisting of the firms that changed boards of directors. Overall, the table shows that the results are very similar to the findings reported in the original samples. Therefore, the findings in this study are robust.

6.4.3 The impact of fixed effects at the firm-level

Following 6.4.2, I control potential cross-relations within firms by reporting the results after controlling fixed effects at the firm-level. Table 6.10 shows that the results are similar to Table 6.4. Experience is significantly negatively related to internal control weaknesses ($p < 0.1$). Education has a strong negative relationship with control weaknesses. Internal control problems are correlated with less certification of board members. Lack of integrity shows a positive relationship with internal control weaknesses. The results are not insignificant. This suggests that fixed effects at the firm-level do not influence my results. Also, it is difficult to control all variables at the firm level as it is impossible to control all corporate governance variables and corporate characteristics. This indicates that my results are robust. For control variables, the results show that there are more internal control problems in firms with independent boards, non-duality, those that are older and larger, with

higher auditing fees, and non-Big 4 auditing firms, a rapid changing business environment and top management with more training.

6.4.4 Internal control team (2012 & 2013)

China SOX encourages Chinese firms to set up internal control teams to ensure that the internal control system is sound. To check whether this regulation is reasonable, that is, that the internal control team plays a positive role in reducing internal control weaknesses, I do a new test by adding team in the model. Team is a dummy variable, one equals to firms with an internal control team, 0 otherwise. I use 2012 and 2013 data to examine this expectation because only a limited number of firms had set up internal control groups before 2012.

Table 6.11 shows that the coefficient on team is strong and negative, which indicates that the existence of an internal control team does matter. The experience and education of board members are negatively significantly related to internal control weaknesses. The control variables including board meeting, size, non-duality, financial health, audit fee and managers' characteristics (education and certification) also have a strong correlation with internal control problems.

The team variable was replaced by regression tests on the 2012 & 2013 sample groups. The finding shows that the setup of an internal control team in Chinese listed firms is effective, and it can reduce the numbers of internal control weaknesses. This suggests that it is necessary for more firms to have an internal control team.

6.4.5 The impact of China SOX

I compare the difference before and after the implementation of China SOX. I assume that the firms have a greater incentive to improve internal control after the enactment of new regulations. The samples are divided into two subsamples before and after 2012 and before

and after 2013 as in 2012 China SOX changed its regulation about the mandatory disclosure requirements. The recent changes are as follows:

State-owned firms have disclosed internal control reports since 2012. Non-state owned mainboard listed firms (total market value of more than 1 billion at the end of 2011 and average net profit from 2009 to 2011 was over 30 million) have disclosed internal control reports since 2013.

I compare state-owned firms before and after 2012. I also compare state-owned and non-state owned mainboard listed firms before and after 2013. The regression analyses were re-run on these two groups.

First, the data was split into two groups: companies between 2007 and 2011 and companies in 2012. As can be seen in Table 6.12, for each regression, the results of 2012 are less significant than those in the period between 2007 and 2011. Specifically, in 2007-2011, the coefficients on experience, certification, integrity and education are significant. In 2012, only the education, certification and experience of board members are related to internal control problems. The results suggest that for Chinese stated owned firms, board members' characteristics have a less important impact on internal control weaknesses in 2012 compared to before.

For most of the controls, the results in 2007-2011 are very significant. Meeting, independence, non-duality, size, growth, independence, restructuring, firm age, and the education and certification of managers show a strong influence on whether the firms disclosed internal control weaknesses. Also, the results in 2012 are similar apart from the coefficients on board meeting, non-duality, firm age, growth, restructuring, certification of management becoming insignificant and audit fees becoming significant.

The following tests examine internal control and board characteristics of the two sample groups: 2007-2012 and 2013. These tests analyse the change of main results when the implementation requirements of China SOX changes in 2013. Table 6.12 shows that the 2007-2012 sample firms provide a more significant result than the 2013 sub-samples. In Column 3, it can be seen that internal control weaknesses are influenced by the experience, integrity, certification and education of board of directors. While in 2013, only experience, training and education are related to internal control weakness disclosure. The explanation could be that Chinese internal control regulations always change. The implementation date has been postponed many times from 2011 until 2015. What is more, the firms required to disclose material weaknesses have been changed many times from B share firms and cross-listed firms to stated-owned firms, then from large firms to all listed firms. The whole project has been delayed until at least 2015. The frequent changes to China SOX cause confusion and increase complexity in Chinese firms. Meanwhile, relevant guidelines are not ready and unclear. The firms have no idea about how to carry out the process and if they do not do it according to requirements, what will be the consequences. This leads to less significant results in 2013. These robustness tests add to the understanding of the new Chinese internal control regulations. For controls, the coefficients on independence, non-duality, firm age, size, growth, financial health, and the education and certification of management are significant in 2007-2012. For 2013, the coefficients on independence, size, restructuring, and the education and certification of management are significant.

Overall, the results are basically similar before and after 2012 and 2013. Before and after China SOX, the characteristics of board members in Chinese listed firms (state owned or non-state owned firms) are related to internal control disclosure behaviours. In addition, the results reveal an important distinction: the relationship between the board and internal control is less significant in 2012 and 2013. This could be because internal control quality is getting

better, so there is not much difference between weakness firms and non-weakness firms. Another reason could be that the sample is much smaller. This is an issue which could be studied further in future research.

6.4.6 Comparison between financial weaknesses and non-financial weaknesses

Next, I investigate financial weaknesses and non-financial weaknesses. A specific category of weaknesses contains financial weaknesses and non-financial weaknesses. Unlike the US SOX, China SOX also requires Chinese firms to disclose internal control weaknesses over non-financial reporting. As evidenced in Chapter 6, most of the firms disclosed non-financial weaknesses. In order to examine which types of weaknesses have significant results, I split the problem samples into non-financial weaknesses and financial weaknesses. I compare the firms with only financial or non-financial weaknesses to those firms without problems. I predict the relationship between internal control and the board will be different in the non-financial weaknesses and financial weaknesses sub-samples.

The dependent variable is whether internal control problems were disclosed. In Column 1, the dependent variable is whether this firm only disclosed internal control weaknesses over non-financial reporting. In Column 2, the dependent variable is whether this firm only disclosed internal control weaknesses over financial reporting.

Table 6.13 Column 1 shows that the coefficients on the certification, education, experience and lack of integrity of board members are significant in the non-financial weakness sub-samples. In Column 2, all the above four characteristics of board members are significantly related to internal control weaknesses over non-financial reporting. The results suggest that the relationship between internal control and board characteristics are both significant for the firms with non-financial weaknesses and financial weaknesses. The result is slightly more significant in non-financial weakness firms than in financial problem firms. This is consistent

with the findings in this study that Chinese firms disclosed more non-financial weaknesses than financial weaknesses. High-qualified board members can effectively reduce the incidence of internal control weaknesses particularly non-financial weaknesses.

For control variables, the results in Column 1 are quite significant (independence, non-duality, size, leverage, restructuring, financial health, training, and the education, certification and experience of management). Similarly, ownership, non-duality, firm age, size, restructure, growth, financial health, audit fee and management characteristics are significant in Column 2.

Overall, as mentioned elsewhere in this study, non-financial weakness is an innovation in China SOX. The literature suggests that the results are slightly stronger in non-financial weaknesses than financial weaknesses. The results in Table 6.13 provide strong evidence for a relationship between internal control over financial reporting and non-financial reporting and board characteristics. In this analysis, the characteristics of board members are slightly more significantly related to the non-financial weakness sample to the financial problem sample. The results could be explained by the fact that non-financial weakness is also important in China. This suggests that Chinese firms should pay attention to non-financial internal control.

6.4.7 The impact of an audit committee (2012 & 2013)

According to the literature, US studies focus on the audit committee but this study examines the board of directors and chairman. There is a conflict between Chinese boards and audit committees. What is the influence of boards of directors on the audit committee? Can boards of directors make the roles of the audit committee in internal control stronger or weaker? For example, does the board of directors change the roles of the audit committee by influencing the accounting expertise of the chair of the audit committee? I do a test to examine the impact

of the audit committee by using the data of 2012 and 2013. I include a dummy variable, the audit committee, which is measured by whether the audit committee chair has accounting expertise and five interactive variables (audit committee multiplying five board characteristics).

Table 6.14 shows that the expertise of the audit committee chairman is not significantly related to internal control weaknesses. This means that the audit committee chair with accounting expertise cannot effectively reduce the incidence of internal control weaknesses. The result is not consistent with Krishnan (2005) and Zhang et al. (2007). Liu and Yao (2014) found that the expertise of the audit committee can significantly improve the quality of internal control in Chinese firms. My finding differs from their study. Liu and Yao (2014) only used the firms listed on their Shanghai Stock Exchange from 2009 to 2012. I do not find significant results by using Chinese data listed on the Shenzhen and Shanghai Stock Exchanges from 2007 to 2013. My result is consistent with Liu (2014) who found an insignificant association between information disclosure and the audit committee.

In addition, the coefficient of the interaction is strong, which means the boards of directors can make the role of the audit committee in internal control weaker. In other words, an audit committee does negatively influence the relationship between internal control and board characteristics. The individual characteristics of the audit committee do not influence internal control disclosure but the audit committee does affect the relationship between internal control and board directors. This result is consistent with Krishnan (2005). Based on their research, I provide further insight into the relationship between an audit committee and internal control. Those findings develop past work and suggest that Chinese audit committees could be ineffective (Wan & Yang, 2006) because the reverse effect exists here. Wang and Guang (2016) found that the expertise of the audit committee cannot improve the quality of internal control. In China, audit committees have only been established since 2002. The audit

committee system in China is still in a preliminary stage. Agency problems, dominant shareholders and corporate governance in China influence the audit committee (Wu et al., 2006). This suggests that Chinese firms should improve the effectiveness of the audit committee. As to controls, I find that non-duality, firm age, size, leverage, financial health, audit fee and managers' characteristics are significantly related to internal control weaknesses. Expertise is only one aspect of the audit committee, more characteristics could be examined in the future studies.

I also report the results of an F-test to examine joint effect. The results show that F value is 13.66 and P Value $>F=0.0000$. This means the interaction variable experience*audit committee and the audit committee do together influence the model. It is meaningful to place the interaction variables in the model. The audit committee does influence the relation between internal control and board members.

6.4.8 The impact of internal auditors (2012 & 2013)

I examine the influence of internal auditors. The characteristics of internal auditors are related to the disclosure of internal control deficiencies (Zhang et al., 2007; Hoitash et al., 2009; Johnstone et al., 2011). Since Cai et al. (2009) suggest that if an internal audit committee is led by the audit committee, its independence and quality is comparatively high and it ensures that the board knows and controls operating risk. Hence, the internal auditor is an indicator variable that equals 1 if the internal auditor department in the firm is attached to the audit committee, and 0 otherwise. I also add five variables, the interactive variable internal auditors multiply characteristics to predict the relationship between internal auditors and board members.

The sign of the internal auditor is not significant, suggesting that whether the internal auditor is attached to the audit committee does not influence the disclosure of internal control

weaknesses. This result is not consistent with Pinizzi et al. (2011) and Lin et al. (2011), the expertise of the internal auditor has no positive influence on internal control. It is consistent with Liu and Huang (2015) who found an insignificant relationship between internal audit and accounting information quality. The reason could be my measurement is only one aspect of internal audit. Future studies are needed to investigate other characteristics of internal audit.

The coefficients on two interactions are positive and significant. This result indicates that internal audit quality mediates the relationship between internal control and board members. The quality of internal audit has a negative influence on the relationship between board of directors and internal control. Internal audit was introduced to China in 2005. Chinese internal control is not complete when compared to Western countries (Fang, 2012). It is necessary for Chinese firms to develop internal audit in Chinese firms. The training in Chinese firms might not be effective and has a bad influence on the board and internal control in China. As to control variables, non-duality, firm age and size, financial health, audit fee, and the characteristics of top management are significantly related to internal control weaknesses.

I also did joint hypotheses tests. First, I compare experience and its interaction with internal audit. I find that that F value is 50.66 and P Value $>F=0.0000$. This means the interaction variable influences the model. The internal audit significantly influences the relationship between internal control and board members. It is meaningful to put interaction variables into the model. Second, for training and its interaction with internal audit, F value is 8.33. P value is very significant, which means joint effects exist between audit committee and audit committee* training. This suggests that both of them influence internal control.

To sum up, Tables 6.14 & 6.15 show that firms with a high-quality audit committee and internal audit do not affect internal control positively. However, internal audit and audit committee do negatively influence the relationship between internal control and board characteristics.

6.4.9 The impact of the Cultural Revolution

The Cultural Revolution in China started in 1966 and ended in 1976. It was a lengthy mass movement launched by Chairman Mao Zedong and his agents and led to massive changes to the economy and to education in China. The schools, colleges and universities were basically shut down from 1966 to 1972. The students and teachers were sent down to the countryside to work as farmers (Deng & Treiman, 1997). In order to examine the influence of the Cultural Revolution, I put Cultural Revolution in the model.

The results in Table 6.16 indicate that the coefficient on the Cultural Revolution is not significant. This indicates that the Cultural Revolution does not influence internal control weaknesses. The results demonstrate that whether or not the chairman grew up during the Chinese Cultural Revolution has no significant impact on the personal characteristics of board members and internal control. For controls, the firms with female chairman, fewer board meeting, separation, older, large size, lower financial leverage, more organizational change, unhealthy finance and lowly qualified managers are more likely to be related to internal control problems.

6.4.10 Specific internal control weakness

Following Ge & McVay (2005), Doyle et al. (2007), Qi & Tian (2010), Klamm et al. (2012), Zhou et al. (2013), I partition the samples according to many classifications. Listed in increasing order of severity, there are control deficiencies, significant deficiencies and

material weaknesses. I also examine practice weaknesses, book-keeping weaknesses and fraud weaknesses. Finally, I study specific non-financial reporting weaknesses and financial reporting weaknesses.

Panel A shows the results of practice weaknesses, book-keeping weaknesses and fraud weaknesses. Whether the firm disclosed practice weaknesses, book-keeping weaknesses and fraud weaknesses is a dummy variable in the model. The results are similar for both practice and book-keeping, while there is no result for fraud weaknesses because only three firms in my sample disclosed fraud weaknesses. Only education is significantly related to internal control problems. This unexpected result is discussed later. There is no significant relationship between internal control weaknesses and board characteristics for book-keeping weaknesses. In terms of control variables, only audit fee and managers' education are related to practice weaknesses and firm age is related to book-keeping weaknesses.

Panel B reports the results of control deficiencies, significant deficiencies and material weaknesses. I separate the full sample into three subsamples. As we can see, 1604 firms disclosed control deficiencies, suggesting most of the firms reported the least serious weaknesses. 55 firms disclosed significant deficiencies and only 34 firms have material weaknesses.

The regression results are similar for different degrees of internal control weaknesses. I do not find any strong link between board characteristics and internal control weakness numbers. For control variables, only ownership, Big 4 and growth have significant relationships with internal control weakness numbers.

Panel C shows the results of specific financial reporting weaknesses. I divide financial weaknesses into three types: financial reporting and policies, accounting and revenue

recognition and the subsidiary firm. As Panel C shows, the results in financial weaknesses are not significant. The reason could be because the sample size is small.

Panel D reports the results of specific non-financial reporting weaknesses. I divide non-financial weaknesses into six types: information disclosure, corporate governance, internal control, regulations and rules, human resources and training, others (investor relationship, related party transactions, budgeting and social responsibility). Panel D shows that the relationship in internal control type is the most significant. The reason could be that internal control types have the most direct relationship with internal control. The education, certification and experience of board members are significantly related to internal control weaknesses. The result for human resources is the least significant. None of the characteristics are related to human resource weaknesses. Education and lack of integrity of board members are significantly related to corporate governance weaknesses. Education and experience are strongly related to regulations and rules. The education and training of the board have a strong relationship with other types of internal control problems.

In sum, I only find that specific internal control weakness is related to board characteristics in practice weaknesses and some types of non-financial reporting weaknesses. The relationship is the most significant for weaknesses of internal control types. It shows that reporting of non-financial weaknesses is also important in China.

6.4.11 Alternative measures

Lastly, I re-run the regression by alternative measurements. Education is a dummy variable equal to 1 if the education level is a masters or a PhD, otherwise 0. Lack of integrity as a dummy variable equals 1 if at least one of the directors has a violation history. Certification is an indicator variable. If one director has an accounting certification, I assign 1, otherwise 0. I

did the same measure for the characteristics of management. For independence, it equals to 1 if the percentage of independent board members is over one-third, otherwise 0.

Table 6.18 shows that the education, certification, experience and training of board members are significantly related to internal control weaknesses. This suggests that the relationships between internal control problems and board characteristics remain significant by alternative measurement of variables. My results are robust in this way. For control variables, the coefficients on independence, non-duality, firm age, size, leverage, restructuring, financial health, audit fee, lack of integrity, and the education, certification and experience of management are significant.

6.4.12 Conclusion of additional analyses

In sensitive analysis, first of all, the regression findings in each year, industry and ownership are similar. The results are more significant for the firms listed on the Shenzhen Stock Exchange and are much stronger in Eastern China. The relationship is more significant for SMEs. Second, endogeneity is not a problem as the results remain unchanged in the samples that changed board members. Third, the fixed effect at the firm-level has no impact on my main results. Fourth, the results show that an internal control team plays a positive role in reducing internal control problems. Fifth, the results after China SOX become less significant. Sixth, I compare the differences between non-financial and financial weakness and find the relationship is more significant for non-financial weaknesses. Seventh, the expertise of the audit committee and internal audit is not related to internal control weaknesses but the board of directors can make the roles of internal auditor and audit committee in internal control weaker. Eighth, the Cultural Revolution does not relate to internal control weaknesses. Ninth, I can only find that specific internal control weakness is related to board characteristics in practice weaknesses and non-financial reporting

weaknesses. Finally, the results are significant when I use different measures. All in all, my main results are robust in all sensitivity analyses.

6.5 Summary

This chapter has set out the descriptive statistics and regression analyses carried out to answer the research questions. It pertains to the relationship between internal control and board members. In sum, the results are consistent with my expectation. Taken together, H1, H2, H3, H4 and H6 are supported in this study. Using dichotomous scores, I find that internal control weakness disclosure is significantly negatively related to education level, and that accounting experience and certification are positively related to the lack of integrity of board members.

For controls, the coefficients of non-duality, independence, leverage, financial health, restructuring, size, and the experience, education and training of management are strong. In terms of board chairmen, internal control weaknesses are significantly related to individual characteristics of Chinese chairmen. However, I cannot find any significant results for gender, salary, busyness, age and stock holding. Further, the examination of the quality of internal control (internal control index) shows that board members' characteristics are related to internal control quality. The results also show that board behaviours (independence and meetings) and ownership have no effects on the relationship between the board and internal control. Generally, my findings confirm that the individual characteristics of board members in China are correlated with internal control problems. These results have shown that it is vital for Chinese firms to improve the quality of board members and board chairmen.

In addition, using problem firms, I also find a strong relationship between internal control numbers and board members and chairmen. The experience and certification of board members are strongly related to internal control weakness remediation. The internal control index has a strong correlation with board chairmen.

In the additional analyses, first, the regression tests for each year and industry as well as different ownership are similar. The results are more significant for the firms listed on the Shenzhen Stock Exchange than the Shanghai Stock Exchange. The relationship is more significant in Eastern China (developed parts) than Central and Western China (underdeveloped parts). The results for SMEs are more significant than large firms. Second, the results remain similar in the firms that changed board members, which means endogeneity is not a serious problem in my research. What is more, I examine the impact of fixed effects at the firm level and I find this effect does not influence my main results. Fourth, the results show that an internal control team plays a positive role in reducing internal control weaknesses. Fifth, the results both before and after China SOX are significant. However, the results in 2012 and 2013 are not as strong as before. Sixth, the result is more significant in non-financial weaknesses than in financial weaknesses. Seventh, the board of directors and internal audit can make the roles of the audit committee and internal audit in internal control weaker. Next, I do not find that the Chinese Cultural Revolution had a strong impact. Ninth, the results are more significant in some types of non-financial internal control problems and practice weaknesses. Finally, the results are still significant by changing measures of variables. The results are robust throughout all the models.

Together, my primary and supplementary findings suggest that the individual characteristics of Chinese board members are related to internal control weaknesses and weakness remediation. The results provide strong evidence that board members do play a role in Chinese internal control, and their characteristics are important. This implies that Chinese listed firms should work on improving the quality of board members and chairman in order to have a strong internal control system. A detailed discussion on research findings is given in Chapter 7.

7 Conclusion

7.1 Introduction

This chapter summarizes the thesis. The second section discusses the research findings presented in Chapter 6. The third section of this chapter discusses the limitations of this research. The fourth section provides recommendations for potential future research. The implications of this research are presented in subsection 7.5.

7.2 Research findings

7.2.1 The individual characteristics of board members and internal control

This research investigates the relationship between individual characteristics of board members and internal control weaknesses before and after the enactment of China SOX from 2007 to 2013, using regression analyses. This research attempts to answer one question: do the individual characteristics of board members affect internal control problems and, if so, what effect do they have? In order to answer this question, first, based on agency theory, I measure individual characteristics using education, training, experience, certification and the integrity of board members. What is more, this study examines the effects of board behaviour and the nature of the controlling shareholder on the correlation between board characteristics and internal control problems.

I expect that board member characteristics are significantly related to internal control effectiveness. Specifically, I predict that educational level, accounting training, experience, certification and integrity have a significant relationship with internal control effectiveness. In addition, I also expect that dominant shareholder nature (state-owned or non-state owned) and board behaviour (independence and diligence) have an influence on the correlation between the board and internal control.

Combined, my findings lend support to hypotheses 1, 2, 3 and 4. Specifically, my results

indicate that board members with accounting experience are associated with fewer internal control weaknesses, consistent with hypothesis 1. Consistent with hypothesis 2, the accounting certification of board members is negatively related to internal control weaknesses. My evidence also supports hypothesis 3 in suggesting that a higher average level of elite education contributes to high internal control quality. Finally, my results reveal that board members with integrity can effectively reduce the incidence of internal control problems. For Hypothesis 5, however, different from my expectation, internal control training has no significant relationship with internal control weaknesses. Internal control training may be ineffective in China. It is useful for the people involved to know that they should improve the quality of training. The firms and boards of directors should pay more attention to the significance and necessity of internal control training. They could offer different training so as to be more effective and useful.

The main results show that the experience, certification, integrity and education of board members are significantly related to internal control weaknesses. The results of additional tests remain similar. Both the univariate tests and multivariate tests show considerable support for the contention that the individual characteristics of Chinese board members are related to internal control weaknesses and weakness remediation. Previous research has different findings on those measurements (Krishan, 2005; Chen & Wang, 2008; Prawitt et al., 2009; Lin et al., 2011). Consistent with my hypotheses, my findings demonstrate a positive relationship between firms with internal control deficiencies and highly-qualified board members. The results provide strong evidence that board members do play a role in Chinese internal control and their characteristics are important. It is necessary for Chinese firms to improve the quality of board members in order to have a high-quality internal control system.

This thesis demonstrates that board members with a high level of education, accounting experience and certification, and integrity are less likely to be related to internal control

weaknesses. Education background, professional experience, certification and ethics are important and effective criteria for a highly-qualified board member. The board that consists of more highly-qualified members can effectively improve the quality of internal control. My results confirm my first four hypotheses and they are consistent with Haynes & Hillman (2010) that individual characteristics are important to the development of firms. A series of studies (e.g. Abbott et al., 2000; Abbott et al., 2004) have examined board characteristics and provide mixed results. My study confirms that the individual characteristics of board members including education, experience, certification and integrity play a vital role in Chinese firms at least at the level of internal control. Lin et al. (2011), Prawitt et al. (2009), Song & Rong (2012) found that some of the characteristics of internal auditors and board members are related to internal control. Furthermore, by using a large sample, I provide strong evidence that board characteristics are significantly related to internal control and weakness remediation. The results suggest that the regulation of China SOX pertaining to the board of directors are reasonable because an effective board of directors has a strong influence on internal control quality. The board of directors is the core of the modern corporate governance structure and links shareholders and management. The board has decision-making rights and has the primary responsibility for internal control. The effectiveness of internal control is influenced by the board of directors. The degree of influence is decided by the characteristics of the board of directors. That is to say, different directors have various effects on internal control effectiveness (Song & Rong, 2012).

My findings are consistent with the argument from upper echelons theory (Hambrick & Mason, 1984). The higher ranks of a company bear the responsibility for the planning and control of enterprise operations. The entrepreneur plays a large role in external activities including shaping the ecosystem (Teece, 2007). As a link between physical capital and intangible capital, the board is the most important and specific human resource (Barnard, 1968; Hambrick &

Mason, 1984). They are final decision-makers of enterprise strategies (Finkelstein & Hambrick, 1989). Directors establish and convey proper conduct and correct values, they optimize corporate culture, enable employees to understand the relevant policies of the company, and influence subordinates by their practical action (caikuai [2010] No.11). The board of directors takes ultimate responsibility for the strategies, plans and performance of an organization (Dalton & Kesner, 1985). In addition, a high-quality board of directors help managers to plan and implement important strategic actions (Offstein et al., 2005). An effective board may do well in strategy development (Gabrielsson & Winlund, 2000) and management control (Johannisson & Huse, 2000).

The background characteristics of entrepreneurs (Hambrick & Mason, 1984; Bantel & Jackson, 1989) affect their management style and the behaviours of the company. Sandberg & Hofer (1987) acknowledge that the individual characteristics of the board lead to the success of the business. Ge & McVay (2005) analysed the firm characteristics that are related to internal control deficiencies and emphasize that deficiencies in a company are often related to personnel issues. In particular, firms with staff-related problems tend to be financially weak (Doyle et al., 2007a). It is believed that what makes any board member attractive as a director derives from a combination of the person's individual characteristics. These attributes are the base of value creation for a company through the resources that the directors provide to the company (Hillman & Dalziel, 2003). The individual characteristics of directors are important for decision-making and management advising (Haynes & Hillman, 2010). The characteristics of boards are related to internal control quality (Hoitash et al., 2009). The characteristics of the board influence the behaviours of the board (Tsui & O'Reilly, 1991; Tangney et al., 2004) and internal control mechanisms.

An individual's experience and skills are defined by Becker (1983) as individual characteristics. It is clear that the quality not only refers to knowledge and skills, but also includes ethics,

morality, values and worldview, which affects the decisions of the board of directors and the effectiveness of internal control. Human characteristics include abilities, knowledge and skills (Becker, 1983; Coleman, 1988; Hitt et al., 2001). It is the unique skill set of every board director (Hillman & Dalziel, 2003). For example, continuing education helps directors keep abreast of the rapidly changing nature of business (Imhoff, 2003). In addition, the board requires financial expertise to make decisions because financial expertise enables boards and management to understand how to translate firm objective into a feasible foundation for operating policy and firm strategy (Jensen, 1993).

According to upper echelons theory, the limited information perceived is filtered by an interpretation process affected by the experience and personality of an executive. These perceptions affect decisions making, and eventually, firm outcomes. North's (2005) cognitive model also assumes that perception is the key for individuals to make choices. In addition, bounded rationality and self-interest are two characteristics of decision-makers (Cooper & Slagmulder, 2004). The one who owns cognition regarding enterprise management can deal with complex things, is willing to accept changes and risks, can get more resources, and has a strong ability to adapt to change and to judge affecting factors (Wiersema & Bantel, 1992). In essence, the choices of executives ultimately reflect their individual differences (Slater & Dixon-fowler, 2010).

In addition, I hypothesize that the impact of board characteristics on internal control is not direct. The relationship between the board and internal control is moderated by ownership and mediated by board behaviour. However, the results are insignificant. Therefore, my hypothesis 7 and 8 are rejected. This indicates that whether or not the firms are controlled by the Chinese government and board behaviour do not influence the relationship between internal control and board characteristics. The board of directors directly influences internal control. Board characteristics and internal control have a direct relationship. This answers the question of how

the board influences internal control.

Internal control is the control of people and also processes (Rockness & Rockness, 2005). The internal control system consists of persons and procedure. Employees perform and report to management according to rules and regulations. If they do not perform as expected, then internal control is ineffective (Rockness & Rockness, 2005). Modern internal control stresses people-oriented management and requires listed companies to focus on the role of employees and the initiative, enthusiasm and creativity of the controller and of those who are controlled (Bennis & Shepard, 2008).

7.2.2 The individual characteristics of board chairmen and internal control

Given the unique role of board chairmen in Chinese internal control, I also investigate the influence of the individual characteristics of board chairmen. I anticipate individual characteristics of board chairmen including education, experience, certification, training and integrity, age, gender, compensation, stockholdings and busyness are related to internal control.

This thesis reports that integrity, certification, education, age, gender, stockholdings and duality of board chairmen are significantly related to internal control. The results indicate that the individual characteristics of board chairmen are related to internal control in China. Thus, my sixth hypothesis is supported. The findings are consistent with Chen & Wang (2014) that board chairmen play a key role in internal control. However, it is quite interesting that education background has a negative effect here. High education level could, in fact, has negative consequences. This is in contrast with Chen & Wang (2014) who conclude that the education level of chairmen has a positive relationship with internal control quality. In China, a great many board chairmen have an opportunity to gain a master's degree. The MBA courses are quite expensive and most of them are part-time. The main purpose of the programmes is to build a personal network. Even board chairmen get a degree, may still know little about the

importance of internal control. Accordingly, it is suggested that the quality of education rather than education level should be paid attention to in regard to China. The older chairman, duality and stock holdings contribute to a good level of internal control. Older chairmen have more experience and stock holdings are effective incentives. My results refute the claim that duality impairs the quality of internal control. I find that duality enables chairmen to provide strong leadership and to make effective decisions, factors which are good for internal control in China. This is consistent with the findings of Song & Rong (2012) that duality has a positive influence on firm performance.

China SOX regulates that the board chairman is the head of the internal control team. This implies that board chairmen are the first and foremost in regard to internal control. My findings reveal that this regulation is effective because the individual characteristics of board chairmen are related to internal control. The board chairman is an important aspect in terms of the improvement of internal control effectiveness. H6 is supported.

7.2.3 The individual characteristics of management and internal control

In both Western and Eastern firms, management plays a pivotal role in internal control. This thesis controls for individual characteristics of management. It was reported that management characteristics have a strong relationship with internal control. Management with a higher level of education, accounting experience and certification, internal control training and integrity are related to fewer internal control deficiencies.

My results are consistent with Tihanyi et al. (2000), Goll et al. (2008) and Chen & Sun (2008). According to China SOX, management is responsible for the daily operation of internal control. My results show that the characteristics of management are also significant. This suggests that as in the case of Western countries, management also plays a vital role in internal control in China.

Legal enforcement is a major problem that needs to be solved in China. When law is weak and enforcement is poor, managers tend to abuse rights. There is no legal redress for individuals in China. This implies that the monitoring and oversight of Chinese investors are far less effective compared to the situation in Western countries (Chen et al., 2005). The Chinese legal system is far below the standard of the system in Western developed capitalist countries (Li, 2007). Even though Western internal control system and technology have been introduced into China, the thinking of management about internal control still falls behind, and it thus still remains difficult to improve internal control effectiveness (Li, 2009). As an alternative mechanism, the key person involved in firms plays an important role in the operation of the enterprises. Thus, key firm members in China play a vital role in maintaining good internal control than regulations and systems especially in non-state owned firms. For this reason Chinese research pays more attention to the individual characteristics of managers, to the competence of employees, and to the integrity, ethics and values of managers (Chen & Wang, 2008).

7.2.4 Internal control weakness remediation and internal control quality

In this study, I use different approaches to measure internal control. First, whether a firms disclosed internal control is a proxy for internal control weakness. The results show that the individual characteristics of board member are significantly related to internal control weaknesses. Second, the extent of internal control weaknesses is measured by the numbers of internal control problems. The results show that the individual characteristics of board members and board chairmen are also related to the numbers of internal control deficiencies. Third, I investigate internal control weakness remediation. My results show that some of the characteristics of board members and board chairman have a significant relationship with internal control weakness remediation. Highly-qualified board members and board chairmen are more likely to be related to more remediation of internal control deficiencies. My finding

is inconsistent with Goh (2009), Li et al. (2010) and Johnstone et al. (2011). Finally, I examine the quality of internal control using internal control index. I find that some characteristics of board and chairman are significantly related to internal control quality. Overall, this study shows that board characteristics are related to the incidence and extent of internal control weaknesses, internal control quality and internal control weakness remediation.

7.2.5 Audit committee and internal auditor

I also examine the influence of the audit committee and internal auditor as a significant body of previous work has documented their roles. Different from Xie & Huang (2012), Abbott et al. (2004) and Krishnan (2005) who found a positive relationship between expertise and internal control quality, I find that the expertise of the internal audit and audit committee is not related to internal control deficiencies. Furthermore, I study the influences of the expertise of the audit committee and internal auditor on the relationship between the board and internal control. The results show that both an audit committee and internal auditor with expertise negatively mediate the relationship between internal control and board characteristics. In China, different monitors are not independent and they influence each other. My findings indicate that even if there is a professional audit committee and internal auditor, because the audit committee and internal audit do not work, they have a negative influence on the relationship between the board and internal control. China SOX regulates that the audit committee is one of the persons who in charge of internal control. Thus, it is important to improve the effectiveness of internal control and of the audit committee in Chinese firms. They should support each other to improve the quality of internal control together. The audit committee and internal auditor indirectly influence internal control in China.

7.2.6 Determinants of internal control weaknesses

This study models the determinants of internal control deficiencies. I control financial condition (growth, restructure, financial health, leverage), firm characteristics (firm age, firm size), audit status (Big 4, audit fee). It has been shown that firms with fewer independent directors, lower leverage ratio, unhealthy finance, more organization changes and larger size tend to be related to internal control weaknesses. My results are similar to prior research such as Fang et al. (2009), Lin & Rao (2009), Zhang & Dai (2011), Ji et al. (2015) and Fang & Dai (2012). However, leverage has a negative relationship with internal control problems. This is contrary to the positive finding of Naiker & Sharma (2009). The reason might be related to the fact that it is very hard for Chinese companies to finance (Li, 2001).

7.2.7 Non-financial weaknesses

I investigate financial and non-financial weaknesses. The results show that the characteristics of board members have a more significant relationship with the numbers of non-financial weaknesses than financial weaknesses. The possible explanation could be that non-financial weaknesses are also important in Chinese firms.

Next, I study specific internal control weaknesses. I divide non-financial weaknesses into six types: information disclosure, corporate governance, internal control, regulations and rules, human resources and training, others (investor relationship, related party transactions, budgeting and social responsibility). I only find insignificant results in regard to specific types of non-financial reporting weaknesses. The relationship is the most significant for weaknesses regarding internal control. The result for human resource is the least significant. Human resource weaknesses have no strong results.

Generally, previous studies including Chinese research (only one paper) considered financial weakness to be more important than non-financial weakness. Due to cost-effectiveness issues, US SOX only focuses on financial weaknesses. However, China is in a period of transformation of its economy and society wherein the capital market is comparatively weak, resulting in the Chinese government taking prudent measures. In these instances, it is an innovation to consider internal control over non-financial reporting because non-financial reporting internal control may be important and have a great influence on internal control over financial reporting and the economic safety of firms.

My thesis is the first to provide evidence for non-financial internal control deficiency.

Although Bai & Gao (2011) report that non-financial internal control should not be separated from overall internal control, my findings show that the regulation of non-financial weaknesses in China is reasonable because it means that non-financial weaknesses are also important. In China, most of the companies which disclosed internal control weaknesses over non-financial reporting rather than financial reporting. There are more non-financial problems in China. The reason could also be that the firms may choose to disclose non-financial problems because they are not serious issues compared to financial problems.

7.2.8 The impact of the Cultural Revolution

Massive social change and major political events may affect people's mind. The Cultural Revolution in China is considered to have had an influence on people during that period. I put the Cultural Revolution in the model to examine the influence of the Cultural Revolution on internal control. The results show that the Cultural Revolution does not influence internal control weaknesses, meaning that whether or not the chairman grew up during the Chinese Cultural Revolution has no significant influence on their attitude towards internal control. To the best of my knowledge, this research is the first one in regard to the relationship between

the Cultural Revolution and internal control. The influence of Cultural Revolution is an issue in China. Future research may further discuss the influence of major social changes on internal control.

7.2.9 Specific internal control deficiencies

Doyle et al. (2007b) demonstrate that the type of internal control weaknesses is a vital determinant of internal control disclosure. It is essential to investigate the correlation of board members and internal control by types because the results could vary. This research also considers the various types of internal control deficiencies. I partition samples according to two classifications according to those in China SOX. First, there are control deficiencies, significant deficiencies and material weaknesses. Second, there are practice weaknesses, book-keeping weaknesses and fraud weaknesses. The results are similar for control deficiencies, significant deficiencies and material weaknesses. Likewise, the result is also similar to both practice and book-keeping weaknesses. However, there is no result for fraud weaknesses. Doyle et al. (2007b) provide insights that corporate governance is only associated with revenue recognition weaknesses. China SOX has different classifications of internal control weaknesses, my results provide new evidence that is different from that provided by American research. Further examination on internal control problems according to different types is needed in the future.

7.2.10 Additional tests

There are a lot of sensitive examinations in this thesis. The results are similar in different years from 2007 to 2013. The result is the most significant in the manufacturing industry. The relationship is more significant in regard to Shenzhen Stock Exchange than the Shanghai Stock Exchange. In terms of different locations, the relationship is stronger in developed areas than in undeveloped areas. In terms of different sizes, the result is more significant in

smaller firms than in bigger firms. I find that the existence of an internal control team plays a positive role in internal control quality. This indicates that the policy of China SOX to encourage listed firms to set up an internal control team is effective. As in the case of America companies, more Chinese listed firms should set up an internal control team. In particular, in order to examine the effect of China SOX, I run the regression models before and after China SOX. Because China SOX changed again in 2012, I compare two subsamples before and after 2012 and before and after 2013. However, the result is not as significant as before China SOX. That could be because the sample size is small. Nonetheless, at least in part, my results explain some of the weak or conflicting findings of earlier studies.

7.2.11 Summary

The outcome of this research extends our understanding of the effect of corporate governance on internal control. A link between highly-qualified board members, board chairmen and management and good internal control is abundantly clear. This finding is partially consistent with the results of prior research such as that of Abbott et al. (2000) and Beasley et al. (2009). My study extends prior research by confirming that the education, certification, experience and integrity of board members and board chairmen are related to internal control. In addition, the relationship between the board and internal control is not influenced by ownership and board behaviours.

7.3 Limitations

The results of the research present evidence on the relationship between the board and internal control. However, this thesis offers several caveats to the above findings.

First, the numbers in the sample are limited. Recently, listed companies in China have gradually started to disclose internal control reports. Until now, not all the listed firms

disclosed internal control information. In 2011, cross-listed firms disclosed internal control reports. In 2012, state-owned listed firms disclosed internal control problems. In 2013, bigger-sized listed firms disclosed internal control deficiencies. My sample mixes different types of firms under both mandatory and voluntary disclosure requirements. It is difficult to distinguish between those firms. I do not compare cross-listed firms and non-cross-listed firms because I deleted cross-listed firms. I also did not study special treatment firms and firms in the financial industry. In addition, the sample includes firms disclosed internal control deficiencies and matching firms from 2007 to 2013. There are 3376 firm-year observations. However, a long-term sample after China SOX needs to be examined in further research. In regard to the issue of timeliness, a longitudinal study will provide an understanding of changes in internal control.

Another potential limitation in that analysis is restricted to listed firms in China. Future research might further examine the hypotheses by using data from non-listed firms when the data is available. When it comes to the nature of ownership, I only consider state-owned firms and non-state firms. Following Jiang et al. (2010), future studies may further examine local government and central government, family and non-family firms to establish the differences between them in terms of internal control.

Next, cross-sectional designs may lead to endogeneity, self-selection and omitted variables (Ashbaugh-Skaife et al., 2008). The research of this area is a study of the association, not causation (Carcello & Neal, 2003; Doyle et al., 2007b; Naiker & Sharma, 2009). Some unobserved factors relating to internal control and audit committee characteristics might have influenced the reported results. For example, there are many monitors of internal control. In order to mitigate this issue, this study controls top management, internal audit, external auditor, audit committee and possible determinants identified in previous research (e.g. Doyle et al., 2007b). However, other factors including firm culture, board of supervisors, the top

management team, human capital, social capital and different characteristics of board of directors and managers, concentration of ownership, and the tradability of shares should also be controlled. These aspects are left for future research. More important, I use change text to show that endogeneity is not a serious problem in my thesis. However, I cannot effectively deal with the self-selection issue. Better board members might be attracted to better firms. The self-selection issue in the sampling procedure might pose a threat to my findings. The presence of any self-selection may introduce a bias in regression models from the perspective of econometrics (Maddala, 1983). Since China SOX has no requirement for the quality of board members, there is no effective way to solve the self-selection problem in my thesis, it is one limitation of my thesis.

Finally, it is difficult to say whether a firm has no internal control problems if it does not disclose internal control weaknesses. A firm that does not disclose internal control may have two explanations: one is they do not have internal control weaknesses and another one is they do not want to disclose when they have internal control problems. It is difficult to control the incentives of whether the firms disclose or not particularly in a Chinese setting. Some firms have internal control deficiencies but they do not discover or disclose them, which cannot be observed (Naiker & Sharma, 2009). In fact, the choice to disclose and the actual presence of weakness are two different things. This may cause the under-identification of the true sample and generate self-selection bias. Ji et al. (2015) argues that Chinese relevant laws and regulations are strict. For example, Chinese Company Law and Basic Standard require that it is a legal obligations for listed firms to provide fair and true information. Therefore, if a firm discloses internal control weaknesses, we may say it has internal control problems. Given poor law enforcement, lack of internal control law and weak punishment in China, if a firm says it has no internal control weakness, we cannot say its internal control is good because they might be hiding negative information. Even if they have internal control problems, they

may choose not to say anything about it or they say their internal control is effective. If a firm does not choose to disclose internal control problems does not mean it has effective internal control. This is a limitation of my study.

Rice and Weber (2012) found that only a small percentage of firms acknowledge their internal control have weaknesses. This means that disclosure incentives determine whether or not to report internal control weaknesses. Not only Chinese firms, but also American firms have similar problems. In every country, firms may do not disclose negative information in order to develop and maintain a good reputation, to gain more benefits and avoid receiving a penalty from the authorities. It is hard to solve this problem. I also investigate internal control problem numbers and internal control quality, and the results are still significant. This means that my results are reliable.

In my perspective, in spite of these limitations, this research makes important original and explicatory findings on the relationship between internal control weaknesses and board characteristics in Chinese listed firms based on the background of China SOX.

7.4 Future research

In future, more research regarding the influence of management on internal control is needed. For example, do the characteristics of managers influence internal control, and how? What are the different impacts of the top management team and key managers? Do managers of different levels (top management and bottom line management) influence internal control in different ways? Do heterogeneous characteristics of managers affect internal control? Given the importance of the board, it would be interesting to study the influence of human capital, social capital and the character differences of directors and managers on internal control effectiveness based on theories of management, leadership, human capital, human nature, top manager, entrepreneurs, cognitive psychology, behavioural accounting, and heterogeneous human

capital. The differences between outside and inside directors (Yazawa, 2015) as well as the incentives of Chinese firms also require further investigation. Since the Chinese listed firms have concentrated ownership structure, the ultimate owners have a dominated shareholding. The future research should also investigate the ownership structure measured as the percentage of largest shareholders to see whether concentrated ownership structure affect the relationship between board characteristics and internal control. In addition, another significant corporate governance mechanism in Chinese listed firms are the shareholding by second-to-tenth large shareholders, which could play monitoring role and reduce the agency problem between majority shareholders and minority shareholders. Furthermore, future research can separate SOC in to local SOE and central SOEs. The reason is that central SOEs are regulated by central government and normally need compliance with more regulations.

Second, “Guanxi” or personal relationships are very important in China, which in turn affects internal control and company management. Guanxi influences company performance (Nahapiet & Ghoshal, 1998) and the outcomes of boards (Tian, 2011). Group performance depends on an ability to deal with internal and external information obtained from relationship networks. Boards with stronger networks have access to more information, which leads to better advice and counsel, better financial results (Carpenter & Westphal, 2001) and better corporate governance (Wu & Olson, 2009). It is difficult to get information on the social networks of board members and management, so this study does not address personal relationships. Further studies could investigate the influence of political networks on internal control.

Third, company culture influences internal control (COSO, 1992). Chinese company culture is affected greatly by traditional Confucian culture, which is quite different from that in Western countries. In Chinese company culture, many entrepreneurs have lower education levels and less knowledge. They know little about internal control and ignore its importance.

Some of them even consider internal control as a management responsibility and do not implement internal control in their firms (Li, 2012). There is little past work in this area because it is difficult to measure company culture. More thorough analysis of the association between company culture and internal control is needed in future research.

Fourth, apart from the Cultural Revolution, other big events may influence listed firms. There are a great many regulations and rules about the corporate governance of Chinese firms, which could influence the internal control of listed firms. For example, the split share reform took place in 2005. Before, the majority of listed firms' shares were not tradable. There are non-tradable shares and tradable shares. Non-tradable shareholders cannot directly benefit from stock price appreciations, so they had limited incentives to pursue share value maximization. A serious conflict existed between non-tradable shares and tradable shares. In order to solve this problem, the Chinese government in 2005 transformed all non-tradable shares into tradable shares (Jiang & Kim, 2014). Whether the 2005 split share reform has influenced the internal control of Chinese listed firms can be a research topic in the future. The relevant data is not available, so this study does not control for the impact of the 2005 split share reform.

Finally, cost-effectiveness is an important issue when a new regulation or law is promulgated. Cost-effectiveness means that the cost of implementation should be lower than that of investment. Only in that case, business can gain profits and the new regulation or law is effective. The cost of implementing a specific internal control should not exceed the expected benefit to internal control. The main reason American SOX defines internal control as only financial reporting aspects is that it is too costly to consider both internal control over financial reporting and non-financial reporting (Bai & Gao, 2011). In fact, the implement of SOX has increased the cost of doing businesses in the USA greatly. When China SOX requires listed firms to disclose both internal control over financial reporting and non-

financial reporting in internal control self-assessment reports and internal control auditing reports, similar problems may appear. The enterprises need to spend more energy, time and money on the establishment and implementation of internal control. If a firm fails to obtain enough profits to make up the cost of internal control, then the internal control system is ineffective. Whether China SOX is cost-effective needs to be tested further.

All in all, research on internal control is important because it may be able to tell us about the determinants and effects of internal control. US SOX and China SOX have similar objectives despite China and Western countries having different institutional backgrounds. Given the special institutional background, traditional culture and regulation setting, Chinese internal control research would yield different conclusions when compared to that in the USA. For example, a similar result in America may not apply to Chinese firms. Indeed, issues surrounding internal control in China would be worthy of further investigation because the Chinese setting may answer research questions that American background research has not solved. With the implementation of China SOX, a great many excellent papers based on Chinese setting will appear in the near future. The mandatory disclosure of internal control information opens the door for future empirical research regarding internal control in Chinese firms.

7.5 Implications

Overall, the findings demonstrate the influence of board characteristics on internal control. Especially, this research contributes to the internal control literature and offers implications for internal control practices and the policy making process. My results answer my research questions that individual characteristics including education, certification, experience and the integrity of board members are important to internal control for Chinese listed firms.

This thesis lends support to the importance of board characteristics in internal control. My results support the theoretical arguments that board characteristics are related to internal control. As suggested by theory, board monitoring is one of the mechanisms to reduce agency cost (Dalton et al., 2007). The characteristics of boards are related to internal control quality (Hoitash et al., 2009). My study has significant implications for the theory of corporate governance.

This research contributes to the internal control literature as follows. This research examines the relationship between board characteristics and internal control. Internal control deficiency has been widely investigated since US SOX came into effect. A large body of research is interested in internal control and corporate governance. My findings provide direct evidence that the individual characteristics of board members are also related to internal control in China. Previous study indicates that the characteristics of boards are related to internal control quality (Hoitash et al., 2009). Lin et al. (2011) expect that the quality of internal auditing (measured as education, experience, certification and training) prevents the incidence of material weaknesses. My findings suggest that the individual characteristics of board members are also related to internal control deficiencies. This thesis extends research further into the China setting. The findings on China SOX suggest that China SOX is also important (e.g. Ji et al., 2015). Although my results confirm the association between corporate governance and internal control, I extend earlier findings from the view of the board of directors. This thesis indicates that Chinese boards of directors play a vital role in internal control. Additionally, I examine the influence of board chairmen on internal control effectiveness and weakness remediation. Therefore, compared to past work that have focused on audit committees and the top management team, this research offers an opportunity to study the influence of board members and board chairmen on specific internal control problems and weakness remediation.

The practical implication is that I identify and confirm the importance of individual characteristics of board members in Chinese listed firms. My results in Table 6.4 and Table 6.5 suggest that the individual characteristics of the board are related to internal control. In addition, Table 6.6 and Table 6.7 indicate that the quality of board members and managers directly influence internal control effectiveness. Quality is both nature and nurture (Cui & Wang, 2010) including personal characteristics and social characteristics. As key persons in the company, the quality of board members and top management decides financial performance and future development. The current system lacks constraints for key persons in firms. Therefore, individual characteristics are very important for the development of internal control. Individual characteristics are the basis of ability, which plays a vital role in organization management and human resources. Some board members and top management might make hasty decisions about markets, human resources and firm development on the basis of their dated thinking. This results in many serious problems in firms. Internal control ability is the key quality of modern managers (Li, 2007). Chinese firms need more good board members to improve the effectiveness of internal control. Not only do the firms need to employ more high-qualified staff, but they should also try to improve the quality of board members and management.

First of all, education and training should be paid more attention. Table 6.4 shows that the education of board members is significantly related to internal control. This suggests that board members should pay more attention to education. Live and learn, by continual education, board members and management can improve themselves both professionally and socially. They not only need to learn modern theory regarding management and internal control, but also other relevant and useful knowledge. They should improve the level of management and the ability of decision-making. Individuals can give full play to their subjectivity and initiative through learning. The consequences of their study should not only

be to refresh themselves and enrich their knowledge structure, but also to build flexible cognitive reactions during the process of learning (Wu, 2007). China's laws have no requirements in regard to the continued education of firm staff. Given the importance and significance of board members, Chinese firms should strengthen the follow-up education and training of boards of directors, board chairmen and top management. Continued education can greatly improve the quality of managers, which is good for internal control effectiveness. Learning is the best way to optimize and improve individuals. Board members should learn new knowledge and accept new information. Board members need to learn more about such issues as internal control, corporate governance, accounting and finance, economics, and human resource management.

In order to improve their quality, board members should have relevant knowledge and change their ideas. Different ways of learning may alter traditional approaches. Not only they can go to classes, but they can also take advantages of the internet to learn online. Firms may send their board members and top management to study overseas. They can learn, visit and train in developed countries. By learning advanced management and gain experience from western countries, they can improve their understanding of internal control. Recently, the Chinese government and firms sent their board members and top management to study at the university and to visit other countries.

Although I did not find a significant result for training, this does not mean training is not important and not necessary. The lack of significance could be because few Chinese firms trained their board members or the training is simply a process of going through the motions. Chinese firms should strength training about internal control for their board members and senior managers. Firms must change the thinking staff in order to achieve high efficiency of internal control (Wang & Li, 2011). Only when they understand internal control, they can pay attention to internal control.

Second, integrity is always important. The results in Table 6.4 show that the integrity of the board is related to internal control. Board members should have the right attitude and incentives. That is to consider the needs of firms and improve the quality of internal control (Geng, 2011). They should realize that internal control can reduce risk, improve economic benefits and realize strategy goals. If they do not focus on internal control and consider internal control damages their own interests, internal control will be of low-quality. The values and preferences of chairmen decide the internal control environment. Internal control is to control themselves and their behaviours. They are supporters and executors of internal control. If a manager puts himself or herself out of the internal control system and puts his or her preference beyond internal control, then internal control will definitely be ineffective. Directors and managers should establish and convey honest character and the correct values of integrity. In this way, employees can support the policy of the firms (Ren, 2009).

Third, as we can see in Table 6.4 & Table 6.5, accounting certification and professional experience positively influence internal control quality. Lacking of internal control and financial accounting knowledge and lack of working experience in finance and accounting are part of the cause of weak internal control. This indicates that the qualification of the board is an important determinant of internal control. Chinese firms should hire more and better-qualified board members and management (Chan et al., 2010). The board members also need to try to get more experience and get professional certifications such as a CA.

Fourth, the person in charge is an important issue. China SOX regulates that the board is responsible for internal control. Boards of directors are responsible for the design of internal control systems. Boards of directors have an information advantage and they know about the overall situation of the whole enterprise. The key person is the most important factor in internal control. Board members of Chinese firms need to take advantage of various sources and ways to improve the quality of internal control. Board members should improve the

effectiveness of internal control to maintain the stability and sustainable development of firms. Boards should believe that internal control can enhance profit, earning ability, competitive ability and the survivability of the enterprise.

Boards also need to cooperate with managers because managers play a vital role in the operation of internal control. China SOX regulates that management is responsible for the daily operation of internal control. The important roles of management are shown in Table 6.4 and Table 6.5. Management can assist the board to make proper decisions. I also find that the audit committee and internal audit influence the relationship between internal control and board members (Table 6.14 and Table 6.15). All persons in charge should take their own responsibility and make sure all assignments are clear (Chi & Zhu, 2009). Persons in charge of internal control should have an appropriate attitude towards the process. It is only by actually working on internal control that Chinese boards will fully appreciate the importance of internal control and thereby learn the best way of going forward. The most important criterion of whether the implementation of China SOX is successful in a Chinese firm is to maintain support from the whole firm. Boards of directors are responsible for internal control and risk management, various departments and all members should also take the duty on themselves. Participation from every level of a firm is required to ensure good internal control, so a firm must make all workers participate actively in internal control implementation.

Finally, Table 6.13 provides significant evidence that internal control weaknesses over non-financial reporting are also important in China. There is formal control and non-formal control. Formal control includes rules and regulations. Non-formal control includes firm culture, values, faith and behaviour pattern. China SOX includes non-formal control and non-formal control belongs to the internal control environment. Formal control is realized by mandatory regulations and rigid punishment. In contrast, non-formal control has more

contexts. For example, some firms pay attention to honesty while some companies focus on belief and value. They have common characteristics of soft control. A firm may reach the goal of internal control by the active behaviour and self-disciplined awareness of employees. Values and behaviour have an influence on internal control. First, good organization is good for strengthening systems. Second, they enable the thoughts and actions of employees to keep pace with the goals of firms. Third, culture may produce belief. Belief is the foundation of cooperation, which has a positive relationship with control efficiency (Jiang, 2013). Emsley & Kidon (2007) also support the idea that non-financial control is important. In a firm with a democratic culture, lower levels are respected and trusted, and control goals are realized by the initiative and enthusiasm of the staff. The way of encouragement rather than punishment is used in this culture. On the contrary, enough communication is absent in an autocratic culture. Power and authority are employed to manage from the top to bottom. Wrong behaviours and disobedience are punished severely (Li, 2012). A good company culture should be built by a firm in order to maintain the quality of internal control. The organization culture of Chinese enterprises should shift to risk management and responsibility awareness as soon as possible (Wang, 2008).

Policy-makers should formulate more relevant policies to support the development of internal control (Czarnitzki & Hottenrott, 2011). Of even more importance is the necessity for the government to carry out measures to ascertain that relevant policies are effective. First, there are various regulations for the evaluation and auditing of internal control systems. This results are in the inconsistency of internal control reports. Second, America, Japan and Korea have promulgated internal control laws. In China, there are only internal control regulations. In order to make sure that internal control can be carried out effectively and internal control information can be disclosed truly, Chinese regulatory authorities should strength the legislation governing of internal control and punish severely illegal behaviour. Third,

although more firms have disclosed internal control information, there are still a lot of problems. For example, the classification of internal control deficiencies is not clear. It is necessary for the Chinese government to improve the disclosure mechanism of internal control deficiencies. Internal control regulations should be comprehensive and consider all businesses in the firms. Also, internal control implementation should be flexible and consider cost-effectiveness. Fourth, Tables 6.14 and 6.15 demonstrate that an internal audit and audit committee can indirectly influence internal control effectiveness. The supervision of internal audit and the audit committee is an important part of internal control. Internal audits and audit committees are weak in China (Cai et al., 2009). In some Chinese firms, the audit committee and internal audit do not work. It is urgent to strength the roles of internal audit and audit committee (Zhou et al., 2013). Fifth, Chinese firms should take advantage of outside consultants such as accounting firms (Raymond, 2009). My results in Table 6.4 show that Big 4 and audit fees do not relate to internal control. China's audit quality is considered to be low (Chen & Ma, 2014). The behaviour of buying audit opinions exists in China. Some accounting firms are not independent of their clients. Regulators should put great oversight on the quality of accounting firms and make sure that the quality of auditing service is good.

In sum, China SOX is a complex and broad regulatory requirement. China SOX contains some new ideas. For a great many Chinese companies of different sizes and situations, there may be some different solutions to implement internal control system. More internal control information will be disclosed mandatorily and more regulations will be implemented under China SOX. In spite of empirical research regarding Chinese internal control starting late and there are some drawbacks in topics and research designs, internal control quality is getting better and more relevant research is needed in the future (Zhou et al., 2013).

7.6 Conclusion

In conclusion, this research examines the influences of board characteristics on specific internal control problems and weakness remediation before and after the enactment of China SOX. China's new regulation and unique setting provide a good research opportunity. Most American papers (e.g. Krishnan, 2005; Zhang et al., 2007; Lin et al., 2011) have studied the association between audit committee, management and internal control. According to China SOX, the board of directors takes the main responsibility for internal control. Therefore, I hypothesize that the education, training, experience, certification and integrity of board members is related to internal control weaknesses. I also expect that dominant shareholder nature and board behaviours have an influence on the correlation between the board and internal control. In this thesis, I extend the studies on the relationship between corporate governance and internal control using a sample from Chinese listed firms with internal control weaknesses and a matching sample for those firms without internal control weaknesses.

H1, 2, 3, 4 & 6 are supported. My findings suggest that the individual characteristics (education, experience, certification and integrity) of Chinese board members and board chairmen are related to internal control weaknesses and weakness remediation. My findings contribute to research on internal control by investigating how boards of directors influences internal control. The findings provide insights into the effects of the board's individual characteristics on internal control quality, specific deficiencies and weakness remediation. The results provide strong evidence that board members do play an invaluable role in Chinese internal control. Their relationship is direct and is not affected by board behaviour and ownership nature. This infers that Chinese listed firms should work on improving the quality of board members and chairmen.

My findings also add to the literature on non-financial internal control weaknesses, providing evidence based on Chinese setting that internal control weakness over non-financial

weaknesses are also important. Regulations on internal control in China have changed many times, and this causes the disclosure quality of internal control information to vary between 2011 and 2013. Also, the results after China SOX in 2012 and 2013 become less significant than before. Furthermore, this research provides evidence on other important determinants of the quality of internal control, including ownership (state-owned vs non-state owned), audit quality (particularly Big 4), corporate governance (management's characteristics, the expertise of the audit committee and internal auditor, and the internal control team), firm characteristics (different sizes, different stock exchanges, different locations, different years and industries), financial condition, and the Cultural Revolution. Some of them have not been investigated by American studies and they are unique Chinese characteristics.

In light of the current debate on the quality of Chinese boards of directors and the effectiveness of China SOX, my findings provide market regulators and stakeholders in China and other countries, with timely evidence as to the likely outcome of similar standards in their jurisdictions. My thesis indicates that requiring board of directors to take responsibility for internal control with the help of the board of supervisors and management can benefit internal control.

My research also suggests the need for some further improvement and modification when issuing mandating SOX-type standards. For instant, the disclosure contents and formats of internal control information need to be detailed and specific. The results of the mandatory compliance applied to all Chinese listed firms starting in 2014 is unknown and this offers many further research opportunities. More questions can be explored in further research in China and other countries with similar institutional background.

Table 5.1: Sample selection

| | |
|---|------|
| Initial sample | 2382 |
| Less: firms in financial and insurance and cross-listed firms | 131 |
| Less: firms with unavailable data on control variables | 558 |
| Final sample on firms that disclosed a material weakness | 1693 |
| Control Sample | 1693 |
| Final sample | 3386 |

Table 5.2: Variable descriptions

| Variable | Descriptions |
|---------------------------------------|---|
| Depend variables | |
| ICN | The log of the numbers of internal control problems. (Source: Internal Control Database) |
| ICI | The log of internal control index/10. |
| ICW/ICR | A dummy variable that equals to 1 of this firm disclosed internal control weaknesses or remediated internal control problems. (Source: Internal Control Database) |
| Independent variables | |
| <u>Board's characteristics</u> | |
| Education | The average education level of board members, 1=high school and below; 2=college, 3=undergraduate, 4=postgraduate, 5= Ph.D. (Source: CSMAR Database) |
| Lack of integrity | Measured by the percentage of directors with disciplinary actions. (Source: CSMAR Database) |
| Training | A dummy variable that equals to 1 if the board has internal control training in the current year, otherwise 0. (Source: Annual Reports) |
| Certification | The percentage of board members who have accounting certification. (Source: CSMAR Database) |
| Experience | A dummy variable that equals to 1 if a board member is responsible for financial and accounting issues, otherwise 0. (Source: CSMAR Database) |
| Characteristics | The characteristics index based on average weighting of education, certification, experience and training. |
| <u>Chair's characteristics</u> | |
| Education | The average education level of board chairman, 1=high school and below; 2=college, 3=bachelor level, 4=master, 5= Ph.D. (Source: CSMAR Database) |
| Certification | 1= the chair has accounting certification, 0 otherwise. (Source: CSMAR Database) |
| Experience | A dummy variable that equals to 1 if a chair is responsible for financial and accounting issues, otherwise 0. (Source: CSMAR Database) |
| Lack of integrity | 1= the chair has individual history of disciplinary actions, 0 otherwise. (Source: CSMAR Database) |
| Training | A dummy variable that equals to 1 the chairperson has internal control training in the current year, otherwise 0. (Source: Annual Reports) |
| Control variables | |
| <u>Chair's characteristics</u> | |
| Age | The log of the age of board chairmen. (Source: CSMAR Database) |
| Gender | 1=if the chair is female, 0 otherwise. (Source: CSMAR Database) |
| Compensation | The log of salary of chairman. (Source: CSMAR Database) |
| Stockholdings | The log of the number of shares of chair. (Source: CSMAR Database) |
| Busyness | 1=if the chair also works in other firms, 0 otherwise. (Source: CSMAR Database) |
| <u>Corporate governance</u> | |

³⁵ Internal Control Index: Internal control index is based on the extent of realization of internal control goals, which measures the internal control level of Chinese listed firms. The scale is from 1 to 1000.

| | |
|--|--|
| Non-duality | 1=if the chairman and general manager ³⁶ are not the same person, 0 otherwise. (Source: CSMAR Database) |
| Independence | The percentage of independent directors (Source: CSMAR Database) |
| Meeting | The log of the numbers of board meetings in the last year. (Source: CSMAR Database) |
| <u>Firm characteristics</u> | |
| Firm age | The log of the number of years. (Source: CSMAR Database) |
| Firm size | Natural logarithm of total assets. (Source: CSMAR Database) |
| <u>Ownership structure</u> | |
| Ownership | 1= state-owned firms, 0 otherwise. (Source: CSMAR Database) |
| <u>Financial condition</u> | |
| Financial health | If the firm reports a positive net profit, I assign one, and zero otherwise. (Source: CSMAR Database) |
| Growth | The growth rate of operating revenue. (Source: CSMAR Database) |
| Restructuring | 1=restructuring this year, 0 otherwise. (Source: CSMAR Database) |
| Leverage | Debt/total assets. (Source: CSMAR Database) |
| <u>Audit status</u> | |
| Audit quality | Equal to 1 if company auditor is one of big 4 auditors, and 0 otherwise. (Source: CSMAR Database) |
| Audit effort | Natural logarithm of audit fee. (Source: CSMAR Database) |
| <u>Management's characteristics</u> | |
| Education-m | The average education level of management. (Source: CSMAR Database) |
| Lack of integrity-m | Measured by the percentage of managers with disciplinary actions. (Source: CSMAR Database) |
| Training-m | 1 = at least one manager has internal control training in the current year, otherwise 0. (Source: Annual Reports) |
| Certification-m | The percentage of management who has accounting certification. (Source: CSMAR Database) |
| Experience-m | 1= a manager is responsible for financial and accounting issues, 0 otherwise. (Source: CSMAR Database) |
| <u>Others</u> | |
| Industry ³⁷ and year | Dummies |

³⁶ General Manager plays a similar role in Chinese firms as CEO in Western world.

³⁷ There are six industries according to China industry classification: financial and insurance, public utilities, comprehension (mixed industries), manufacture, business and real estate and services industry. I deleted financial and insurance industry.

Table 5.3: Summary statistics of internal control weaknesses**Panel A: Distribution by year**

| | | | | | | | | |
|---------|------|------|------|------|------|------|------|-------|
| Year | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | Total |
| Numbers | 232 | 303 | 241 | 233 | 121 | 353 | 210 | 1693 |

Panel B: Distribution by firm

| | | | | | | | | | | | | |
|-----------------------|----|----|---|----|----|----|----|-----|-----|-----|-----|-------|
| Numbers of weaknesses | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Total |
| Firm numbers | 20 | 7 | 7 | 14 | 33 | 61 | 89 | 182 | 400 | 489 | 391 | 1693 |

Panel C: Distribution by industry

| | | | | | | |
|----------|------------------|-------------|------------------------------|-------------|----------|-------|
| Industry | Public utilities | Real estate | Comprehensives ³⁸ | Manufacture | Business | Total |
| Numbers | 154 | 140 | 203 | 1074 | 122 | 1693 |

Panel D: Distribution by categories

| Variable | Mean | Std Dev | Minimum | Maximum |
|---------------------------------|-------|---------|---------|---------|
| Practice ³⁹ | 0.032 | 0.2310 | 0 | 4 |
| Book-keeping | 0.065 | 0.3159 | 0 | 4 |
| Fraud | 0.005 | 0.1239 | 0 | 4 |
| Weaknesses levels ⁴⁰ | 1.073 | 0.3280 | 1 | 3 |

| | Financial weaknesses | Non-financial weaknesses | Both financial and non-financial weaknesses | Only financial weaknesses | Only non-financial weaknesses |
|---------|----------------------|--------------------------|---|---------------------------|-------------------------------|
| Numbers | 278 | 1620 | 205 | 73 | 1415 |

| Types | Numbers |
|------------------------------------|---------|
| Financial reporting | 35 |
| Accounting and revenue recognition | 42 |
| Subsidiary firm | 14 |
| Information disclosure | 115 |
| Corporate governance | 327 |
| Internal control | 702 |
| Rules and regulations | 559 |
| Human resources | 268 |
| Others | 398 |

³⁸ Mixed industry³⁹ According to the contents of weaknesses, internal control database classifies control problems into three types: practice problems, book-keeping weaknesses and fraud issues.⁴⁰ 1=control deficiencies, 2= significant deficiencies, 3=material weaknesses

Table 6.1: Descriptive statistics for the firms disclosed internal control problems**Panel A: Internal control variables**

| Variable | Mean | Std. Dev. | Q1 | Median | Q3 |
|-----------------|------|-----------|--------|--------|--------|
| Ln(ICW numbers) | 0.86 | 0.6019 | 0.6931 | 0.6931 | 1.0986 |
| Remediation | 0.36 | 0.4801 | 0 | 0 | 1 |

Panel B: Individual characteristics of board members

| Variable | Mean | Std. Dev. | Q1 | Median | Q3 |
|-------------------|--------|-----------|------|--------|------|
| Education | 3.1453 | 0.5255 | 2.81 | 3.1 | 3.5 |
| Certification | 0.0710 | 0.1689 | 0 | 0 | 0.11 |
| Experience | 0.0930 | 0.2826 | 0 | 0 | 0 |
| Lack of integrity | 0.0198 | 0.1060 | 0 | 0 | 0 |
| Training | 0.0939 | 0.292 | 0 | 0 | 0 |

Panel C: Individual characteristics of board chairmen

| Variable | Mean | Std. Dev. | Q1 | Median | Q3 |
|-------------------|--------|-----------|--------|---------|---------|
| Education | 3.43 | 0.854 | 3 | 4 | 4 |
| Certification | 0.012 | 0.1081 | 0 | 0 | 0 |
| Lack of integrity | 0.13 | 0.336 | 0 | 0 | 0 |
| Experience | 0.012 | 0.1081 | 0 | 0 | 0 |
| Training | 0.08 | 0.263 | 0 | 0 | 0 |
| Ln(Age) | 3.9036 | 0.1430 | 3.8067 | 3.9120 | 4.0073 |
| Gender | 0.97 | 0.182 | 1 | 1 | 1 |
| Ln (Compensation) | 7.9894 | 6.0117 | 0 | 11.6952 | 12.7939 |
| Ln(Stockholdings) | 3.6006 | 6.0001 | 0 | 0 | 9.2893 |
| Busyness | 0.79 | 0.404 | 1 | 1 | 1 |

Panel D: Control variables

| Variable | Mean | Std. Dev. | Q1 | Median | Q3 |
|----------------------------------|--------|-----------|---------|--------|--------|
| <u>Corporate governance</u> | | | | | |
| Ln(Meeting) | 2.1552 | 0.3515 | 1.9459 | 2.1972 | 2.3979 |
| Non-duality | 0.22 | 0.413 | 0 | 0 | 0 |
| Independence | 0.3379 | 0.7928 | 0.2727 | 0.3333 | 0.3636 |
| <u>Financial condition</u> | | | | | |
| Growth | 0.5488 | 9.8081 | -0.1255 | 0.0696 | 0.3178 |
| Financial health | 0.86 | 0.349 | 1 | 1 | 1 |
| Leverage | 2.3800 | 1.7551 | 1.4848 | 1.9862 | 2.7965 |
| Restructure | 0.713 | 0.4525 | 0 | 1 | 1 |
| <u>Ownership structure</u> | | | | | |
| Ownership | 0.599 | 0.4903 | 0 | 1 | 1 |
| <u>Corporate characteristics</u> | | | | | |

| | | | | | |
|----------------------------------|---------|--------|---------|---------|---------|
| Ln(Size) | 21.6261 | 1.2534 | 20.8118 | 21.5562 | 22.3719 |
| Ln(Firm age) | 2.5702 | 0.5076 | 2.3979 | 2.6391 | 2.8904 |
| <u>Audit status</u> | | | | | |
| Ln(Auditing fee) | 13.3892 | 0.6729 | 12.8998 | 13.3047 | 13.7102 |
| Big 4 | 0.03 | 0.176 | 0 | 0 | 0 |
| <u>Managers' characteristics</u> | | | | | |
| Experience-m | 0.23 | 0.423 | 0 | 0 | 0 |
| Education-m | 3.1024 | 0.5013 | 2.8 | 3 | 3.44 |
| Certification-m | 0.0764 | 0.1123 | 0 | 0 | 0.14 |
| Lack of integrity-m | 0.0100 | 0.0506 | 0 | 0 | 0 |
| Training-m | 0.083 | 0.275 | 0 | 0 | 0 |

Table 6.2: Comparison between firms with and without internal control problems

Panel A: Descriptive statistics on internal control index

| Variable | Initial Sample | | | | | Predicted difference | Matching Sample | | | | |
|--------------------------------|----------------|--------|-----------|--------|--------|----------------------|---------------------|---------------------|-----------|--------|--------|
| | Mean | Median | Std. Dev. | 25% | 75% | | Mean | Median | Std. Dev. | 25% | 75% |
| Ln (Internal control index)/10 | 0.6297 | 0.6520 | 0.1077 | 0.6391 | 0.6569 | < | 0.6454 ^a | 0.6525 ^a | 0.0566 | 0.6437 | 0.6571 |

Panel B: Descriptive statistics on characteristics of board members

| Variable | Initial Sample | | | | | Predicted difference | Matching Sample | | | | |
|-------------------|----------------|--------|-----------|------|--------|----------------------|---------------------|---------------------|-----------|--------|--------|
| | Mean | Median | Std. Dev. | 25% | 75% | | Mean | Median | Std. Dev. | 25% | 75% |
| Experience | 0.0930 | 0 | 0.2826 | 0 | 0 | < | 0.2339 ^a | 0 ^a | 0.4234 | 0 | 0 |
| Certification | 0.0710 | 0 | 0.1689 | 0 | 0 | < | 0.1075 ^b | 0.1 ^a | 0.1314 | 0 | 0.14 |
| Training | 0.0939 | 0 | 0.292 | 0 | 0 | < | 0.12 ^a | 0 ^s | 0.330 | 0 | 0 |
| Education | 3.1453 | 3.1 | 0.5255 | 2.81 | 3.5 | < | 3.5219 ^a | 3.5 ^a | 0.6039 | 3 | 4 |
| Lack of integrity | 0.0198 | 0 | 0.1060 | 0 | 0 | > | 0.0036 ^a | 0 ^a | 0.0401 | 0 | 0 |
| Characteristics | 0.8870 | 0.714 | 0.4391 | 0.6 | 0.8830 | < | 1.1704 ^a | 0.9100 ^a | 0.5838 | 0.7250 | 1.6900 |

Panel C: Descriptive statistics on characteristics of board chairmen

| Variable | Initial Sample | | | | | Predicted difference | Matching Sample | | | | |
|-------------------|----------------|--------|-----------|--------|--------|----------------------|---------------------|---------------------|-----------|--------|--------|
| | Mean | Median | Std. Dev. | 25% | 75% | | Mean | Median | Std. Dev. | 25% | 75% |
| Experience | 0.012 | 0 | 0.1081 | 0 | 0 | < | 0.028 ^a | 0 ^a | 0.1660 | 0 | 0 |
| Certification | 0.012 | 0 | 0.1018 | 0 | 0 | < | 0.063 ^a | 0 ^a | 0.2423 | 0 | 0 |
| Training | 0.08 | 0 | 0.263 | 0 | 0 | < | 0.14 ^a | 0 ^a | 0.351 | 0 | 0 |
| Education | 3.43 | 4 | 0.854 | 3 | 4 | < | 3.45 | 4 | 0.8500 | 3 | 4 |
| Lack of integrity | 0.130 | 0 | 0.3363 | 0 | 0 | > | 0.069 ^a | 0 ^a | 0.2537 | 0 | 0 |
| Ln(Age) | 3.9036 | 3.9120 | 0.1430 | 3.8067 | 4.0073 | < | 3.9444 ^a | 3.9318 ^a | 0.1367 | 3.8712 | 4.0431 |
| Gender | 0.9657 | 1 | 0.1819 | 1 | 1 | > | 0.9551 | 1 | 0.2071 | 1 | 1 |

| | | | | | | | | | | | |
|-------------------|--------|---------|--------|---|---------|---|---------------------|----------------------|--------|---|---------|
| Ln(Compensation) | 7.9894 | 11.6952 | 6.0117 | 0 | 12.7939 | < | 8.9973 ^a | 12.2681 ^a | 5.8863 | 0 | 13.1993 |
| Ln(Stockholdings) | 3.6006 | 0 | 6.0001 | 0 | 9.2893 | < | 4.9234 ^a | 0 ^a | 6.9353 | 0 | 11.2371 |
| Busyness | 0.7944 | 1 | 0.4042 | 1 | 1 | > | 0.7894 | 1 ^b | 0.3953 | 1 | 1 |

Panel D: Descriptive statistics on control variables

| Variable | Initial Sample | | | | | Predicted difference | Matching Sample | | | | |
|----------------------------------|----------------|---------|-----------|---------|---------|----------------------|---------------------|----------------------|-----------|---------|---------|
| | Mean | Median | Std. Dev. | 25% | 75% | | Mean | Median | Std. Dev. | 25% | 75% |
| <u>Managers' characteristics</u> | | | | | | | | | | | |
| Lack of integrity-m | 0.0100 | 0 | 0.0506 | 0 | 0 | > | 0.0026 ^a | 0 ^a | 0.0264 | 0 | 0 |
| Training-m | 0.083 | 0 | 0.275 | 0 | 0 | < | 0.15 ^a | 0 ^a | 0.382 | 0 | 0 |
| Education-m | 3.1024 | 3 | 0.5013 | 2.8 | 3.44 | < | 3.2356 ^a | 3 ^a | 0.5197 | 3 | 3.69 |
| Certification-m | 0.0764 | 0 | 0.1123 | 0 | 0.14 | < | 0.0888 ^b | 0 ^a | 0.2154 | 0 | 0.09 |
| Experience-m | 0.2339 | 0 | 0.4234 | 0 | 0 | < | 0.6438 ^a | 1 ^a | 0.4742 | 0 | 1 |
| <u>Corporate governance</u> | | | | | | | | | | | |
| Ln(Meeting) | 2.1552 | 2.1972 | 0.3515 | 1.9459 | 2.3979 | < | 2.1246 | 2.0794 ^a | 0.3582 | 1.9459 | 2.3056 |
| Non-duality | 0.22 | 0 | 0.413 | 0 | 0 | < | 0.15 ^a | 0 ^a | 0.358 | 0 | 0 |
| Independence | 0.3379 | 0.3333 | 0.7928 | 0.2727 | 0.3636 | < | 0.3516 ^a | 0.3333 ^a | 0.0633 | 0.3333 | 0.3750 |
| <u>Ownership structure</u> | | | | | | | | | | | |
| Ownership | 0.5989 | 1 | 0.4903 | 0 | 1 | < | 0.59 | 1 | 0.492 | 0 | 1 |
| <u>Financial condition</u> | | | | | | | | | | | |
| Growth | 0.5488 | 0.0696 | 9.8081 | -0.1255 | 0.3178 | < | 0.7881 | 0.0949 ^a | 10.0102 | -0.0722 | 0.3543 |
| Financial health | 0.858 | 1 | 0.3489 | 1 | 1 | < | 0.895 ^a | 1 ^a | 0.3061 | 1 | 1 |
| Leverage | 2.3800 | 19862 | 1.7551 | 1.4848 | 2.7965 | > | 2.4302 | 2.0245 | 1.6387 | 1.5463 | 2.7500 |
| Restructure | 0.713 | 1 | 0.4525 | 1 | 1 | > | 0.66 ^a | 1 ^a | 0.472 | 0 | 1 |
| <u>Audit status</u> | | | | | | | | | | | |
| Big 4 | 0.032 | 0 | 0.1758 | 0 | 0 | < | 0.031 | 0 | 0.1726 | 0 | 0 |
| Ln(Auditing Fee) | 13.3892 | 13.3047 | 0.6729 | 12.8998 | 13.7102 | < | 13.3227 | 13.2357 ^b | 0.6289 | 12.8992 | 13.6877 |
| <u>Corporate characteristics</u> | | | | | | | | | | | |

| | | | | | | | | | | | |
|--------------|---------|---------|--------|---------|---------|---|----------------------|----------------------|--------|---------|---------|
| Ln(Firm Age) | 2.5702 | 2.6391 | 0.5076 | 2.3979 | 2.8904 | < | 2.5739 | 2.6391 | 0.4721 | 2.0326 | 2.8332 |
| Size | 21.6276 | 21.5562 | 1.2534 | 20.8118 | 22.3719 | > | 21.3478 ^a | 21.1739 ^a | 1.2299 | 20.5358 | 22.0879 |

Notes

1. The t-test of means use the pooled method when the underlying variances are equal and the Satterthwaite method when they are unequal.
2. a, b, or c significantly different from Material Weakness group at a one-tailed p-value 0.01, 0.05, or 0.10, respectively, under a t-test (shown on mean value above) or Wilcoxon rank-sum test (shown on median value above).
3. See Table 5.2 for variable definitions.

Table 6.3: Correlations between variables

Panel A: Board members

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1.Lack of integrity | 1 | .011 | -.059 | -.031 | .006 | .683 | -.012 | -.025 | .011 | -.040 | .024 | -.066 | .001 | .009 | -.052 | -.091 | -.034 | -.079 | -.031 | -.040 | .025 | -.049 |
| 2.Training | .002 | 1 | .054 | .046 | .004 | .015 | .355 | .024 | .008 | .024 | .009 | .026 | -.022 | .055 | -.055 | -.052 | -.020 | .022 | -.019 | -.011 | .041 | .004 |
| 3.Education | -.068 | .050 | 1 | .118 | .003 | -.059 | .054 | .167 | .013 | .005 | .003 | .024 | .013 | .043 | .002 | -.003 | .025 | .017 | .028 | .070 | -.03 | .003 |
| 4.Certification | -.028 | .031 | .088 | 1 | .082 | -.020 | .031 | -.050 | .305 | .064 | -.007 | .022 | .009 | .036 | .007 | -.001 | .013 | .017 | -.012 | -.003 | .005 | .010 |
| 5.Experience | -.008 | .006 | .009 | .049 | 1 | .020 | .013 | -.052 | -.024 | -.171 | -.014 | .023 | -.008 | .010 | -.034 | .001 | -.016 | .033 | .005 | .019 | -.006 | .001 |
| 6.Lack of integrity-m | .734 | .015 | -.068 | -.010 | .012 | 1 | -.010 | -.026 | .018 | -.036 | .020 | -.058 | .021 | .003 | -.039 | -.070 | -.027 | -.073 | -.031 | -.050 | .044 | -.023 |
| 7.Traing-m | -.009 | .333 | .050 | .038 | .017 | -.015 | 1 | -.001 | .039 | .034 | .016 | -.011 | .018 | .084 | -.041 | -.045 | -.020 | -.024 | -.026 | .002 | .044 | -.008 |
| 8.Education-m | -.047 | .077 | .175 | -.175 | .001 | -.041 | 0 | 1 | -.061 | .025 | .096 | .272 | .115 | .280 | -.031 | .115 | .029 | .280 | .046 | .229 | -.007 | .068 |
| 9. Certification-m | -.010 | .026 | .038 | .257 | -.012 | -.009 | .119 | -.071 | 1 | -.009 | .009 | .020 | -.024 | .008 | .005 | .042 | -.032 | .007 | .022 | -.076 | .014 | -.026 |
| 10.Experience-m | -.042 | .023 | .002 | -.006 | -.202 | -.041 | .030 | .048 | -.048 | 1 | .019 | .041 | .004 | -.017 | .030 | -.026 | .047 | .006 | .014 | .080 | -.028 | .025 |
| 11.Meeting | .018 | .017 | .015 | -.010 | -.020 | .013 | .015 | .116 | -.012 | .014 | 1 | .160 | .153 | .081 | -.024 | .152 | .023 | -.018 | .046 | .055 | -.005 | .151 |
| 12.Audit fee | -.050 | .036 | .036 | .050 | .001 | -.054 | -.014 | .235 | .001 | .027 | .167 | 1 | .038 | .103 | .102 | .559 | .028 | .079 | .234 | .144 | -.066 | .234 |
| 13. Restructure | .018 | -.022 | .015 | .007 | -.015 | .017 | .019 | .121 | -.013 | .007 | .154 | .036 | 1 | .031 | -.033 | .031 | -.003 | -.009 | -.026 | .019 | .001 | .045 |
| 14. Firm age | .016 | .048 | .046 | .040 | -.003 | .012 | .070 | .213 | .023 | .002 | .077 | .055 | .033 | 1 | .087 | .078 | .015 | -.042 | -.019 | .100 | -.069 | .124 |
| 15. Owner | -.042 | -.055 | .009 | -.010 | -.034 | -.042 | -.034 | -.011 | -.019 | .035 | -.022 | .114 | -.033 | .111 | 1 | .260 | -.012 | -.010 | .058 | .003 | -.146 | .164 |
| 16. Size | -.074 | -.037 | .009 | .021 | -.017 | -.076 | -.041 | .126 | .024 | -.027 | .166 | .608 | .024 | .061 | .259 | 1 | .021 | .152 | .167 | .099 | -.106 | .315 |
| 17.Growth | -.005 | -.012 | .019 | .005 | .023 | -.005 | -.007 | .049 | -.015 | .013 | .007 | .009 | .019 | .038 | .016 | .017 | 1 | .058 | -.025 | .042 | -.022 | .040 |

| | | | | | | | | | | | | | | | | | | | | | | |
|----------------------|--------------|-------------|--------------|-------|-------------|--------------|-------------|-------------|-------|--------------|-------------|--------------|--------------|--------------|--------------|--------------|-------|--------------|-------------|-------------|--------------|--------------|
| 18. Financial health | -.085 | .022 | .014 | .003 | .041 | -.079 | -.022 | .009 | -.004 | .007 | -.014 | .081 | -.009 | -.032 | -.010 | .146 | .013 | 1 | .036 | .019 | -.012 | -.077 |
| 19. Big4 | -.026 | -.019 | .016 | -.024 | -.007 | -.028 | -.026 | .051 | -.003 | .015 | .045 | .361 | -.026 | -.015 | .058 | .222 | -.005 | .036 | 1 | .023 | -.029 | .050 |
| 20.Independence | .005 | .000 | .073 | .007 | -.002 | -.012 | .021 | .178 | -.010 | .042 | .079 | .114 | .029 | .088 | .003 | .084 | -.014 | .017 | .034 | 1 | -.023 | .034 |
| 21.Non-duality | .021 | .041 | -.036 | .009 | -.006 | .043 | .044 | -.019 | -.012 | -.028 | -.007 | -.061 | .001 | -.079 | -.146 | -.105 | -.015 | -.012 | -.029 | -.019 | 1 | -.132 |
| 22. Leverage | -.029 | .002 | .000 | .010 | -.013 | -.019 | -.003 | .088 | -.018 | -.015 | .105 | .151 | -.038 | .100 | .108 | .211 | .012 | -.091 | .025 | .044 | -.093 | 1 |

Panel B: Board chairmen

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-----------------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------|--------------|--------------|--------------|
| 1.Lack of integrity-c | 1 | -.014 | -.050 | -.041 | -.018 | -.005 | -.008 | -.037 | -.033 | .012 |
| 2.Education-c | -.013 | 1 | .052 | .037 | -.015 | -.053 | -.026 | .001 | .000 | .006 |
| 3.Certification-c | -.050 | .047 | 1 | .306 | .031 | .014 | .054 | -.005 | -.047 | .000 |
| 4.Experience-c | -.041 | .032 | .306 | 1 | .044 | -.005 | .000 | -.018 | -.008 | -.003 |
| 5.Training-c | -.018 | -.017 | .031 | .044 | 1 | -.003 | .050 | -.007 | -.013 | -.026 |
| 6.Age | -.004 | -.056 | .015 | -.001 | -.007 | 1 | .052 | .082 | .051 | -.024 |
| 7. Compensation | .006 | -.021 | .036 | -.006 | .042 | -.004 | 1 | .349 | -.178 | -.082 |
| 8. Stockholdings | -.037 | .001 | -.004 | -.018 | -.008 | .081 | .320 | 1 | -.045 | -.063 |
| 9. Busyness | -.042 | -.008 | -.047 | -.008 | -.007 | .052 | -.208 | -.037 | 1 | .008 |
| 10. Gender | .012 | .007 | .000 | -.003 | -.026 | -.017 | -.073 | -.061 | .006 | 1 |

Notes:

1. Table 6 reports the correlation coefficient between the independent variables. Spearman correlations are presented above the diagonal. Pearson correlations are presented below the diagonal. A correlation coefficient in bold indicates that correlation is statistically significant at the 10 percent level or better.

2. See Table 5.2 for variable definitions.

Table 6.4: Regression analysis for full sample

Panel A: Board members (H 1-5)

$$\begin{aligned}
 ICW_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
 & \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + \\
 & \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \\
 & \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \\
 & \beta_{16} Big4_{i,t} + \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \\
 & \beta_{20} Education - m_{i,t} + \beta_{21} Integrity - m_{i,t} + \beta_{22} Training - m_{i,t} + \\
 & \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}$$

Model 1-1

$$\begin{aligned}
 ICI_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
 & \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + \\
 & \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \\
 & \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \\
 & \beta_{16} Big4_{i,t} + \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \\
 & \beta_{20} Education - m_{i,t} + \beta_{21} Integrity - m_{i,t} + \beta_{22} Training - m_{i,t} + \\
 & \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}$$

Model 1-2

| Variables | DV=ICW | | | DV=ICI | | |
|-------------------|---------------|---------|-----------|---------------|---------|----------|
| | Expected Sign | Coef. | Z | Expected Sign | Coef. | T |
| Education | - | -1.6067 | -15.15*** | + | -0.0034 | -1.07 |
| Certification | - | -1.6732 | -5.74*** | + | 0.0080 | 0.81 |
| Experience | - | -2.0545 | -15.87*** | + | 0.0076 | 1.88* |
| Lack of integrity | + | 1.9486 | 1.91* | - | -0.0214 | -0.81 |
| Training | - | -0.1652 | -1.07 | + | 0.0022 | 0.44 |
| Ownership | - | 0.0049 | 0.05 | + | -0.0037 | -1.16 |
| Independence | - | -3.6143 | -5.69*** | + | -0.0172 | -0.83 |
| Meeting | - | 0.1886 | 1.44 | + | 0.0069 | 1.6 |
| Non-duality | - | 0.5522 | 4.69*** | + | -0.0103 | -2.72*** |
| Firm age | + | 0.0456 | 0.48 | - | -0.0084 | -2.71*** |
| Size | + | 0.2985 | 6.28*** | - | 0.0128 | 8.26*** |
| Leverage | + | -0.0845 | -3.15*** | - | 0.0013 | 1.48 |

| | | | | | | |
|---|---|------------|-----------|---|----------|----------|
| Restructure | + | 0.3639 | 3.6*** | - | 0.0013 | 0.39 |
| Growth | - | -0.0003 | -0.07 | + | 0.0000 | -0.07 |
| Financial health | - | -0.5213 | -3.72*** | + | 0.0313 | 6.87*** |
| Audit fee | - | -0.0701 | -0.73 | + | -0.0136 | -4.35*** |
| Big4 | - | -0.2070 | -0.78 | + | -0.0027 | -0.3 |
| Lack of integrity-m | + | 2.5091 | 1.37 | - | -0.1662 | -3.16*** |
| Training-m | - | -0.6340 | -4.14*** | + | 0.0056 | 1.21 |
| Education-m | - | 0.6280 | 5.86*** | + | 0.0048 | 1.41 |
| Certification-m | - | -0.2000 | -0.7 | + | 0.0069 | 0.72 |
| Experience-m | - | -2.3609 | -23.75*** | + | 0.0046 | 1.49 |
| Constant | ? | 0.9549 | 0.79 | ? | 0.5308 | 13.67 |
| Industry indicators | | Included | | | Included | |
| Year indicators | | Included | | | Included | |
| Observations | | 3386 | | | 3386 | |
| Log likelihood/F | | -1592.2134 | | | 7.8 | |
| Pseudo R ² /Adj R ² | | 0.3216 | | | 0.0587 | |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Panel B: Board chairmen (H6)

$$\begin{aligned}
 ICW_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
 & \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Age_{i,t} + \beta_7 Gender_{i,t} + \beta_8 Compensation_{i,t} + \\
 & \beta_9 Stock_{i,t} + \beta_{10} Busyness_{i,t} + \beta_{11} Meeting_{i,t-1} + \beta_{12} Duality_{i,t} + \\
 & \beta_{13} Independence_{i,t} + \beta_{14} Owner_{i,t} + \beta_{15} Growth_{i,t} + \beta_{16} Financial\ health_{i,t} + \\
 & \beta_{17} Leverage_{i,t} + \beta_{18} Restructure_{i,t} + \beta_{19} Firm\ age_{i,t} + \beta_{20} Size_{i,t} + \\
 & \beta_{21} Big4_{i,t} + \beta_{22} Audit\ fee_{i,t} + \beta_{23} Experience - m_{i,t} + \beta_{24} Certification - m_{i,t} + \\
 & \beta_{25} Education - m_{i,t} + \beta_{26} Integrity - m_{i,t} + \beta_{27} Training - m_{i,t} + \\
 & \beta_{28} Experience - b_{i,t} + \beta_{29} Certification - b_{i,t} + \beta_{30} Education - b_{i,t} + \\
 & \beta_{31} Integrity - b_{i,t} + \beta_{32} Training - b_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}$$

Model 1-3

$$\begin{aligned}
 ICI_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
 & \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Age_{i,t} + \beta_7 Gender_{i,t} + \beta_8 Compensation_{i,t} + \\
 & \beta_9 Stock_{i,t} + \beta_{10} Busyness_{i,t} + \beta_{11} Meeting_{i,t-1} + \beta_{12} Duality_{i,t} + \\
 & \beta_{13} Independence_{i,t} + \beta_{14} Owner_{i,t} + \beta_{15} Growth_{i,t} + \beta_{16} Financial\ health_{i,t} + \\
 & \beta_{17} Leverage_{i,t} + \beta_{18} Restructure_{i,t} + \beta_{19} Firm\ age_{i,t} + \beta_{20} Size_{i,t} + \\
 & \beta_{21} Big4_{i,t} + \beta_{22} Audit\ fee_{i,t} + \beta_{23} Experience - m_{i,t} + \beta_{24} Certification - m_{i,t} + \\
 & \beta_{25} Education - m_{i,t} + \beta_{26} Integrity - m_{i,t} + \beta_{27} Training - m_{i,t} + \\
 & \beta_{28} Experience - b_{i,t} + \beta_{29} Certification - b_{i,t} + \beta_{30} Education - b_{i,t} + \\
 & \beta_{31} Integrity - b_{i,t} + \beta_{32} Training - b_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}$$

Model 1-4

| Variables | DV=ICW | | | DV=ICI | | |
|-------------------|---------------|---------|----------|---------------|---------|--------|
| | Expected Sign | Coef. | Z | Expected Sign | Coef. | T |
| Lack of integrity | + | -0.0232 | -0.24 | - | -0.0037 | -1.23 |
| Education | - | -0.0060 | -0.12 | + | -0.0033 | -1.95* |
| Certification | - | -0.8040 | -3.01*** | + | 0.0139 | 1.71* |
| Experience | - | -0.5943 | -1.68* | + | 0.0033 | 0.31 |
| Training | - | -0.1570 | -0.44 | + | 0.0073 | 0.68 |
| Age | - | -0.5285 | -1.63 | + | 0.0063 | 0.59 |
| Gender | - | 0.2888 | 1.29 | + | -0.0005 | -0.07 |
| Compensation | - | 0.0047 | 0.56 | + | 0.0002 | 0.71 |

| | | | | | | |
|---------------------|---|---------|-----------|---|---------|----------|
| Stockholdings | - | -0.0057 | -0.75 | + | 0.0005 | 2.11** |
| Busyness | + | 0.1309 | 1.14 | - | 0.0020 | 0.54 |
| Ownership | - | -0.0174 | -0.17 | + | -0.0013 | -0.38 |
| Independence | - | -3.6520 | -5.72*** | + | -0.0140 | -0.68 |
| Meeting | - | 0.1679 | 1.28 | + | 0.0072 | 1.67* |
| Non-duality | - | 0.5485 | 4.56*** | + | -0.0110 | -2.83*** |
| Firm age | + | 0.0584 | 0.61 | - | -0.0079 | -2.52** |
| Size | + | 0.3125 | 6.5*** | - | 0.0125 | 8.01*** |
| Leverage | + | -0.0881 | -3.26*** | - | 0.0015 | 1.69* |
| Restructure | + | 0.3595 | 3.55*** | - | 0.0011 | 0.35 |
| Growth | - | 0.0002 | 0.05 | + | 0.0000 | -0.14 |
| Financial health | - | -0.5288 | -3.75*** | + | 0.0304 | 6.66*** |
| Audit fee | - | -0.0625 | -0.64 | + | -0.0142 | -4.53*** |
| Big 4 | - | -0.1936 | -0.73 | + | -0.0022 | -0.25 |
| Lack of integrity-m | + | 2.5079 | 1.36 | - | -0.1716 | -3.26*** |
| Training-m | - | -0.6187 | -3.84*** | + | 0.0045 | 0.9 |
| Education-m | - | 0.6085 | 5.66*** | + | 0.0051 | 1.51 |
| Certification-m | - | -0.2152 | -0.75 | + | 0.0073 | 0.76 |
| Experience-m | - | -2.3520 | -23.56*** | + | 0.0046 | 1.49 |
| Education-b | - | -1.5953 | -15.03*** | + | -0.0036 | -1.15 |
| Certification-b | - | -1.6423 | -5.63*** | + | 0.0074 | 0.75 |
| Experience-b | - | -1.9909 | -15.42*** | + | 0.0066 | 1.63 |
| Lack of integrity-b | + | 1.9754 | 1.91* | - | -0.0175 | -0.66 |
| Training-b | - | -0.0435 | -0.13 | + | -0.0037 | -0.36 |
| Constant | ? | 2.4629 | 1.45 | ? | 0.5206 | 9.43*** |
| Industry indicators | | | Included | | | Included |

| | | |
|------------------------------|----------|----------|
| Year indicators | Included | Included |
| Number of obs | 3386 | 3386 |
| Log likelihood/F | -1589.99 | 6.29 |
| Pseudo R2/Adj R ² | 0.3225 | 0.0602 |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Table 6.5: Regression analysis for firms disclosed problems

Panel A: Board members (H1-5)

$$\begin{aligned}
 ICN_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \\
 & \beta_7 Duality_{i,t} + \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \\
 & \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \beta_{16} Big4_{i,t} + \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \\
 & \beta_{20} Education - m_{i,t} + \beta_{21} Integrity - m_{i,t} + \beta_{22} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}
 \tag{Model 1-5}$$

$$\begin{aligned}
 ICR_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \\
 & \beta_7 Duality_{i,t} + \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \\
 & \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \beta_{16} Big4_{i,t} + \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \\
 & \beta_{20} Education - m_{i,t} + \beta_{21} Integrity - m_{i,t} + \beta_{22} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}
 \tag{Model 1-6}$$

| Variables | Expected Sign | DV=ICN | | | DV=ICR | | |
|-------------------|---------------|---------|--------|---------------|--------|-------|--|
| | | Coef. | T | Expected Sign | Coef. | Z | |
| Education | - | -0.0479 | -0.66 | + | 0.2370 | 0.89 | |
| Certification | - | -0.1547 | -1.75* | + | 0.5858 | 1.8* | |
| Experience | - | -0.0239 | -0.46 | + | 0.3486 | 1.65* | |
| Lack of integrity | + | 0.1325 | 0.65 | - | 0.2321 | 0.3 | |
| Training | - | -0.0255 | -0.35 | + | 0.3750 | 1.28 | |
| Ownership | - | 0.0567 | 1.8* | + | 0.0930 | 0.73 | |

| | | | | | | |
|---------------------|---|---------|---------|---|---------|----------|
| Independence | - | -0.2832 | -1.51 | + | -0.5454 | -0.72 |
| Meeting | - | 0.0313 | 0.73 | + | 0.1184 | 0.69 |
| Non-duality | - | 0.0089 | 0.25 | + | -0.2466 | -1.71* |
| Firm age | + | -0.0111 | -0.37 | - | 0.0104 | 0.09 |
| Size | + | -0.0172 | -1.02 | - | 0.0417 | 0.61 |
| Leverage | + | 0.0124 | 1.43 | - | 0.0105 | 0.3 |
| Restructure | + | -0.0110 | -0.33 | - | -0.2259 | -1.74* |
| Growth | - | -0.0024 | -1.62 | + | 0.0100 | 0.44 |
| Financial health | - | 0.0447 | 1.03 | + | -0.2021 | -1.19 |
| Audit fee | - | 0.0052 | 0.16 | + | -0.0926 | -0.71 |
| Big4 | - | 0.1213 | 1.34 | + | 0.8970 | 2.55** |
| Lack of integrity-m | + | -0.0279 | -0.07 | - | 3.9375 | 2.41** |
| Training-m | - | 0.1070 | 1.41 | + | -0.3852 | -1.24 |
| Certification-m | - | 0.0062 | 0.05 | + | -1.8752 | -3.39*** |
| Experience-m | - | -0.0530 | -1.47 | + | 0.4790 | 3.5*** |
| Education-m | - | 0.0262 | 0.35 | + | -0.2257 | -0.81 |
| Constant | ? | 1.2768 | 3.39*** | ? | 0.5384 | 0.36 |

| | | |
|-------------------------------|----------|-----------|
| Industry indicators | Included | Included |
| Year indicators | Included | Included |
| Observations | 1693 | 1693 |
| F/Log likelihood | 2.97 | -919.0243 |
| Adj R2 /Pseudo R ² | 0.0349 | 0.1690 |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Panel B: Board chairmen (H6)

$$\begin{aligned}
 ICN_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Age_{i,t} + \beta_7 Gender_{i,t} + \\
 & \beta_8 Compensation_{i,t} + \beta_9 Stock_{i,t} + \beta_{10} Busyness_{i,t} + \beta_{11} Meeting_{i,t-1} + \beta_{12} Duality_{i,t} + \beta_{13} Independence_{i,t} + \\
 & \beta_{14} Owner_{i,t} + \beta_{15} Growth_{i,t} + \beta_{16} Financial\ health_{i,t} + \beta_{17} Leverage_{i,t} + \beta_{18} Restructure_{i,t} + \beta_{19} Firm\ age_{i,t} + \\
 & \beta_{20} Size_{i,t} + \beta_{21} Big4_{i,t} + \beta_{22} Audit\ fee_{i,t} + \beta_{23} Experience - m_{i,t} + \beta_{24} Certification - m_{i,t} + \beta_{25} Education - m_{i,t} + \\
 & \beta_{26} Integrity - m_{i,t} + \beta_{27} Training - m_{i,t} + \beta_{28} Experience - b_{i,t} + \beta_{29} Certification - b_{i,t} + \beta_{30} Education - b_{i,t} + \\
 & \beta_{31} Integrity - b_{i,t} + \beta_{32} Training - b_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}
 \tag{Model 1-7}$$

$$\begin{aligned}
 ICR_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Age_{i,t} + \beta_7 Gender_{i,t} + \\
 & \beta_8 Compensation_{i,t} + \beta_9 Stock_{i,t} + \beta_{10} Busyness_{i,t} + \beta_{11} Meeting_{i,t-1} + \beta_{12} Duality_{i,t} + \beta_{13} Independence_{i,t} + \\
 & \beta_{14} Owner_{i,t} + \beta_{15} Growth_{i,t} + \beta_{16} Financial\ health_{i,t} + \beta_{17} Leverage_{i,t} + \beta_{18} Restructure_{i,t} + \beta_{19} Firm\ age_{i,t} + \\
 & \beta_{20} Size_{i,t} + \beta_{21} Big4_{i,t} + \beta_{22} Audit\ fee_{i,t} + \beta_{23} Experience - m_{i,t} + \beta_{24} Certification - m_{i,t} + \beta_{25} Education - m_{i,t} + \\
 & \beta_{26} Integrity - m_{i,t} + \beta_{27} Training - m_{i,t} + \beta_{28} Experience - b_{i,t} + \beta_{29} Certification - b_{i,t} + \beta_{30} Education - b_{i,t} + \\
 & \beta_{31} Integrity - b_{i,t} + \beta_{32} Training - b_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}
 \tag{Model 1-8}$$

| Variables | DV=ICN | | | DV=ICR | | |
|-------------------|---------------|---------|--------|---------------|---------|-------|
| | Expected Sign | Coef. | T | Expected Sign | Coef. | Z |
| Lack of integrity | + | -0.0601 | -2** | - | -0.1351 | -1.19 |
| Education | - | -0.0029 | -0.17 | + | -0.0470 | -0.74 |
| Certification | - | -0.2274 | -2.2** | + | -0.1739 | -0.46 |
| Experience | - | 0.0414 | 0.31 | + | 0.4428 | 0.96 |
| Training | - | 0.1154 | 1.57 | + | -0.4232 | -1.44 |

| | | | | | | |
|------------------|---|---------|----------|---|---------|----------|
| Age | - | 0.0811 | 0.74 | + | 0.7865 | 1.96** |
| Gender | - | 0.0720 | 0.83 | + | -0.8095 | -2.65*** |
| Compensation | - | 0.0032 | 1.16 | + | -0.0158 | -1.55 |
| Stockholdings | - | 0.0010 | 0.39 | + | 0.0063 | 0.71 |
| Busyness | + | -0.0369 | -0.98 | - | -0.0698 | -0.51 |
| Ownership | - | 0.0176 | 0.53 | + | -0.1214 | -0.98 |
| Independence | - | -0.5605 | -2.92*** | + | -1.0868 | -1.48 |
| Meeting | - | 0.0244 | 0.56 | + | -0.0120 | -0.08 |
| Non-duality | - | -0.0402 | -1.09 | + | 0.0137 | 0.1 |
| Firm age | + | -0.0292 | -0.96 | - | -0.5370 | -4.82*** |
| Size | + | 0.0019 | 0.11 | - | -0.0414 | -0.65 |
| Leverage | + | -0.0151 | -1.72* | - | -0.0019 | -0.06 |
| Restructure | + | 0.0024 | 0.07 | - | -0.2335 | -1.92* |
| Growth | - | 0.0007 | 0.49 | + | -0.0752 | -1.56 |
| Financial health | - | 0.0324 | 0.73 | + | 0.0007 | 0 |
| Audit fee | - | 0.0346 | 1.06 | + | 0.1866 | 1.57 |
| Big 4 | - | 0.1235 | 1.34 | + | -0.1526 | -0.47 |

| | | | | | | |
|---------------------|---|----------|---------|---|----------|----------|
| Lack of integrity-m | + | -0.0410 | -0.14 | - | -2.3305 | -1.85* |
| Training-m | - | -0.0203 | -0.26 | + | -0.1423 | -0.47 |
| Education-m | - | 0.0418 | 0.56 | + | -0.9100 | -3.31*** |
| Certification-m | - | -0.3009 | -2.25** | + | -0.5462 | -1.1 |
| Experience-m | - | 0.0025 | 0.07 | + | 0.0229 | 0.18 |
| Education-b | - | -0.0480 | -0.67 | + | 0.9491 | 3.61*** |
| Certification-b | - | 0.0022 | 0.02 | + | 0.5428 | 1.7* |
| Experience-b | - | -0.0215 | -0.41 | + | 0.4437 | 2.37** |
| Lack of integrity-b | + | 0.0075 | 0.05 | - | 1.1009 | 2.26** |
| Training-b | - | 0.1281 | 2.54** | + | 0.3580 | 2** |
| Constant | ? | 0.2743 | 0.5 | ? | -1.7673 | -0.87 |
| Industry indicators | | Included | | | Included | |
| Year indicators | | Included | | | Included | |
| Observations | | 1693 | | | 1693 | |
| F/Log likelihood | | 1.57 | | | -1025.66 | |
| Adj R2 /Pseudo R2 | | 0.0137 | | | 0.0726 | |

This table reports coefficients and t -statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Table 6.6: Board behaviour (H7)

Panel A: Frequency of board meetings

$$\begin{aligned}
 ICW_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
 & \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Duality_{i,t} + \beta_7 Owner_{i,t} + \beta_8 Growth_{i,t} + \\
 & \beta_9 Financial\ health_{i,t} + \beta_{10} Leverage_{i,t} + \beta_{11} Restructure_{i,t} + \beta_{12} Firm\ age_{i,t} + \\
 & \beta_{13} Size_{i,t} + \beta_{14} Big4_{i,t} + \beta_{15} Audit\ fee_{i,t} + \beta_{16} Experience - m_{i,t} + \\
 & \beta_{17} Certification - m_{i,t} + \beta_{18} Education - m_{i,t} + \beta_{19} Integrity - m_{i,t} + \\
 & \beta_{20} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}$$

Model 2-1-1

$$\begin{aligned}
 ICW_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
 & \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t} + \beta_7 Duality_{i,t} + \\
 & \beta_8 Owner_{i,t} + \beta_9 Growth_{i,t} + \beta_{10} Financial\ health_{i,t} + \beta_{11} Leverage_{i,t} + \\
 & \beta_{12} Restructure_{i,t} + \beta_{13} Firm\ age_{i,t} + \beta_{14} Size_{i,t} + \beta_{15} Big4_{i,t} + \beta_{16} Audit\ fee_{i,t} + \\
 & \beta_{17} Experience - m_{i,t} + \beta_{18} Certification - m_{i,t} + \beta_{19} Education - m_{i,t} + \\
 & \beta_{20} Integrity - m_{i,t} + \beta_{21} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}$$

Model 2-1-2

| Variables | Expected Sign | Model 2-1-1 | | Model 2-1-2 | |
|-------------------|---------------|-------------|-----------|-------------|-----------|
| | | Coef. | Z | Coef. | Z |
| Education | - | -1.6091 | -15.27*** | -1.6088 | -15.27*** |
| Certification | - | -1.6505 | -5.71*** | -1.6393 | -5.67*** |
| Experience | - | -2.0409 | -15.87*** | -2.0422 | -15.87*** |
| Lack of integrity | + | 1.8982 | 1.87* | 1.8866 | 1.85* |
| Training | - | -0.1332 | -0.86 | -0.1387 | -0.9 |
| Meeting | - | | | 0.1524 | 1.18 |
| Ownership | - | 0.0075 | 0.08 | 0.0152 | 0.16 |
| Non-duality | - | 0.5519 | 4.71*** | 0.5528 | 4.72*** |
| Firm age | + | 0.0347 | 0.36 | 0.0299 | 0.31 |
| Size | + | 0.2926 | 6.22*** | 0.2884 | 6.11*** |
| Leverage | + | -0.0809 | -3.05*** | -0.0827 | -3.11*** |
| Restructure | + | 0.3738 | 3.74*** | 0.3620 | 3.6*** |

| | | | | | |
|-----------------------|---|------------|-----------|------------|-----------|
| Growth | - | 0.0003 | 0.08 | 0.0004 | 0.08 |
| Financial health | - | -0.5202 | -3.74*** | -0.5184 | -3.72*** |
| Audit fee | - | -0.0734 | -0.77 | -0.0816 | -0.85 |
| Big4 | - | -0.1962 | -0.74 | -0.1906 | -0.72 |
| Lack of integrity-m | + | 2.8380 | 1.55 | 2.8072 | 1.53 |
| Training-m | - | -0.6427 | -4.21*** | -0.6408 | -4.2*** |
| Certification-m | - | -0.1418 | -0.5 | -0.1457 | -0.51 |
| Experience-m | - | -2.3452 | -23.78*** | -2.3472 | -23.79*** |
| Education-m | - | 0.6191 | 5.81*** | 0.6185 | 5.8*** |
| Constant | ? | 0.2341 | 0.2 | 0.1259 | 0.11 |
| Industry indicators | | Included | | Included | |
| Year indicators | | Included | | Included | |
| Observations | | 3386 | | 3386 | |
| Log likelihood | | -1609.1958 | | -1608.4998 | |
| Pseudo R ² | | 0.3144 | | 0.3147 | |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Panel B: Independence

$$\begin{aligned}
 ICW_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
 & \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Duality_{i,t} + \beta_7 Owner_{i,t} + \beta_8 Growth_{i,t} + \\
 & \beta_9 Financial\ health_{i,t} + \beta_{10} Leverage_{i,t} + \beta_{11} Restructure_{i,t} + \\
 & \beta_{12} Firm\ age_{i,t} + \beta_{13} Size_{i,t} + \beta_{14} Big4_{i,t} + \beta_{15} Audit\ fee_{i,t} + \beta_{16} Experience - \\
 & m_{i,t} + \beta_{17} Certification - m_{i,t} + \beta_{18} Education - m_{i,t} + \beta_{19} Integrity - m_{i,t} + \\
 & \beta_{20} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}$$

Model 2-2-1

$$\begin{aligned}
 ICW_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
 & \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Independence_{i,t} + \beta_7 Duality_{i,t} + \\
 & \beta_8 Owner_{i,t} + \beta_9 Growth_{i,t} + \beta_{10} Financial\ health_{i,t} + \beta_{11} Leverage_{i,t} + \\
 & \beta_{12} Restructure_{i,t} + \beta_{13} Firm\ age_{i,t} + \beta_{14} Size_{i,t} + \beta_{15} Big4_{i,t} + \beta_{16} Audit\ fee_{i,t} + \\
 & \beta_{17} Experience - m_{i,t} + \beta_{18} Certification - m_{i,t} + \beta_{19} Education - m_{i,t} + \\
 & \beta_{20} Integrity - m_{i,t} + \beta_{21} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}$$

Model 2-2-2

| Variables | Expected Sign | Model 2-2-1 | | Model 2-2-2 | |
|-------------------|---------------|-------------|-----------|-------------|-----------|
| | | Coef. | Z | Coef. | Z |
| Education | - | -1.6091 | -15.27*** | -1.6069 | -15.15*** |
| Certification | - | -1.6505 | -5.71*** | -1.6859 | -5.79*** |
| Experience | - | -2.0409 | -15.87*** | -2.0527 | -15.86*** |
| Lack of integrity | + | 1.8982 | 1.87* | 1.9573 | 1.92* |
| Training | - | -0.1332 | -0.86 | -0.1587 | -1.03 |
| Independence | - | | | -3.5719 | -5.63*** |
| Ownership | - | 0.0075 | 0.08 | -0.0045 | -0.05 |
| Non-duality | - | 0.5519 | 4.71*** | 0.5511 | 4.68*** |
| Firm age | + | 0.0347 | 0.36 | 0.0517 | 0.54 |
| Size | + | 0.2926 | 6.22*** | 0.3035 | 6.4*** |
| Leverage | + | -0.0809 | -3.05*** | -0.0823 | -3.07*** |
| Restructure | + | 0.3738 | 3.74*** | 0.3784 | 3.76*** |
| Growth | - | 0.0003 | 0.08 | -0.0003 | -0.08 |

| | | | | | |
|-----------------------|---|---------|------------|---------|------------|
| Financial health | - | -0.5202 | -3.74*** | -0.5233 | -3.73*** |
| Audit fee | - | -0.0734 | -0.77 | -0.0602 | -0.63 |
| Big4 | - | -0.1962 | -0.74 | -0.2132 | -0.8 |
| Lack of integrity-m | + | 2.8380 | 1.55 | 2.5488 | 1.39 |
| Training-m | - | -0.6427 | -4.21*** | -0.6356 | -4.15*** |
| Certification-m | - | -0.1418 | -0.5 | 0.6284 | 5.87*** |
| Experience-m | - | -2.3452 | -23.78*** | -0.1948 | -0.68 |
| Education-m | - | 0.6191 | 5.81*** | -2.3583 | -23.74*** |
| Constant | ? | 0.2341 | 0.2 | 1.0799 | 0.9 |
| Industry indicators | | | Included | | Included |
| Year indicators | | | Included | | Included |
| Observations | | | 3386 | | 3386 |
| Log likelihood | | | -1609.1958 | | -1593.2571 |
| Pseudo R ² | | | 0.3144 | | 0.3212 |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Table 6.7: Dominant shareholder nature (ownership) (H8)

$$ICW_{i,t} = \beta_0 + \beta_1 Characteristics_{i,t} + \beta_2 Ownership_{i,t} + \beta_3 Owner * Characteristics_{i,t} + \beta_4 Meeting_{i,t-1} + \beta_5 Duality_{i,t} + \beta_6 Independence_{i,t} + \beta_7 Growth_{i,t} + \beta_8 Financial\ health_{i,t} + \beta_9 Leverage_{i,t} + \beta_{10} Restructure_{i,t} + \beta_{11} Firm\ age_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Big4_{i,t} + \beta_{14} Audit\ fee_{i,t} + \beta_{15} Experience - m_{i,t} + \beta_{16} Certification - m_{i,t} + \beta_{17} Education - m_{i,t} + \beta_{18} Integrity - m_{i,t} + \beta_{19} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon$$

Model 3

| Variables | Expected Sign | Coef. | Z |
|-----------------------|---------------|---------|-----------|
| Characteristics | - | -1.7667 | -13.32*** |
| Characteristics*owner | - | 0.2318 | 1.37 |
| Ownership | - | -0.2109 | -1.07 |
| Independence | - | -3.7101 | -6.15*** |
| Meeting | - | 0.2177 | 1.75* |
| Non-duality | - | 0.5921 | 5.33*** |
| Firm age | + | 0.0284 | 0.31 |
| Size | + | 0.2703 | 6*** |
| Leverage | + | -0.0714 | -2.76*** |
| Restructure | + | 0.3265 | 3.41*** |
| Growth | - | -0.0019 | -0.52 |
| Financial health | - | -0.5037 | -3.82*** |
| Audit fee | - | -0.0024 | -0.03 |
| Big4 | - | -0.2461 | -0.97 |
| Lack of integrity-m | + | 5.6755 | 4.53*** |
| Training-m | - | -0.1323 | -1 |
| Education-m | - | -0.1341 | -1.73* |
| Certification-m | - | -0.4843 | -1.83* |
| Experience-m | - | -2.3052 | -24.67* |
| Constant | ? | -1.0644 | -0.94 |

| | |
|-----------------------|------------|
| Industry indicators | Included |
| Year indicators | Included |
| Observations | 3386 |
| Log likelihood | -1740.6869 |
| Pseudo R ² | 0.2583 |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Additional Analyses

Table 6.8: Regression analysis by year, industry, ownership, exchanges, locations and sizes

Panel A: By year

$$ICW_{i,t} = \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \beta_{16} Big4_{i,t} + \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \beta_{20} Education - m_{i,t} + \beta_{21} Integrity - m_{i,t} + \beta_{22} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \varepsilon$$

| Variables | Expected | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|-------------------|----------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|------------------------|-----------------------|
| Education | - | -1.4376 (-3.69)*** | -1.9033 (-5.99)*** | -2.4486 (-6.11)*** | -1.8170 (-5.68)*** | -4.9471 (-4.83)*** | -1.6653 (-3.84)*** | -1.4396 (-5.67)*** |
| Certification | - | 0.3922 (0.24) | -3.329 (-2.08)** | -8.5800 (-4.16)*** | -4.2758 (-2.6)*** | -10.8948 (-4.19)*** | -10.8011 (-4.84)*** | 0.3510 (0.75) |
| Experience | - | -1.4701 (-3.96)*** | -2.0848 (-6.02)*** | -2.3303 (-5.75)*** | -2.4208 (-6.24)*** | -1.0102 (-1.4) | -3.0971 (-5.94)*** | -3.6444 (-4.59)*** |
| Lack of integrity | + | 1.8728 (0.75) | 5.7656 (1.92)* | 0.6351 (-0.12) | 6.4104 (-0.82) | 1.9460 (1.98)** | 3.3457 (1.22) | 7.1811 (0.37) |
| Training | - | -0.8210 (-1.79)* | -0.2855 (-0.62) | -1.5800 (-1.25) | -1.7303 (-2.79)*** | 0.1423 (0.16) | -0.0127 (-0.03) | -0.3682 (-0.94) |
| Ownership | - | -8.3635 (-3.98)*** | -0.1120 (-0.38) | 0.4768 (-1.4) | 0.2086 (0.65) | -0.0679 (-0.12) | -0.8386 (-2.41)** | 0.4456 (1.59) |
| Independence | - | 0.2194 (0.55) | -7.0055 (-3.73)*** | -4.2954 (-1.89)* | -4.8676 (-2.42)** | -8.3581 (-2.39)** | -7.2366 (-3.2)*** | 4.0745 (2.25)** |
| Meeting | - | 0.3768 (1.27) | -0.6550 (-1.56) | -0.6221 (-1.18) | 0.9148 (2.35)** | 0.1843 (0.22) | 0.0407 (0.1) | -0.0597 (-0.16) |
| Non-duality | - | 0.7173 (1.9)* | 0.6197 (1.77)*** | -0.1514 (-0.37) | 0.7589 (2.07)** | -1.0842 (-1.64) | 0.3655 (0.97) | -0.2102 (-0.56) |
| Firm age | + | 0.4517 (1.63) | 0.7157 (2.72)*** | -0.0651 (-0.21) | 0.2307 (0.7) | 0.3422 (0.59) | -0.5729 (-1.55) | -1.0364 (-2.97)*** |

| | | | | | | | | |
|-----------------------|---|------------------------|------------------------|-------------------------|------------------------|------------------------|-------------------------|------------------------|
| Size | + | -0.0475 (-0.3) | 0.1158 (0.73) | 0.0004 (0) | -0.0920 (-0.57) | 0.2730 (0.92) | 2.3230 (9.62) *** | -0.6473 (-3.79) *** |
| Leverage | + | -0.1210 (-1.29) | -0.1853 (-2.13) ** | -0.0661 (-0.71) | -0.0877 (-0.95) | -0.1063 (-0.82) | -0.1253 (-1.26) | 0.0712 (0.9) |
| Restructure | + | 2.1911 (6.8) *** | -0.0776 (-0.24) | 0.8387 (2.15) ** | -0.1735 (-0.55) | -0.0616 (-0.11) | -0.2068 (-0.62) | 0.2568 (0.92) |
| Growth | - | -0.0300 (-0.33) | -0.1486 (-1.6) | -0.2106 (-1.39) | -0.2815 (-2.37) ** | -1.3666 (-2.07) ** | -0.0432 (-0.36) | 0.0044 (0.59) |
| Financial health | - | -1.1414 (-2.08) ** | -0.6091* (-1.86) | -0.0823 (-0.17) | -0.1481 (-0.26) | -0.8727 (-0.65) | -0.5768 (-1.26) | -0.6957 (-1.81) * |
| Audit fee | - | 0.2553 (0.86) | 0.1334 (0.44) | -0.1158 (-0.32) | 0.5366 (1.61) | 0.0542 (0.11) | -1.1278 (-3.6) *** | 0.8593 (2.49) ** |
| Big 4 | - | -1.3726 (-1.11) | 0.1444 (0.19) | 0.0666 (0.07) | -0.2715 (-0.29) | 4.4689 (1.84) * | -2.5687 (-2.48) ** | 0.1743 (0.29) |
| Lack of integrity-m | + | 12.6599 (1.31) | -1.5369 (-0.27) | 12.8905 (1.55) | -0.7800 (-0.14) | -1.3469 (-0.08) | -8.3770 (-1.78) * | 21.3105 (0.65) |
| Training-m | - | 1.1993 (1.92) | -1.2776*** (-2.95) | -1.4114 (-2.45) ** | 0.8467 (2.01) ** | -3.0220 (-4.26) *** | -0.3602 (-0.71) | -1.0121 (-2.63) *** |
| Education-m | - | 1.4222 (-3.75) *** | 1.1332*** (3.55) | 1.3235 (3.38) *** | 0.3335 (1.06) | 2.6568 (3) *** | 0.8681 (2) ** | 0.6120 (1.84) * |
| Certification-m | - | 5.1680 (-4.17) *** | 6.7228*** (4.85) | 7.7923 (4.24) *** | 4.8294 (3.13) *** | -5.7156 (-4.41) *** | 5.7701 (3.32) *** | 1.4551 (1.3) |
| Experience-m | - | -2.8534 (-8.64) *** | -3.2845*** (-11.19) | -3.9461 (-10.57) *** | -3.2961 (-9.85) *** | 0.3261 (0.46) | -2.2646 (-7.41) *** | -0.3787 (-1.27) |
| Constant | ? | -0.1117 (-0.03) | -0.0255** (-0.01) | 10.0689 (2.47) ** | 0.2091 (0.06) | 7.9196 (1) | -23.3277 (-4.69) *** | 7.4106 (2.09) ** |
| Industry indicators | | Included | Included | Included | Included | Included | Included | Included |
| Observations | | 464 | 606 | 482 | 466 | 242 | 706 | 420 |
| Log likelihood | | -170.0377 | -214.881 | -159.525 | -176.019 | -50.8457 | -166.329 | -205.394 |
| Pseudo R ² | | 0.4713 | 0.4884 | 0.5225 | 0.4551 | 0.6969 | 0.6601 | 0.2945 |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Panel B: By industry

$$ICW_{i,t} = \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \beta_{16} Big4_{i,t} + \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \beta_{20} Education - m_{i,t} + \beta_{21} Integrity - m_{i,t} + \beta_{22} Training - m_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon$$

| Variables | Sign | Public utilities | | | Real estate | | Comprehension | | Manufacture | | Business | |
|-------------------|------|------------------|----------|--|-------------|----------|---------------|----------|-------------|-----------|----------|----------|
| | | Coef. | Z | | Coef. | Z | Coef. | Z | Coef. | Z | Coef. | Z |
| Education | - | -2.3287 | -5.14*** | | -1.7336 | -4.11*** | -2.9429 | -6.25*** | -1.4463 | -11.29*** | -1.0233 | -3.44*** |
| Certification | - | -0.1567 | -0.16 | | -2.3671 | -1.88* | -9.3269 | -4.37*** | -1.6662 | -4.79*** | -1.8840 | -1.42 |
| Experience | - | -2.0964 | -4.23*** | | -1.7627 | -4.02*** | -2.4111 | -5.11*** | -2.0897 | -12.52*** | -1.3160 | -2.84*** |
| Lack of integrity | + | 0.6701 | 1.37 | | 0.6784 | 1.55 | 0.1490 | 0.33 | 0.6512 | 3.89*** | -0.9991 | -1.49 |
| Training | - | -1.2231 | -2.19** | | 0.2396 | 0.38 | -1.0242 | -1.89* | -0.0932 | -0.47 | -0.3395 | -0.56 |
| Ownership | - | 0.0300 | 0.07 | | 0.4792 | 1.36 | 0.2392 | 0.68 | 0.0089 | 0.07 | 0.1098 | 0.29 |
| Independence | - | -4.3186 | -2.1** | | -3.0965 | -1.84* | -9.2908 | -3.9*** | -3.3805 | -3.79*** | -6.7519 | -2.29** |
| Meeting | - | 0.5292 | 1.06 | | -0.0899 | -0.19 | 0.3889 | 0.77 | 0.1478 | 0.88 | 0.2967 | 0.59 |
| Non-duality | - | 1.1630 | 2.57*** | | 0.1962 | 0.44 | 0.5905 | 1.38 | 0.5045 | 3.42 | 1.1262 | 2.32** |
| Firm-age | + | 0.3276 | 0.86 | | 0.3088 | 0.91 | -0.8909 | -2.01** | -0.0134 | -0.11 | 0.4928 | 1.2 |
| Size | + | -0.0061 | -0.03 | | 0.0904 | 0.59 | 0.4189 | 2.27** | 0.3909 | 6.34*** | 0.3629 | 1.88** |

| | | | | | | | | | | | |
|-----------------------|---|----------|----------|----------|----------|----------|----------|----------|----------|----------|---------|
| Leverage | + | -0.3033 | -2.42** | -0.0483 | -0.59 | -0.1425 | -1.63 | -0.0710 | -1.99** | -0.2943 | -2.02** |
| Restructure | + | 0.3125 | 0.87 | 0.2384 | 0.59 | 0.6259 | 1.62 | 0.4097 | 3.23*** | 0.3681 | 0.97 |
| Growth | - | 0.0031 | 0.64 | -0.1629 | -2.91*** | 0.1295 | 1.39 | -0.1515 | -2.68*** | -0.2164 | -1.37 |
| Financial health | - | -1.5274 | -2.1** | 0.0046 | 0.01 | -1.2149 | -1.92* | -0.4268 | -2.56*** | -0.2704 | -0.54 |
| Audit fee | - | 1.0136 | 2.79*** | -0.1594 | -0.44 | -0.7271 | -1.94* | -0.0694 | -0.54 | 0.2982 | 0.84 |
| Big4 | - | -0.8913 | -0.98 | -0.7012 | -0.75 | -1.5845 | -1.64 | 0.2374 | 0.67 | | |
| Lack of integrity-m | + | 21.7429 | 1.36 | 1.1190 | 0.27 | -0.1094 | -0.03 | 4.1737 | 2.62 | 1.3244 | 2.12** |
| Training-m | - | -1.1880 | -2.45** | 0.1122 | 0.21 | -0.4630 | -0.78 | -0.7359 | -3.61*** | -0.3474 | -0.69 |
| Education-m | - | 0.8455 | 2** | 1.3026 | 3.37*** | 0.8415 | 1.9* | 0.5076 | 3.85*** | -0.6482 | -1.76* |
| Certification-m | - | -0.1503 | -0.15 | 0.8655 | 0.89 | 3.9175 | 2.94*** | -0.6575 | -1.8* | -0.6670 | -0.5 |
| Experience-m | - | -1.5792 | -4.42*** | -2.5015 | -6.33*** | -4.2231 | -9.22*** | -2.3322 | -18.6*** | 0.4332 | 1.25 |
| Constant | ? | -5.8328 | -1.29 | 4.5507 | 0.96 | 17.5593 | 3.47*** | -1.1689 | -0.77 | -5.5038 | -1.45 |
| Year indicators | | Included | | Included | | Included | | Included | | Included | |
| Observations | | 309 | | 279 | | 406 | | 2148 | | 244 | |
| Log likelihood | | -131.974 | | -130.282 | | -130.349 | | -1003.73 | | -117.55 | |
| Pseudo R ² | | 0.3838 | | 0.3263 | | 0.5369 | | 0.3259 | | 0.3048 | |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Panel C: By ownership

$$ICW_{i,t} = \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t} + \beta_{10} Financial\ health_{i,t} + \beta_{11} Leverage_{i,t} + \beta_{12} Restructure_{i,t} + \beta_{13} Firm\ age_{i,t} + \beta_{14} Size_{i,t} + \beta_{15} Big4_{i,t} + \beta_{16} Audit\ fee_{i,t} + \beta_{17} Experience - m_{i,t} + \beta_{18} Certification - m_{i,t} + \beta_{19} Education - m_{i,t} + \beta_{20} Integrity - m_{i,t} + \beta_{21} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon$$

| Variables | Expected | Non-state-owned firms | | State-owned firms | |
|---------------------|----------|-----------------------|----------|-------------------|-----------|
| | | Coef. | Z | Coef. | Z |
| Education | - | -1.0534 | -8.53*** | -1.1916 | -12.51*** |
| Certification | - | -0.9951 | -2.36** | -1.4177 | -3.94*** |
| Experience | - | -1.6807 | -8.58*** | -1.1046 | -7.16*** |
| Lack of integrity | + | 2.7237 | 2.66*** | 3.4007 | 3.01*** |
| Training | - | -0.2992 | -1.47 | 0.0672 | 0.37 |
| Independence | - | -1.5801 | -1.72* | -2.6946 | -3.56*** |
| Meeting | - | -0.1984 | -1.03 | 0.3233 | 2.11** |
| Non-duality | - | 0.5372 | 3.51*** | 0.6307 | 4.05*** |
| Firm age | + | 0.1935 | 1.54 | 0.4508 | 3.67*** |
| Size | + | 0.4252 | 5.68*** | 0.2698 | 4.83*** |
| Leverage | + | -0.1453 | -3.39*** | -0.0109 | -0.34 |
| Restructure | + | 0.6386 | 4.34*** | 0.1382 | 1.22 |
| Growth | - | -0.0902 | -2.04** | 0.0012 | 0.22 |
| Financial health | - | -0.5915 | -2.84*** | -0.4659 | -2.87*** |
| Audit fee | - | 0.0175 | 0.11 | 0.1942 | 1.87* |
| Big4 | - | -0.1534 | -0.31 | -0.3470 | -1.17 |
| Lack of integrity-m | + | 0.6687 | 0.44 | 0.3698 | 0.26 |
| Training-m | - | -0.1015 | -0.47 | 0.0475 | 0.31 |
| Education-m | - | -0.9090 | -6.55*** | -0.7000 | -6.35*** |
| Certification-m | - | -0.0615 | -0.14 | -1.0458 | -3.07*** |
| Experience-m | - | 0.2437 | 1.8* | 0.1121 | 1.05 |
| Constant | ? | -2.0442 | -1.17 | -2.9443 | -2.31** |

| | | |
|-----------------------|-----------|-----------|
| Industry indicators | Included | Included |
| Year indicators | Included | Included |
| Observations | 1369 | 2017 |
| Log likelihood | -709.7111 | -1100.987 |
| Pseudo R ² | 0.2520 | 0.2125 |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Panel D: By exchanges

$$\begin{aligned}
 ICW_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
 & \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + \\
 & \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \\
 & \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \\
 & \beta_{16} Big4_{i,t} + \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \\
 & \beta_{20} Education - m_{i,t} + \beta_{21} Integrity - m_{i,t} + \beta_{22} Training - m_{i,t} + \\
 & \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}$$

| Variables | Sign | Shenzhen Stock Exchange | | Shanghai Stock Exchange | |
|---------------------|------|-------------------------|----------|-------------------------|----------|
| | | Coef. | Z | Coef. | Z |
| Education | - | -1.2933 | -10.8*** | -1.25163 | -9.3*** |
| Certification | - | -2.0197 | -5.2*** | -0.9959 | -2.21** |
| Experience | - | -1.4834 | -8.52*** | -1.5818 | -6.42*** |
| Lack of integrity | + | 2.9560 | 2.28** | 1.7686 | 1.22 |
| Training | - | -0.6225 | -3.42*** | -0.3706 | -1.33 |
| Ownership | - | -0.1660 | -1.2 | 0.2194 | 1.3 |
| Independence | - | 3.1075 | 3.4*** | 2.0716 | 1.4 |
| Meeting | - | 0.5180 | 2.76*** | -0.2470 | -1.2 |
| Non-duality | - | 0.3098 | 2.02** | 0.6864 | 3.19*** |
| Firm age | + | 0.6349 | 4.93*** | 0.1599 | 0.92 |
| Size | + | 0.1801 | 2.54** | 0.5762 | 7.37*** |
| Leverage | - | -0.0353 | -0.79 | -0.0323 | -0.73 |
| Restructure | + | 0.4628 | 3.48*** | 0.1017 | 0.62 |
| Growth | - | 0.0001 | 0.02 | -0.0249 | -0.61 |
| Financial health | - | -0.4511 | -2.2** | -0.6551 | -2.82*** |
| Audit fee | - | 0.4479 | 3.12*** | 0.2567 | 1.77* |
| Big4 | - | -1.1251 | -2.72*** | -0.0582 | -0.15 |
| Lack of integrity-m | + | -2.7287 | -1.94* | 1.8793 | 0.84 |
| Training-m | - | 0.1729 | 0.9 | -0.1767 | -0.75 |

| | | | | | |
|---------------------|---|-----------|----------|-----------|----------|
| Education-m | - | -1.2797 | -9.37*** | 0.4689 | 2.91*** |
| Certification-m | - | 0.2531 | 0.54 | -1.0076 | -1.97** |
| Experience-m | - | -0.1097 | -0.86 | 0.3093 | 2.03** |
| Constant | ? | -3.4347 | -2.1** | -15.0562 | -7.91*** |
| Industry indicators | | Included | | Included | |
| Year indicators | | Included | | Included | |
| Observations | | 1849 | | 1537 | |
| Log likelihood | | -803.2892 | | -594.4671 | |
| Pseudo R2 | | 0.2895 | | 0.3254 | |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Panel E: By locations

$$ICW_{i,t} = \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \beta_{16} Big4_{i,t} + \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \beta_{20} Education - m_{i,t} + \beta_{21} Intergity - m_{i,t} + \beta_{22} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon$$

| Variables | Sign | East | | | Centre | | West | |
|---------------------|------|----------|-----------|--|---------|----------|---------|----------|
| | | Coef. | Z | | Coef. | Z | Coef. | Z |
| Education | - | -1.1300 | -12.08*** | | -1.1394 | -6.57*** | -1.1050 | -5.77*** |
| Certification | - | -1.1594 | -3.53*** | | -1.4731 | -2.27** | -1.2497 | -1.69 |
| Experience | - | -1.22359 | -8.44*** | | -1.8383 | -6.14*** | -1.3046 | -4*** |
| Lack of integrity | + | 2.553712 | 2.75*** | | 5.2563 | 2.41** | 2.8406 | 1.85** |
| Training | - | -0.21684 | -1.28 | | 0.0475 | 0.15 | -0.0214 | -0.07 |
| Ownership | - | -0.08613 | -0.8 | | -0.0070 | -0.03 | -0.3721 | -1.61 |
| Independence | - | -2.17949 | -3.16*** | | -2.3920 | -1.65* | -1.6686 | -1.06 |
| Meeting | - | 0.122865 | 0.85 | | -0.0761 | -0.27 | 0.2389 | 0.77 |
| Non-duality | - | 0.57802 | 4.43*** | | 0.5342 | 2.02** | 0.6974 | 2.31** |
| Firm-age | + | 0.257385 | 2.35*** | | 0.4547 | 2.27** | 0.3221 | 1.48 |
| Size | + | 0.281283 | 5.18*** | | 0.3886 | 3.63*** | 0.4854 | 4.29*** |
| Leverage | + | -0.08173 | -2.53** | | -0.0026 | -0.04 | -0.0382 | -0.63 |
| Restructure | + | 0.468657 | 4.24*** | | 0.2038 | 0.96 | -0.0559 | -0.25 |
| Growth | - | 0.00382 | 0.51 | | -0.1395 | -1.9* | -0.1901 | -1.59 |
| Financial health | - | -0.65714 | -4.15*** | | -0.1225 | -0.41 | -0.2870 | -0.86 |
| Audit fee | - | 0.189211 | 1.82* | | 0.2820 | 1.32 | -0.2062 | -0.93 |
| Big4 | - | -0.58271 | -1.92* | | -0.2909 | -0.5 | 0.7309 | 1.01 |
| Lack of integrity-m | + | 0.900958 | 0.75 | | 2.7485 | 0.97 | -6.0242 | -1.8* |

| | | | | | | | |
|-----------------------|---|----------|----------|-----------|----------|-----------|---------|
| Training-m | - | 0.06786 | 0.45 | -0.2788 | -0.98 | -0.1537 | -0.49 |
| Education-m | - | -0.69199 | -6.63*** | -1.0165 | -4.85*** | -0.4300 | -2.06** |
| Certification-m | - | -0.56325 | -1.74* | -0.5248 | -0.8 | -1.2033 | -1.79* |
| Experience-m | - | 0.187343 | 1.82* | 0.2343 | 1.16 | 0.0251 | 0.12 |
| Constant | ? | -2.28389 | -1.88* | -5.7798 | -2.31** | -2.8572 | -1.09 |
| Industry indicators | | Included | | Included | | Included | |
| Year indicators | | Included | | Included | | Included | |
| Observations | | 2161 | | 657 | | 568 | |
| Log likelihood | | -1192.98 | | -330.9157 | | -296.7972 | |
| Pseudo R ² | | 0.2033 | | 0.2717 | | 0.2459 | |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Panel F: By sizes

$$ICW_{i,t} = \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \beta_{14} Firm\ age_{i,t} + \beta_{15} Big4_{i,t} + \beta_{16} Audit\ fee_{i,t} + \beta_{17} Experience - m_{i,t} + \beta_{18} Certification - m_{i,t} + \beta_{19} Education - m_{i,t} + \beta_{20} Integrity - m_{i,t} + \beta_{21} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon$$

| Variables | Sign | Large firms | | Medium firms | | Small firms | |
|-------------------|------|-------------|----------|--------------|-----------|-------------|----------|
| | | Coef. | Z | Coef. | Z | Coef. | Z |
| Education | - | -1.0481 | -6.67*** | -1.1267 | -10.55*** | -1.3092 | -8.25*** |
| Certification | - | -0.6207 | -0.95 | -1.1380 | -3.04*** | -1.8429 | -3.39*** |
| Experience | - | -1.1316 | -4.76*** | -1.4965 | -8.48*** | -1.4110 | -5.75*** |
| Lack of integrity | + | 2.9877 | 2.79*** | 2.9181 | 2.77*** | 13.4894 | 1.1 |
| Training | - | 0.2409 | 0.93 | -0.4551 | -2.28** | 0.1249 | 0.45 |
| Ownership | - | -0.0142 | -0.08 | -0.2543 | -2.11** | 0.0810 | 0.4 |
| Independence | - | -2.4623 | -2.07** | -2.9063 | -3.56*** | 0.4942 | 0.4 |
| Meeting | - | -0.0336 | -0.14 | 0.2673 | 1.55 | 0.0798 | 0.34 |
| Non-duality | - | 0.7026 | 3.53*** | 0.3436 | 2.2** | 1.1068 | 4.22*** |
| Firm age | + | 0.3901 | 2.27** | 0.2947 | 2.34*** | 0.3026 | 1.6 |
| Leverage | + | -0.0046 | -0.1 | -0.1017 | -2.59*** | -0.0217 | -0.42 |
| Restructure | + | 0.2014 | 1.08 | 0.4310 | 3.48*** | 0.3218 | 1.65* |

| | | | | | | | |
|-----------------------|---|---------|-----------|---------|-----------|---------|-----------|
| Growth | - | -0.1602 | -2.37** | -0.0781 | -2.06** | 0.0025 | 0.42 |
| Financial health | - | -0.3381 | -1.53 | -0.7181 | -3.85*** | 0.0160 | 0.04 |
| Audit fee | - | -0.3488 | -1.72* | 0.3020 | 2.52** | 0.3542 | 2.89*** |
| Lack of integrity-m | + | 1.3136 | 0.62 | -0.9750 | -0.67 | 2.8852 | 1.15 |
| Training-m | - | -0.2800 | -1.15 | 0.2548 | 1.41 | -0.3403 | -1.39 |
| Education-m | - | -1.5555 | -7.55*** | -0.6392 | -5.42*** | -0.2852 | -1.68* |
| Certification-m | - | -0.5596 | -0.99 | -1.1676 | -2.91*** | -0.1788 | -0.37 |
| Experience-m | - | 0.0928 | 0.53 | 0.1719 | 1.47 | 0.3979 | 2.24** |
| Constant | ? | 12.5052 | 4.63*** | 2.0943 | 1.28 | -1.0279 | -0.53 |
| Industry indicators | | | Included | | Included | | Included |
| Year indicators | | | Included | | Included | | Included |
| Observations | | | 846 | | 1694 | | 846 |
| Log likelihood | | | -423.7754 | | -920.2499 | | -431.7720 |
| Pseudo R ² | | | 0.2623 | | 0.2162 | | 0.2521 |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Table 6.9: The firms that changed board members

$$\begin{aligned}
ICN_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
& \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + \\
& \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \\
& \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \\
& \beta_{16} Big4_{i,t} + \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \\
& \beta_{20} Education - m_{i,t} + \beta_{21} Integrity - m_{i,t} + \beta_{22} Training - m_{i,t} + \\
& \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
\end{aligned}$$

| Variables | Sign | Coef. | Z |
|---------------------|------|---------|----------|
| Education | - | -1.1605 | -7.32*** |
| Certification | - | -3.0990 | -4.52*** |
| Experience | - | -1.5483 | -5.88*** |
| Lack of integrity | + | 3.2345 | 2.46** |
| Training | - | 0.1894 | 0.69 |
| Ownership | - | -0.1106 | -0.58 |
| Independence | - | -1.4371 | -1.25 |
| Meeting | - | 0.3330 | 1.27 |
| Non-duality | - | 0.5790 | 2.46** |
| Firm age | + | 0.6342 | 2.92*** |
| Size | + | 0.1678 | 1.86* |
| Leverage | + | -0.0363 | -0.75 |
| Restructure | + | -0.2493 | -1.25 |
| Growth | - | 0.0048 | 0.73 |
| Financial health | - | -0.6518 | -2.77*** |
| Audit fee | - | 0.5050 | 2.74*** |
| Big4 | - | -0.4174 | -0.85 |
| Lack of integrity-m | + | -0.7118 | -0.31 |
| Training-m | - | 0.3336 | 1.22 |
| Education-m | - | -1.7588 | -8.5*** |
| Certification-m | - | -0.7835 | -1.33 |
| Experience-m | - | 0.4277 | 2.36** |
| Constant | ? | -2.7404 | -1.34 |

| | |
|-----------------------|-----------|
| Industry indicators | Included |
| Year indicators | Included |
| Observations | 962 |
| Log likelihood | -433.2429 |
| Pseudo R ² | 0.3443 |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Table 6.10: The impact of fixed effects at the firm-level

$$\begin{aligned}
 ICW_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
 & \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + \\
 & \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \\
 & \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \\
 & \beta_{16} Big4_{i,t} + \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \\
 & \beta_{20} Education - m_{i,t} + \beta_{21} Integrity - m_{i,t} + \beta_{22} Training - m_{i,t} + \\
 & \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}$$

| Variables | Sign | Coef. | Z |
|---------------------|------|---------|----------|
| Education | - | -1.4367 | -7.51*** |
| Certification | - | -2.0752 | -3.58*** |
| Experience | - | -1.6828 | -5.33*** |
| Lack of integrity | + | 7.4291 | 3.76*** |
| Training | - | -0.2293 | -0.63 |
| Ownership | - | 0.0959 | 0.31 |
| Independence | - | 6.8464 | 1.89* |
| Meeting | - | -0.1896 | -0.55 |
| Non-duality | - | 0.7397 | 1.9* |
| Firm age | + | 0.8736 | 2.58** |
| Size | + | 0.9618 | 5.11*** |
| Leverage | + | 0.0234 | 0.27 |
| Restructure | + | 0.5966 | 2.79*** |
| Growth | - | -0.1019 | -1.44 |
| Financial health | - | -0.2515 | -0.78 |
| Audit fee | - | 0.9739 | 3.26*** |
| Big4 | - | -1.5785 | -1.81* |
| Integrity-m | + | 3.3703 | 1.41 |
| Training-m | - | 0.5951 | 1.75* |
| Education-m | - | 0.2248 | 0.98 |
| Certification-m | - | -0.6260 | -0.93 |
| Experience-m | - | -0.2485 | -1.23 |
| Industry indicators | | | Included |

| | |
|-----------------|-----------|
| Year indicators | Included |
| Observations | 3386 |
| Log likelihood | -194.7177 |

This table reports coefficients and t -statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Table 6.11: Internal control team (2012 & 2013)

$$\begin{aligned}
ICW_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
& \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + \beta_8 Team_{i,t} + \\
& \beta_9 Independence_{i,t} + \beta_{10} Owner_{i,t} + \beta_{11} Growth_{i,t} + \beta_{12} Financial\ health_{i,t} + \\
& \beta_{13} Leverage_{i,t} + \beta_{14} Restructure_{i,t} + \beta_{15} Firm\ age_{i,t} + \beta_{16} Size_{i,t} + \\
& \beta_{17} Big4_{i,t} + \beta_{18} Audit\ fee_{i,t} + \beta_{19} Experience - m_{i,t} + \beta_{20} Certification - m_{i,t} + \\
& \beta_{21} Education - m_{i,t} + \beta_{22} Integrity - m_{i,t} + \beta_{23} Training - m_{i,t} + \\
& \sum_{t=0}^4 Industry_{i,t} + \varepsilon
\end{aligned}$$

| Variables | Sign | Coef. | Z |
|---------------------|------|---------|-----------|
| Education | - | -0.9672 | -4.78**** |
| Certification | - | 0.7500 | 1.53 |
| Experience | - | -3.2472 | -6.38**** |
| Lack of integrity | + | -0.2120 | -0.11 |
| Training | - | -0.0512 | -0.16 |
| Team | - | -1.2426 | -4.99**** |
| Ownership | - | -0.1576 | -0.65 |
| Independence | - | -1.7069 | -1.08 |
| Meeting | - | -0.5786 | -1.86* |
| Non-duality | - | 1.3457 | 4.36**** |
| Firm age | + | -0.2498 | -0.89 |
| Size | + | 1.7532 | 11.7*** |
| Leverage | + | -0.1055 | -1.58 |
| Restructure | + | 0.0716 | 0.29 |
| Growth | - | 0.0069 | 0.43 |
| Financial health | - | -1.0320 | -3.21**** |
| Audit fee | - | -1.2529 | -4.97**** |
| Big 4 | - | 0.2916 | 0.48 |
| Lack of integrity-m | + | 3.3876 | 0.92 |
| Training-m | - | -0.0371 | -0.11 |
| Education-m | - | -7.8454 | -12.4**** |
| Certification-m | - | -2.4013 | -3.15**** |
| Experience-m | - | 0.3730 | 1.64 |

| | | | |
|-----------------------|---|---------|-----------|
| Constant | ? | 14.3472 | 4.2*** |
| Industry indicators | | | Included |
| Observations | | | 1126 |
| Log likelihood | | | -258.5706 |
| Pseudo R ² | | | 0.6341 |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Table 6.12: The impact of China SOX

$$ICW_{i,t} = \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \beta_{16} Big4_{i,t} + \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \beta_{20} Education - m_{i,t} + \beta_{21} Integrity - m_{i,t} + \beta_{22} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon$$

| Variables | Sign | 07-11 | | 12 | | 07-12 | | 13 | |
|-------------------|------|---------|-----------|---------|----------|---------|-----------|---------|----------|
| | | Coef. | Z | Coef. | Z | Coef. | Z | Coef. | Z |
| Education | - | -1.2713 | -10.65*** | -1.3987 | -4.07*** | -1.2571 | -12.64*** | -1.0099 | -3.43*** |
| Certification | - | -3.1826 | -4.83*** | -9.4443 | -3.91*** | -4.3431 | -7.65*** | 0.2883 | 0.5 |
| Experience | - | -0.6570 | -3.75*** | -2.3973 | -3.06*** | -0.9103 | -5.82*** | -3.9251 | -3.95*** |
| Lack of integrity | + | 5.6630 | 2.86*** | 1.2744 | 0.64 | 3.5908 | 3.11*** | 24.5597 | 1.09 |
| Training | - | -0.2236 | -0.83 | 0.2756 | 0.54 | 0.2411 | 1.24 | -1.2677 | -2.64*** |
| Ownership | - | | | | | -0.1480 | -0.48 | 10.0229 | 0.79 |
| Independence | - | -5.1515 | -5.34*** | -7.7191 | -2.48** | -4.1512 | -5.19*** | 9.1562 | 3.43*** |
| Meeting | - | 0.5115 | 2.67*** | 0.3124 | 0.63 | 0.2115 | 1.35 | 0.4943 | 0.95 |
| Non-duality | - | 0.4102 | 2.24** | 0.8657 | 1.5 | 0.7285 | 4.62*** | 0.4480 | 0.67 |
| Firm age | + | 0.5282 | 3.67*** | -0.0943 | -0.16 | 0.3278 | 2.67*** | -0.5889 | -1.34 |
| Size | + | 0.1198 | 1.69* | 2.6220 | 8.07*** | 0.3489 | 5.96*** | -0.6014 | -2.64*** |
| Leverage | + | -0.0519 | -1.25 | -0.0087 | -0.07 | 0.0000 | 0.76 | 0.0000 | 0.38 |
| Restructure | + | 0.5187 | 3.57*** | -0.3022 | -0.76 | 0.1775 | 1.48 | -0.5620 | -2** |

| | | | | | | | | | |
|-----------------------|---|-----------|----------|-----------|----------|------------|----------|-----------|----------|
| Growth | - | -0.1896 | -3.55*** | -0.1332 | -0.99 | -0.1207 | -2.89*** | 0.0063 | 0.62 |
| Financial health | - | -0.3065 | -1.52 | -0.8449 | -1.55 | -0.4088 | -2.39** | -0.7245 | -1.47 |
| Audit fee | - | 0.0594 | 0.45 | -1.0561 | -2.89*** | 0.0097 | 0.09 | 0.2410 | 0.57 |
| Big4 | - | 0.0795 | 0.2 | -2.3474 | -1.47 | -0.1479 | -0.48 | 0.1921 | 0.34 |
| Lack of integrity-m | + | 0.0512 | 0.03 | 0.1606 | 0.01 | 0.2477 | 0.19 | 1.6818 | 0.85 |
| Training-m | - | 0.1392 | 0.76 | -0.5660 | -0.86 | -0.0973 | -0.62 | -0.2290 | -0.45 |
| Education-m | - | -2.1935 | -9.44*** | 0.5365 | 1.73* | -0.4915 | -3.83*** | -4.5372 | -3.11*** |
| Certification-m | - | -1.4458 | -3.78*** | 0.5979 | 0.41 | -0.6296 | -1.85* | -1.9537 | -1.9* |
| Experience-m | - | 0.0256 | 0.2 | 0.2568 | 0.69 | 0.1470 | 1.31 | -0.2010 | -0.56 |
| Constant | ? | 6.7255 | 3.99*** | -34.1750 | -4.54*** | -1.1324 | -0.79 | 21.0953 | 2.04** |
| Industry indicators | | Included | | Included | | Included | | Included | |
| Year indicators | | Included | | Included | | Included | | Included | |
| Observations | | 1365 | | 416 | | 1909 | | 293 | |
| Log likelihood | | -736.2158 | | -109.7146 | | 0.2276 | | 0.3788 | |
| Pseudo R ² | | 0.2219 | | -0.6195 | | -1021.6915 | | -126.0724 | |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Table 6.13: Comparison between financial weaknesses and non-financial weaknesses

$$ICW_{i,t} = \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \beta_{16} Big4_{i,t} + \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \beta_{20} Education - m_{i,t} + \beta_{21} Integrity - m_{i,t} + \beta_{22} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon$$

| Variables | DV=Non-financial weaknesses | | | DV= Financial weaknesses | |
|---------------------|-----------------------------|---------|-----------|--------------------------|----------|
| | Sign | Coef. | Z | Coef. | Z |
| Education | - | -1.2529 | -13.87*** | -1.0546 | -5.6*** |
| Certification | - | -1.8635 | -5.72*** | 1.4382 | 1.69* |
| Experience | - | -1.3014 | -10.56*** | -2.1016 | -3.31*** |
| Lack of integrity | + | 3.5253 | 4.16*** | 4.4755 | 3.08*** |
| Training | - | -0.0312 | -0.22 | -0.8189 | -1.37 |
| Ownership | - | -0.0772 | -0.86 | -0.7773 | -2.32** |
| Independence | - | -3.0111 | -5.02*** | 0.8990 | 0.42 |
| Meeting | - | 0.1395 | 1.14 | -0.1749 | -0.41 |
| Non-duality | - | 0.4995 | 4.52*** | 0.8211 | 2.27** |
| Firm age | + | 0.0985 | 1.1 | 0.8036 | 2.19** |
| Size | + | 0.3421 | 7.61*** | 0.3270 | 2.31** |
| Leverage | + | -0.0641 | -2.45** | -0.1078 | -1.15 |
| Restructure | + | 0.2092 | 2.3** | 0.9405 | 2.52** |
| Growth | - | 0.0000 | 0.01 | -0.4958 | -2.23** |
| Financial health | - | -0.3550 | -2.67*** | -1.6033 | -4.04*** |
| Audit fee | - | -0.1019 | -1.17 | 0.8366 | 2.83*** |
| Big 4 | - | -0.3229 | -1.22 | 0.4648 | 0.65 |
| Lack of integrity-m | + | -2.1227 | -1.56 | 6.6623 | 3.19*** |
| Training-m | - | -0.3088 | -2.12** | -1.1619 | -2.08** |
| Education-m | - | 0.2999 | 2.98*** | -1.8476 | -5.1*** |
| Certification-m | - | -0.5173 | -1.81* | -0.2409 | -0.24 |
| Experience-m | - | -0.9408 | -10.14*** | 0.3558 | 1.12 |
| Constant | ? | -1.5197 | -1.42 | -11.9922 | -3.25*** |
| Industry indicators | | | Included | | Included |

| | | |
|--------------------|----------|----------|
| Year indicators | Included | Included |
| Observations | 3108 | 1451 |
| Log likelihood | -1728.82 | -176.558 |
| Adj R ² | 0.1928 | 0.3899 |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Table 6.14: The impact of audit committee (2012 & 2013)

$$\begin{aligned}
 ICW_{i,t} = & \beta_0 + \beta_1 Education_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Experience_{i,t} + \\
 & \beta_4 Lack\ of\ integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Education * audit\ committee_{i,t} + \\
 & \beta_7 Certification * audit\ committee_{i,t} + \beta_8 Experience * audit\ committee_{i,t} + \\
 & \beta_9 Lack\ of\ integrity * audit\ committee_{i,t} + \beta_{10} Training * audit\ committee_{i,t} + \\
 & \beta_{11} Audit\ committee_{i,t} + \beta_{12} Ownership_{i,t} + \beta_{13} Meeting_{i,t-1} + \beta_{14} Duality_{i,t} + \\
 & \beta_{15} Independence_{i,t} + \beta_{16} Growth_{i,t} + \beta_{17} Financial\ health_{i,t} + \beta_{18} Leverage_{i,t} + \\
 & \beta_{19} Restructure_{i,t} + \beta_{20} Firm\ age_{i,t} + \beta_{21} Size_{i,t} + \beta_{22} Big4_{i,t} + \beta_{23} Audit\ fee_{i,t} + \\
 & \beta_{24} Experience - m_{i,t} + \beta_{25} Certification - m_{i,t} + \beta_{26} Education - m_{i,t} + \\
 & \beta_{27} Integrity - m_{i,t} + \beta_{28} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}$$

| ICW | Sign | Coef. | Z |
|-----------------------------------|------|----------|----------|
| Education | - | -0.9233 | -2.2** |
| Certification | - | 0.3102 | 0.31 |
| Experience | - | -7.2163 | -6.19*** |
| Lack of integrity | + | 96.6880 | 0.59 |
| Training | - | -0.8835 | -0.92 |
| Education*audit committee | - | -0.2996 | -0.73 |
| Certification*audit committee | - | 0.5069 | 0.46 |
| Experience*audit committee | - | 4.8520 | 4.03*** |
| Lack of integrity*audit committee | + | -96.5816 | -0.59 |
| Training*audit committee | - | 0.2087 | 0.21 |
| Audit committee | - | -1.3445 | -0.97 |
| Ownership | - | -0.1244 | -0.63 |
| Independence | - | -0.4819 | -0.36 |
| Meeting | - | -0.2480 | -0.96 |
| Non duality | - | 0.4890 | 1.92* |
| Firm age | + | -0.6257 | -2.73*** |
| Size | + | 1.0598 | 10.57*** |
| Leverage | + | -0.1003 | -1.8* |
| Restructure | + | 0.0826 | 0.41 |
| Growth | - | 0.0041 | 0.35 |
| Financial health | - | -0.8841 | -3.33*** |
| Audit fee | - | -0.4704 | -2.41** |
| Big4 | - | -0.3879 | -0.83 |

| | | | |
|---------------------|---|---------|-----------|
| Lack of integrity-m | + | 5.5447 | 1.89* |
| Training-m | - | -0.3928 | -1.32 |
| Education-m | - | -5.3162 | -12.28*** |
| Certification-m | - | -1.9361 | -3.18*** |
| Experience-m | - | 0.2380 | 1.31 |
| Constant | ? | 12.7869 | 4.44*** |
| Industry indicators | | | Included |
| Year indicators | | | Included |
| Observations | | | 1126 |
| Log likelihood | | | -413.521 |
| Pseudo R2 | | | 0.4702 |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Table 6.15: The impact of internal auditor (2012 & 2013)

$$\begin{aligned}
 ICW_{i,t} = & \beta_0 + \beta_1 Education_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Experience_{i,t} + \\
 & \beta_4 Lack\ of\ integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Education * internal\ auditor_{i,t} + \\
 & \beta_7 Certification * internal\ auditor_{i,t} + \beta_8 Experience * internal\ auditor_{i,t} + \\
 & \beta_9 Lack\ of\ integrity * internal\ auditor_{i,t} + \beta_{10} Training * internal\ auditor_{i,t} + \\
 & \beta_{11} Internal\ auditor_{i,t} + \beta_{12} Ownership_{i,t} + \beta_{13} Meeting_{i,t-1} + \beta_{14} Duality_{i,t} + \\
 & \beta_{15} Independence_{i,t} + \beta_{16} Growth_{i,t} + \beta_{17} Financial\ health_{i,t} + \beta_{18} Leverage_{i,t} + \\
 & \beta_{19} Restructure_{i,t} + \beta_{20} Firm\ age_{i,t} + \beta_{21} Size_{i,t} + \beta_{22} Big4_{i,t} + \beta_{23} Audit\ fee_{i,t} + \\
 & \beta_{24} Experience - m_{i,t} + \beta_{25} Certification - m_{i,t} + \beta_{26} Education - m_{i,t} + \\
 & \beta_{27} Integrity - m_{i,t} + \beta_{28} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}$$

| Variables | Sign | Coef. | Z |
|------------------------------------|------|----------|----------|
| Education | - | -1.1907 | -4.15*** |
| Certification | - | 0.4471 | 0.7 |
| Experience | - | -4.3350 | -6.51*** |
| Lack of integrity | + | 13.3983 | 1.17 |
| Training | - | -1.5954 | -3.79*** |
| Education* Internal audit | - | -0.0587 | -0.17 |
| Certification* Internal audit | - | 0.7720 | 1 |
| Experience* Internal audit | - | 2.0751 | 2.61*** |
| Lack of integrity * Internal audit | + | -13.1417 | -1.14 |
| Training* Internal audit | - | 1.1613 | 2.31** |
| Internal audit | - | -1.4080 | -1.15 |
| Ownership | - | 0.0031 | 0.02 |
| Independence | - | -0.2730 | -0.21 |
| Meeting | - | -0.2022 | -0.79 |
| Non duality | - | 0.4815 | 1.93* |
| Firm age | + | -0.7470 | -3.35*** |
| Size | + | 1.0454 | 10.42*** |
| Leverage | + | -0.0876 | -1.61 |
| Restructure | + | 0.1325 | 0.66 |
| Growth | - | 0.0053 | 0.53 |
| Financial health | - | -0.9337 | -3.5*** |
| Audit fee | - | -0.5450 | -2.77*** |
| Big 4 | - | -0.1371 | -0.3 |
| Lack of integrity-m | + | 3.7118 | 1.26 |

| | | | |
|---------------------|---|---------|-----------|
| Training-m | - | -0.4084 | -1.4 |
| Education-m | - | -5.1207 | -12.06*** |
| Certification-m | - | -2.2473 | -3.63*** |
| Experience-m | - | 0.1780 | 0.99 |
| Constant | ? | 13.4947 | 4.99*** |
| Industry indicators | | | Included |
| Year indicators | | | Included |
| Observations | | | 1126 |
| Log likelihood | | | -419.9324 |
| Pseudo R2 | | | 0.462 |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Table 6.16: The impact of the Cultural Revolution

$$\begin{aligned}
 ICW_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
 & \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Cultural\ Revolution_{i,t} + \beta_7 Gender_{i,t} + \\
 & \beta_8 Compensation_{i,t} + \beta_9 Stock_{i,t} + \beta_{10} Busyness_{i,t} + \beta_{11} Meeting_{i,t-1} + \\
 & \beta_{12} Duality_{i,t} + \beta_{13} Independence_{i,t} + \beta_{14} Owner_{i,t} + \beta_{15} Growth_{i,t} + \\
 & \beta_{16} Financial\ health_{i,t} + \beta_{17} Leverage_{i,t} + \beta_{18} Restructure_{i,t} + \beta_{19} Firm\ age_{i,t} + \\
 & \beta_{20} Size_{i,t} + \beta_{21} Big4_{i,t} + \beta_{22} Audit\ fee_{i,t} + \beta_{23} Experience - m_{i,t} + \\
 & \beta_{24} Certification - m_{i,t} + \beta_{25} Education - m_{i,t} + \beta_{26} Integrity - m_{i,t} + \\
 & \beta_{27} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}$$

| Variables | Sign | Coef. | Z |
|---------------------|------|---------|----------|
| Education | - | 0.0158 | 0.34 |
| Certification | - | -0.8581 | -3.6*** |
| Experience | - | -0.5017 | -1.63 |
| Training | - | -0.0730 | -0.5 |
| Lack of integrity | + | -0.0305 | -0.23 |
| Cultural Revolution | ? | -0.0671 | -0.81 |
| Gender | - | 0.3448 | 1.67* |
| Compensation | - | -0.0013 | -0.17 |
| Stockholdings | - | -0.0064 | -0.96 |
| Busyness | + | -0.0239 | -0.23 |
| Ownership | - | 0.0319 | 0.35 |
| Meeting | - | -3.2955 | -5.82*** |
| Non-duality | - | 0.1982 | 1.68* |
| Firm age | + | 0.5550 | 5.21*** |
| Independence | - | -0.0067 | -0.08 |
| Size | + | 0.2877 | 6.7*** |
| Leverage | + | -0.0662 | -2.68*** |
| Restructure | + | 0.3207 | 3.55*** |
| Growth | - | -0.0032 | -0.71 |
| Financial health | - | -0.5617 | -4.47*** |
| Audit fee | - | -0.0648 | -0.75 |
| Big4 | - | -0.0944 | -0.39 |

| | | | |
|-----------------------|---|---------|------------|
| Lack of integrity-m | + | 5.1825 | 4.33*** |
| Training-m | - | -0.5967 | -4.16*** |
| Education-m | - | -0.2781 | -3.79*** |
| Certification-m | - | -0.6534 | -2.63*** |
| Experience-m | - | -1.8809 | -22.66*** |
| Constant | ? | -2.3464 | -2.15** |
| Industry indicators | | | Included |
| Year indicators | | | Included |
| Observations | | | 3386 |
| Pseudo R ² | | | 0.1830 |
| Log likelihood | | | -1917.4208 |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Table 6.17: Regression of the probability of specific internal control weakness

$$\begin{aligned}
 ICW_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
 & \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + \\
 & \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \\
 & \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \beta_{16} Big4_{i,t} + \\
 & \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \\
 & \beta_{20} Education - m_{i,t} + \beta_{21} Integrity - m_{i,t} + \beta_{22} Training - m_{i,t} + \\
 & \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}$$

Panel A

| Variables | Sign | Practice | | Book-keeping | |
|---------------------|------|----------|--------|--------------|----------|
| | | Coef. | Z | Coef. | Z |
| Education | - | 1.0058 | 2.29** | -0.0439 | -0.11 |
| Certification | - | 0.3366 | 0.56 | 0.6920 | 1.62 |
| Experience | - | -0.1178 | -0.14 | -0.3075 | -0.53 |
| Lack of integrity | + | -1.0251 | -0.33 | 0.9041 | 0.5 |
| Training | - | -0.6978 | -0.73 | 1.0358 | 1.39 |
| Ownership | - | 0.4306 | 1.13 | 0.1779 | 0.65 |
| Independence | - | 2.1471 | 1.03 | -1.8499 | -1.02 |
| Meeting | - | -0.0853 | -0.17 | 0.1895 | 0.53 |
| Non-duality | - | 0.6423 | 1.64 | 0.1674 | 0.59 |
| Firm age | + | 0.0364 | 0.1 | -0.6549 | -2.74*** |
| Size | + | -0.1591 | -0.81 | -0.0128 | -0.08 |
| Leverage | + | -0.0613 | -0.58 | 0.0096 | 0.14 |
| Restructure | + | 0.1402 | 0.36 | -0.0686 | -0.26 |
| Growth | - | 0.0526 | 0.51 | -0.3789 | -1.63 |
| Financial health | - | -0.4661 | -0.98 | -0.1531 | -0.43 |
| Audit fee | - | 0.7593 | 2.04** | 0.1435 | 0.5 |
| Big4 | - | -0.0428 | -0.05 | -0.2548 | -0.36 |
| Lack of integrity-m | + | 3.2590 | 0.65 | 0.3382 | 0.1 |
| Training-m | - | 0.7776 | 0.87 | -1.1748 | -1.46 |
| Education-m | - | -0.9720 | -1.92* | -0.1546 | -0.38 |

| | | | | | |
|-----------------------|---|-----------|----------|-----------|-------|
| Certification-m | - | -1.0796 | -0.62 | -0.4226 | -0.36 |
| Experience-m | - | 0.1008 | 0.26 | 0.2382 | 0.9 |
| Constant | ? | -10.4483 | -2.57*** | -1.0067 | -0.34 |
| Industry indicators | | Included | | Included | |
| Year indicators | | Included | | Included | |
| Observations | | 917 | | 987 | |
| Pseudo R ² | | 0.1343 | | -248.9386 | |
| Log likelihood | | -144.9786 | | 0.1543 | |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Panel B

$$\begin{aligned}
 ICN_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \\
 & \beta_7 Duality_{i,t} + \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t+1} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \\
 & \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \beta_{16} Big4_{i,t} + \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \\
 & \beta_{20} Education - m_{i,t} + \beta_{21} Integrity - m_{i,t} + \beta_{22} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
 \end{aligned}$$

| Variables | Control deficiencies | | | Significant deficiencies | | | Material weaknesses | |
|-------------------|----------------------|---------|-------|--------------------------|-------|---------|---------------------|--|
| | Sign | Coef. | T | Coef. | T | Coef. | T | |
| Education | - | 0.0084 | 0.09 | 0.3064 | 0.79 | 0.3277 | 0.89 | |
| Certification | - | -0.0497 | -0.5 | 0.1202 | 0.21 | -0.6340 | -0.77 | |
| Experience | - | -0.0351 | -0.68 | 1.0380 | 1.42 | -1.6814 | -0.54 | |
| Lack of integrity | + | 0.0963 | 0.47 | -5.9944 | -1.02 | -0.1808 | -0.04 | |
| Training | - | -0.0074 | -0.1 | -0.0649 | -0.11 | 0.0000 | | |
| Ownership | - | 0.0525 | 1.65* | 0.7682 | 1.16 | 0.3003 | 0.68 | |
| Independence | - | -0.2046 | -1.08 | -1.5626 | -0.83 | -1.0375 | -0.28 | |
| Meeting | - | 0.0506 | 1.18 | 0.2107 | 0.39 | 0.0074 | 0.01 | |
| Non-duality | - | 0.0014 | 0.04 | 0.3608 | 0.77 | 0.4479 | 0.53 | |
| Firm age | + | 0.0009 | 0.03 | -0.4235 | -0.99 | -0.0845 | -0.19 | |
| Size | + | -0.0130 | -0.77 | -0.1495 | -0.61 | 0.2161 | 0.62 | |
| Leverage | + | 0.0059 | 0.66 | 0.0882 | 1.27 | 0.1285 | 0.82 | |

| | | | | | | | |
|---------------------|---|----------|---------|---------|-------|----------|-------|
| Restructure | + | -0.0177 | -0.53 | 0.0290 | 0.08 | -0.2304 | -0.42 |
| Growth | - | -0.0025 | -1.73* | 0.0754 | 0.84 | 0.0421 | 0.15 |
| Financial health | - | 0.0274 | 0.62 | 0.6012 | 1.15 | -0.0558 | -0.08 |
| Audit fee | - | 0.0074 | 0.23 | 0.0600 | 0.13 | -0.2043 | -0.29 |
| Big4 | - | 0.1831 | 1.92* | 0.0035 | 0.01 | 0.3732 | 0.25 |
| Lack of integrity-m | + | 0.1133 | 0.26 | 0.0295 | 0.01 | 1.5928 | 0.2 |
| Training-m | - | 0.1037 | 1.35 | 0.0796 | 0.11 | 0.6829 | 0.56 |
| Education-m | - | -0.0251 | -0.28 | -0.2827 | -0.44 | -0.8644 | -1.1 |
| Certification-m | - | -0.0465 | -0.34 | -0.0618 | -0.05 | 0.8849 | 0.22 |
| Experience-m | - | -0.0265 | -0.72 | -0.0147 | -0.03 | -0.2028 | -0.48 |
| Constant | ? | 1.0782 | 2.82*** | 3.5157 | 0.79 | 1.0197 | 0.21 |
| Industry indicators | | Included | | | | Included | |
| Year indicators | | Included | | | | Included | |
| Observations | | 1604 | | 55 | | 34 | |
| F | | 3.14 | | 0.62 | | 0.97 | |
| Adj R ² | | 0.0398 | | -0.2482 | | -0.0213 | |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Panel C

$$ICW_{i,t} = \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + Independence_{i,t} + \beta_9 Owner_{i,t+1} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \beta_{16} Big4_{i,t} + \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \beta_{20} Education - m_{i,t} + \beta_{21} Integrity - m_{i,t} + \beta_{22} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon$$

| Variables | Sign | Financial reporting and policies | | | Accounting and revenue recognition | | Subsidiary firm | |
|-------------------|------|----------------------------------|---------|--|------------------------------------|-------|-----------------|-------|
| | | Coef. | Z | | Coef. | Z | Coef. | Z |
| Education | - | 0.5255 | 0.62 | | 0.6633 | 0.86 | -1.0799 | -1.17 |
| Certification | - | 2.0587 | 1.52 | | -0.9436 | -0.58 | 2.2572 | 1.09 |
| Experience | - | | | | 1.5780 | 0.57 | | |
| Lack of integrity | + | 5.2490 | 1.18 | | 0.7670 | 0.18 | -3.0795 | -0.56 |
| Training | - | 18.7431 | 0.02 | | -1.3516 | -0.49 | 3.1477 | 1.22 |
| Ownership | - | -0.1511 | -0.19 | | -1.0906 | -1.26 | 1.1743 | 1.22 |
| Independence | - | 3.5914 | 0.86 | | -11.4191 | -2.12 | 14.7482 | 2.23 |
| Meeting | - | 0.1631 | 0.16 | | 1.0465 | 0.92 | -1.6854 | -1.08 |
| Non-duality | - | -2.3228 | -2.21** | | 0.4771 | 0.41 | -0.2342 | -0.17 |
| Firm age | + | -0.1886 | -0.22 | | 0.6397 | 0.55 | 0.1489 | 0.11 |
| Size | + | -0.7363 | -1.47 | | 0.1197 | 0.23 | -0.2579 | -0.41 |

| | | | | | | | |
|-----------------------|---|----------|---------|----------|--------|----------|-------|
| Leverage | + | 0.0283 | 0.15 | 0.3699 | 1.44 | -0.0759 | -0.33 |
| Restructure | + | 0.1133 | 0.12 | -0.7945 | -0.71 | 0.0537 | 0.04 |
| Growth | - | 0.3030 | 0.45 | -0.9493 | -1.17 | -1.2273 | -0.99 |
| Financial health | - | 0.8888 | 0.99 | 1.9989 | 1.79* | -2.0691 | -1.58 |
| Audit fee | - | 2.1722 | 2.12** | -2.0158 | -1.73* | 0.5965 | 0.44 |
| Big 4 | - | -3.8961 | -1.99** | 2.3623 | 1.2 | 0.4278 | 0.18 |
| Integrity-m | + | -5.8866 | -0.75 | 4.3588 | 0.62 | -0.8386 | -0.1 |
| Training-m | - | -16.9375 | -0.01 | 8.2851 | 2.32 | -2.8851 | -0.92 |
| Education-m | - | -0.3504 | -0.28 | 2.5979 | 1.68* | -1.4150 | -0.85 |
| Certification-m | - | 8.1578 | 1.91* | -7.6298 | -1.66* | 1.3746 | 0.26 |
| Experience-m | - | 0.2056 | 0.22 | -0.9421 | -0.85 | 2.3471 | 1.53 |
| Constant | ? | -17.0625 | -1.65 | 16.0227 | 1.3 | -15.2285 | -0.01 |
| Industry indicators | | Included | | Included | | Included | |
| Year indicators | | Included | | Included | | Included | |
| Observations | | 73 | | 73 | | 73 | |
| Log likelihood | | -33.4433 | | -30.0229 | | -24.7931 | |
| Pseudo R ² | | 0.3383 | | 0.3967 | | 0.3052 | |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Panel D

$$ICW_{i,t} = \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \beta_4 Inegritiy_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + Independence_{i,t} + \beta_9 Owner_{i,t+1} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \beta_{16} Big4_{i,t} + \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \beta_{20} Education - m_{i,t} + \beta_{21} Integrity - m_{i,t} + \beta_{22} Training - m_{i,t} + \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon$$

| Variables | Sign | Information | Corporate governance | Internal control | Rules | HR | Others |
|-------------------|------|---------------------|----------------------|-----------------------|-----------------------|----------------------|-----------------------|
| | | Coef. | Coef. | Coef. | Coef. | Coef. | Coef. |
| Education | - | -1.7535 (-1.63) | -1.8087 (-2.03**) | -2.3985 (-3.88***) | -1.8918 (-3.43***) | 2.6589 (0.64) | -2.3633 (-3.38***) |
| Certification | - | -2.7516 (-1.95*) | -0.3304 (-0.44) | -2.3358 (-3.97***) | -0.6541 (-1.3) | -1.0289 (-0.9) | 0.0027 (0.01) |
| Experience | - | 0.3072 (1) | 0.1697 (0.69) | 0.4548 (2.28**) | 0.3904 (1.85*) | -0.3192 (-1.14) | 0.1698 (0.79) |
| Lack of integrity | + | 1.0311 (0.8) | 1.9509 (1.93**) | 0.5939 (0.69) | 0.4923 (0.56) | 0.6064 (0.49) | 0.2170 (0.24) |
| Training | - | 0.1872 (0.47) | 0.1074 (0.32) | 0.2106 (0.77) | 0.0874 (0.28) | 0.1108 (0.3) | 1.6139 (5.06***) |
| Ownership | - | 0.1780 (0.79) | 0.2188 (1.29) | -0.2555 (-2.05**) | -0.1627 (-1.22) | 0.1410 (0.75) | 0.2835 (2.05**) |
| Independence | - | -2.5184 (-1.7*) | -2.2094 (-2.15**) | -0.4414 (-0.6) | -1.8809 (-2.36**) | 0.6372 (0.58) | -3.2026 (-3.70***) |
| Meeting | - | 0.3690 (1.21) | 0.2615 (1.12) | 0.0624 (0.37) | -0.4552 (-2.49**) | -0.5332 (-1.99**) | 0.0517 (0.28) |
| Non-duality | - | -0.0753 (-0.29) | -0.0956 (-0.49) | -0.1440 (-1.03) | -0.1382 (-0.93) | 0.4201 (1.98**) | -0.2108 (-1.31) |
| Firm age | + | 0.1441 | 0.3793 | -0.2190 | -0.5259 | 0.5159 | -0.1560 |

| | | | | | | | |
|---------------------|---|----------|----------|------------|------------|-----------|------------|
| | | (0.66) | (2.29)** | (-1.89*) | (-4.19***) | (2.94***) | (-1.25) |
| Size | + | -0.0719 | -0.0359 | 0.0187 | 0.0510 | -0.1432 | -0.2050 |
| | | (-0.62) | (-0.42) | (0.28) | (0.72) | (-1.46) | (-2.80***) |
| Leverage | + | 0.0717 | 0.0514 | 0.0081 | -0.0385 | 0.0208 | -0.0258 |
| | | (1.26) | (1.15) | (0.24) | (-1) | (0.4) | (-0.67) |
| Restructure | + | -0.2090 | -0.0442 | -0.0339 | -0.2127 | 0.4043 | -0.1282 |
| | | (-0.93) | (-0.25) | (-0.26) | (-1.54) | (1.95*) | (-0.92) |
| Growth | - | -0.1039 | -0.0062 | -0.0780 | -0.0570 | 0.0263 | -0.0043 |
| | | (-0.97) | (-0.26) | (-1.52) | (-1.03) | (0.37) | (-0.28) |
| Financial health | - | 0.6455 | 0.2127 | 0.3561 | 0.4586 | -0.2581 | -0.3140 |
| | | (1.75*) | (0.91) | (2.02**) | (2.41**) | (-1.09) | (-1.68*) |
| Audit fee | - | 0.2858 | 0.0390 | -0.0962 | -0.4737 | 0.3916 | -0.1105 |
| | | (1.29) | (0.23) | (-0.75) | (-3.42***) | (2.03**) | (-0.78) |
| Big 4 | - | -2.0079 | -0.2471 | -0.1210 | 1.3408 | -0.2542 | -0.3512 |
| | | (-1.84*) | (-0.45) | (-0.32) | (3.32***) | (-0.42) | (-0.66) |
| Lack of integrity-m | + | -1.4391 | -5.1902 | 0.1081 | 0.2510 | -0.4874 | -0.3360 |
| | | (-0.46) | (-1.92) | (0.05) | (0.12) | (-0.17) | (-0.16) |
| Training-m | - | -0.0760 | 0.2666 | 0.0902 | -0.1710 | 0.3391 | -1.6653 |
| | | (-0.17) | (0.7) | (0.31) | (-0.52) | (0.79) | (-4.41***) |
| Education-m | - | 1.1955 | 1.3317 | 2.7045 | 1.6199 | -2.6058 | 2.6041 |
| | | (1.12) | (1.5) | (4.3***) | (2.91***) | (-0.63) | (3.69***) |
| Certification-m | - | -0.3221 | 0.8036 | 1.1937 | 2.0508 | -0.5317 | 3.2312 |
| | | (-0.32) | (1.14) | (2.15**) | (3.57***) | (-0.62) | (5.76***) |
| Experience-m | - | -0.1533 | -0.1719 | -0.4920 | -0.5392 | 0.0074 | -0.3391 |
| | | (-0.56) | (-0.84) | (-3.44***) | (-3.46***) | (0.03) | (-2.08**) |
| Constant | ? | -4.6300 | -2.4153 | 0.5269 | 9.2022 | -28.2137 | 6.0888 |
| | | (-1.71*) | (-1.18) | (0.35) | (5.66***) | (-0.02) | (3.71***) |
| Industry indicators | | Included | Included | Included | Included | Included | Included |

| | | | | | | |
|-----------------------|----------|----------|----------|----------|----------|----------|
| Year indicators | Included | Included | Included | Included | Included | Included |
| Observations | 1415 | 1415 | 1415 | 1415 | 1415 | 1415 |
| Log likelihood | -355.914 | -563.736 | -904.065 | -814.126 | -419.987 | -757.097 |
| Pseudo R ² | 0.1076 | 0.263 | 0.0782 | 0.1425 | 0.3885 | 0.0995 |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Table 6.18: Alternative measure

$$\begin{aligned}
ICW_{i,t} = & \beta_0 + \beta_1 Experience_{i,t} + \beta_2 Certification_{i,t} + \beta_3 Education_{i,t} + \\
& \beta_4 Integrity_{i,t} + \beta_5 Training_{i,t} + \beta_6 Meeting_{i,t-1} + \beta_7 Duality_{i,t} + \\
& \beta_8 Independence_{i,t} + \beta_9 Owner_{i,t+1} + \beta_{10} Growth_{i,t} + \beta_{11} Financial\ health_{i,t} + \\
& \beta_{12} Leverage_{i,t} + \beta_{13} Restructure_{i,t} + \beta_{14} Firm\ age_{i,t} + \beta_{15} Size_{i,t} + \beta_{16} Big4_{i,t} + \\
& \beta_{17} Audit\ fee_{i,t} + \beta_{18} Experience - m_{i,t} + \beta_{19} Certification - m_{i,t} + \\
& \beta_{20} Education - m_{i,t} + \beta_{21} Integrity - m_{i,t} + \beta_{22} Training - m_{i,t} + \\
& \sum_{t=0}^4 Industry_{i,t} + \sum_{t=0}^6 Year_{i,t} + \varepsilon
\end{aligned}$$

| | Sign | Coef. | Z |
|------------------|------|---------|-----------|
| Education | - | -1.7896 | -15.76*** |
| Certification | - | -1.0230 | -11.93*** |
| Experience | - | -1.1686 | -9.61*** |
| Integrity | + | 0.1886 | 1.15 |
| Training | - | -0.2586 | -1.89* |
| Ownership | - | -0.0139 | -0.15 |
| Independence | - | -1.1948 | -12.96*** |
| Meeting | - | 0.0359 | 0.29 |
| Non-duality | - | 0.5545 | 4.95*** |
| Firm age | + | 0.2243 | 2.55** |
| Size | + | 0.3652 | 7.94*** |
| Leverage | + | -0.0697 | -2.64*** |
| Restructure | + | 0.2908 | 3.19*** |
| Growth | - | -0.0026 | -0.51 |
| Financial health | - | -0.5046 | -3.8*** |
| Audit fee | - | 0.1561 | 1.79* |
| Big4 | - | -0.4187 | -1.63 |
| Integrity-m | + | 0.5473 | 3.5*** |
| Training-m | - | -0.0164 | -0.13 |
| Education-m | - | -0.3118 | -2.36** |

| | | | |
|-----------------------|---|------------|----------|
| Certification-m | - | -0.2881 | -3.17*** |
| Experience-m | - | 0.1478 | 1.72* |
| Constant | ? | -8.5746 | -8.04*** |
| Industry indicators | | Included | |
| Year indicators | | Included | |
| Observation | | 3386 | |
| Pseudo R ² | | 0.2647 | |
| Log likelihood | | -1725.6564 | |

This table reports coefficients and *t*-statistics (in parentheses), ***, **, and * denote significance at the 1%, 5%, and 10% levels in a two-tailed test, respectively.

Appendix

Appendix A: Regulations and laws on internal control in China (1949-2005)

| Divisions | Time | Name | Contents |
|----------------------------|------|---|--|
| State Council | 1963 | Interim Terms of Reference of Accountants | Accounting system, the responsibilities, permissions, appointment, removal, rewards and punishment of accountants |
| Ministry of Finance | 1984 | Working Rules of Accountants | The responsibilities, the use of accounts, how to fill the accounting documents, registration of accounting books, accounting statement, accounting files, accounting handover |
| | 1996 | Basic Working Rules of Accountants | Accounting body, accountants, accounting, accounting oversight, internal accounting management system |
| | 2001 | Internal Accounting Control Standards-Basis Standards and Follow-up Special Standards | Accounting control |
| National People's Congress | 1985 | China Accounting Law | Accounting, accounting oversight, accounting body, accountants, legal responsibilities |
| Standing Committee | 1993 | First Modified Accounting Law | The function becomes to maintain socialist market economic order and requires leaders guarantee legality, truth and integrity of accounting documents, which clarifies the relevant questions on internal control further. |

| | | | |
|---|------|---|---|
| | 2000 | Second Modified Accounting Law | Accounting, accounting oversight, accounting body, accountants, legal responsibilities |
| The Chinese Institute of Certified Public Accountants (CICPA) | 1997 | Independent Auditing Specific Standard No 9- Internal Control and Auditing Risk | Internal control and auditing risk |
| | 2002 | Verified Guidance of Internal Control | Contents, process and reports of internal control |
| | 2004 | Independent Auditing Specific Standard No 29- Know the Audited Entity and Environment and Assess Material Misstatement Risk | Five factors of internal control |
| China Securities Regulatory Commission (CSRC) | 2000 | Compilation Rules of Information Disclosure of Public Offering Securities Companies | Securities companies should describe the legality, truth and integrity of internal control. |
| | 2001 | Internal Control Guide of Securities Companies | The goal, principle, requirement, contents of internal control |
| | 2001 | Notification on Internal Control Review of Securities Companies | The contents of internal control review |
| | 2002 | Governance Guidelines on Listed Companies | The responsibilities of the audit committee |
| | 2002 | Internal Control Instruction Opinion of Securities Investment Fund Management Company | The goal, principle, factor and content of internal control |
| | 2003 | Notice on Assess Internal Control of Fund | 76 minimum standards for internal risk control |

| | | | |
|---|------|--|---|
| | | Management Company in 2003 | |
| | 2003 | Governance Guidelines of Securities Company | The responsibilities of managers |
| | 2003 | Opinions on Strengthen Internal Control of Business Department of Securities Company | Strengthen management and supervision |
| People's Bank of China | 1997 | Governance Guidelines of Financial Company | Internal control of the financial industry |
| | 1997 | Opinions on Improving the Internal Control of Financial Companies | Strengthening guidance and supervision of internal control |
| | 2002 | Guidelines of Internal Control of Commercial Banks | The goal, principle, factor and content of internal control of commercial banks |
| China Banking Regulatory Commission (CBRC) | 2004 | Interim Terms of Internal Control of Commercial Banks | The goal, principle, content, process, way, degrees and standards of assessment |
| | 2004 | Guidelines for Market Risk Management of Commercial Banks | Management and supervision of market risk |

(Source: Chen, 2009)

Appendix B: Main contents regarding internal control in China SOX

| China SOX – Aspects of Internal Control | |
|---|---|
| Organizational Structure | <ul style="list-style-type: none"> Ensure that decision-making, execution and supervision are separate and form adequate checks and balances Conduct an overall evaluation of the efficiency and effectiveness of the design and operation of its organization on a regular basis |
| Development Strategy | <ul style="list-style-type: none"> Set up a strategy committee to be in charge of the management of development strategies and formulation of a development strategy proposal, which will be implemented after adoption upon deliberation by the board of directors and approval at the shareholders' meeting |
| Human Resources | <ul style="list-style-type: none"> Formulate annual plans on human resource needs and evaluate its execution on a regular basis |
| Social Responsibilities | <ul style="list-style-type: none"> Establish stringent work safety management systems, rigorous product quality control and inspection systems Diligently perform energy conservation and emission reduction responsibilities Establish a scientific employee remuneration system and incentive mechanism Ensure the entitlement of staff members to rest and leave days |
| Corporate Culture | <ul style="list-style-type: none"> Actively cultivate a corporate culture and a corporate culture assessment system which focuses on whether the directors, supervisors, managers and other senior management personnel have performed their duties in corporate cultural building and whether all employees identify with the enterprise's core values |
| Fund-related Activities | <ul style="list-style-type: none"> Based on its fund-raising goals and planning, draft fund-raising programs in light of the annual overall budget, specify the purposes, amount and structure of the funds to be raised and the fund-raising methods, and make sufficient estimates of the fund-raising costs and potential risks |
| Procurement Activities | <ul style="list-style-type: none"> Put procurement operations under centralized management, and avoid procurement from too many suppliers or decentralized procurement |
| Asset Management | <ul style="list-style-type: none"> Adopt advanced inventory management technologies and methods and standardize inventory management processes Establish inventory management post accountability system |
| Sales | <ul style="list-style-type: none"> Strengthen market research and promptly adjust sales strategies according to market changes Strengthen the management of bad debts of accounts receivable Where the accounts receivables cannot be recovered in whole or in part, the enterprise should find out the reasons, clarify the responsibilities, and handle the issues in strict compliance with the examination and approval procedures and pursuant to China's uniform accounting standards |
| Research and Development | <ul style="list-style-type: none"> Establish a research achievement protection system, and strengthen the management of patents, non-patented technologies, trade secrets, as well as various kind of confidential drawings, programs and data formed during the R&D process Establish a R&D activity assessment system to enhance the comprehensive assessment of project initiation and research, and other process |
| Engineering Projects | <ul style="list-style-type: none"> Designate a special department to manage engineering projects on a centralized basis Select contractors and supervision entities based on merits for its engineering projects through open bidding |
| Guarantee | <ul style="list-style-type: none"> Designate relevant departments to be responsible for guarantee operations, conduct credit investigation and risk assessment of applicants, and issue written reports on assessment results Establish a guarantee accountability system, and strictly hold accountable the departments and personnel that make major errors in guarantee decision-making, fail to go through the collective examination and approval process, or fail to manage guarantee operations as required |
| Business Outsourcing | <ul style="list-style-type: none"> Establish and improve the business outsourcing management systems, specifying the scope, manner, conditions, procedures and implementation of business outsourcing, make clear the duties and authority of relevant departments and positions, and reinforce the monitoring of the entire outsourcing process |
| Financial Reports | <ul style="list-style-type: none"> Hold financial analysis meetings on a regular basis, and make full use of the comprehensive information reflected in the financial reports to conduct a thorough analysis of the operation and management situation and the existing problems of the enterprise, and constantly improve its operation and management level |
| Comprehensive Budgeting | <ul style="list-style-type: none"> Establish a budgeting management committee to perform the duties of comprehensive budgeting management Prepare an annual comprehensive budget by adhering to its development strategies and annual production and operation plan, by taking into comprehensive consideration the economic policies, market conditions and other factors during the budget period |
| Contract Management | <ul style="list-style-type: none"> Designate a centralized contract management department; specify the procedures and requirements for contract drafting, examination and approval, performance and other aspects, conduct regular inspection and evaluation. Establish a contract performance assessment system, analyze and assess the overall situation of contract performance and the specific situations of the performance of major contracts at least once at the end of each year |
| Internal Informal Communication | <ul style="list-style-type: none"> Formulate a rigorous internal reporting process, make full use of information technology, reinforce the integration and sharing of internal reporting information, and include internal reports into its unified information platform, so as to build a scientific internal reporting network Make effective use of internal reports in risk assessment, accurately identify and systemically analyze the internal and external risks in its production and operation activities, and determine the strategies to tackle such risks, so as to achieve effective control of risks |
| Information Systems | <ul style="list-style-type: none"> Designate a department to manage the building of information systems on a centralized basis Strengthen the management of critical information equipment such as the servers |

Source: The Basic Standard Supporting Guidelines, Articles 4-18

Appendix C: Case studies of effective and ineffective internal control⁴¹

Ineffective internal control

Many Chinese state-owned firms have recently been found to have been involved in corruption. In 2014, the China State-owned Assets Supervision and Administration Commission had meetings about the boards of directors of the China National Petroleum Corporation, China Metallurgical Group Corporation and China Guodian Power. The Administration Commission has recently organized training in respect of internal controls for the boards of directors and management of Chinese state-owned firms. In order to improve the quality of internal controls, the Chinese government requires that state-owned firms strengthened their boards of directors and the quality of their board chairmen.

China Metallurgical Group Corporation was investigated in 2014 by the State-owned Assets Supervision and Administration Commission in response to its suffering massive investment losses (5.6 billion RMB) over precious four years. The corporation had recently seen its management team change every year, with each team having a different management style. According to the report from National Audit Office, in spite of the exposure of problems such as low product quality and its insolvency, the Corporation continued to blindly invest and expand. The design of its internal control mechanisms and risk management suffer from serious weaknesses. The board of directors and the board of supervisors were simply not performing their required management and supervisory functions in the firm. The board's chairman abused his power, embezzled money and engaged in corrupt practices. The board chairman, Mr Yang, and the other corporate leaders were clearly implicated in a case of fraud. The board chairman was guilty of defalcation and accepted bribes, while the CFO fabricated economic business and helped himself to the state-owned assets (Liu & Cai, 2011). At the same time the CFO was not being supervised and hence was free to do whatever he wanted. The accounting instructions were ineffective, and went against the principle of "the separation of incompatible duties". Senior management ignored process controls, which provided the chance for financial fraud (Wu, 2011). Poor management led to huge losses over 11.59 billion RMB (Liu, 2011c). China Metallurgical Group Corporation suffered from financial derivative product losses caused by poor risk supervision and bad governance mechanisms (Wang et al., 2009).

Boards of directors and managers play a vital role in internal control weakness. The board members and management of China Metallurgical Group lacked integrity; most of them did not have accounting and internal control experience and certification⁴². They also did not have any internal control training. The low quality of the board and management were the main reasons for the low quality of internal control in China Metallurgical Group. They took control of the company and illegally misappropriated its future margins.

In a similar vein, the corruption in China National Petroleum Corporation (PetroChina) had been occurring since 2013. By the end of 2014, at least 45 board members and top managers

⁴¹ Only some Chinese firms are used as examples here. They may not represent all Chinese listed firms.

⁴² Only one member has accounting certification.

had been investigated and dismissed from their posts. The low-quality of board members and top management has resulted in the failure of the Petroleum Corporation. The National Auditing Office reported that in 2011 problems in PetroChina included an irregular construction bid (4.5 billion RMB), equipment material purchasing (0.2 billion RMB), project investment (0.8 billion RMB), and fake invoices (0.04 billion RMB). The loss rates from overseas projects by PetroChina were as high as 66.7%. In 2011, PetroChina did stop six projects in Libya and Niger, which resulted in the reduction of 1.2 billion RMB in income (Li, 2015).

This case started from with an enquiry about Mr Tao Yuchun. Tao Yuchun was not only the board chairman and general manager of the mother firm, but was also the HR manager of both the mother firm and its subsidiaries. Mr Jiang Jieming was the general manager, board chairman, CEO and secretary of the party committee of PetroChina from 2004 to 2011. Then Jiang worked as a director of China's state-owned Assets Supervision and Administration Commission. When Mr Bo Xilai was the governor of Liaoning Province, PetroChina invested in two oil factories in Liaoning with the aid of Jiang Jieming. When Bo Xilai was Chongqing party secretary, PetroChina invested 15 billion RMB in Chongqing and in 2009, they invested even more in Chongqing. The vice general manager, Mr Wang Yougchun and CFO, Mr Wen Qingshan and his wife were also involved in this case. Other board members and management including Mr Guo Yongxiang (Ex National People's Congress, deputy director of Sichuan Province), Mr Li Linhua, Mr Ran Xinquan, Mr Wang Daofu, and Mr Wu Bin were also accused of serious disciplinary violations (Li, 2015).

The board members and management of PetroChina showed a lack of integrity. In order to get more money and get promoted, they colluded with each other and took advantage of the company to invest blindly and take bribes. First, no one at the top of PetroChina paid attention to the internal control goals and they did not have in place a checking system. Second, PetroChina did not disclose material financial information such as the huge losses incurred on overseas projects. Third, the key persons in PetroChina who made the decisions did not consider the potential risks associated with the projects. The management in PetroChina was undemocratic and the concentration of power led to operational risks. What is worse, the corporate governance in PetroChina was bad. One person acted in several roles at the same time. Duality had always existed in PetroChina.

The board of directors of PetroChina was not independent and was ineffective. Jiang Mingjie was the board chairman and the top management of both the mother firm and the subsidiaries. The head office of PetroChina was the decision-making centre, strategy management centre, investment and risk management centre, as well as the operational and service centre. Jiang Mingjie plays four core roles. He had too much power and was involved in too many projects. The No. 1 boss of PetroChina was the main cause of the failure of internal control. In addition, the percentage of independent directors in PetroChina was low. The directors and management of Petro China decided everything in the company; the board of supervisors, and the internal auditor, were also ineffective (Li, 2015).

Poor management has led to huge losses. Apart from state-owned firms, non-state owned firms also have similar stories. Citic Pacific also suffered huge losses from derivative

products caused by poor risk supervision and an inadequate governance mechanism. Surprisingly, the board chairman, Rong Jianzhi did not know of the existence of a particular contract. The CEO undertook the contract by himself without the authorization of the board of directors. After the board chairman's defalcation and acceptance of bribes, the CEO also fabricated economic business deals and misappropriated state-owned assets (Liu & Cai, 2011). They took control of the capital of the company illegally. The senior management ignored the control of the process, thus providing an opportunity for financial fraud (Wu, 2011). Although the company had an internal control system, senior management did not implement it.

Overall, wrong decisions and wrong operations by the board of directors and top management can result in the failure of any company. The most difficult part of internal control in Chinese firms rests with the key person who is in charge of internal control. Their understanding and attitude towards internal control have a great influence on the effectiveness of internal control. If they abuse power, embezzle money, engage in corrupt and illegal practices, then there are material internal control weaknesses in the firm. The control of the management is ineffective, and centralization leads to wrong decisions. The quality of leaders and financial staffs are low, which results in bad judgments and financial frauds. Only when they pay particular attention to internal control can the internal control level be improved in Chinese firms (Yan, 2012).

Effective internal control

As one of the Chinese Internal Control Top 100 Companies⁴³, China State Construction Engineering Corporation Limited (CSCEC) has an effective internal control system. As a listed company in China, CSCEC set up a SOX assessment commission. CSCEC has disclosed internal control reports and social responsibilities in detail since 2007. In 2008, an internal control management information system was set up in CSCEC. The independent internal control team consists of 400 to 500 people. The board and audit committee take responsibility for the self-evaluation of internal control. The internal audit is responsible for all supervision of internal control. The internal control team has highly-qualified team members. They have a good education, regulation training, accounting experience and professional certification. There are some noteworthy characteristics of the internal control of this company. First, the internal control system is reasonable. CSCEC set up an internal control system according to "China SOX". Second, CSCEC has an internal control supervision system. The auditing commitment is responsible for the supervision of internal control. What is more, the internal control team at CSCEC takes responsibility for everyday internal control. Third, the internal control assessment system is effective in CSCEC (Qiao et al., 2010). Senior management places great emphasis on internal control and the design of the

⁴³ In 2010, the Internal Control Index Research Group at Xiamen University evaluated and analysed internal control in 2036 Chinese listed companies and released a list of the Top 100 internal control enterprises. This list is based on the internal control index score of the listed company in 2010 according to an index system including five first level evaluation indexes (internal environment, risk assessment, control activities, information and communication, internal supervision), 24 secondary indexes, 43 third level indexes and 144 fourth class indexes.

internal control system take into consideration its unique setting and adapts readily to change. Compared with other Chinese enterprises, CSCES's internal control is good and effective. Good corporate governance and good internal control contribute to the good performance of CSCEC.

In sum, the enterprises that have effective internal control do well in most or all aspects of the five-component structure of the COSO framework. The board of directors and management are responsible for, and pay more attention to, the effectiveness of internal control. They realize the importance of internal control and make an effort to improve the effectiveness of internal control. Those enterprises set a good example of how to design and implement effective internal control. Their board members, board chairmen and management are all of good-quality.

A summary of cases of firms with internal control weaknesses are listed in the following tables. As can be seen problem firms tend to have low-qualified board members. They have no internal control training, they have no accounting certification and experience. They are lacking in integrity. My research also finds that certification, experience, education and integrity of board members are significantly related to internal control weaknesses.

| Examples | ICW | ICI | Training | Certification | Experience | Integrity |
|---------------------|--|--------|--|---|--|---------------------------------|
| Metallurgical Group | They disclosed internal control weaknesses over non-financial reporting and remediated them. | 730.6 | They had no internal control training. | They did not have accounting certification. | They did not have accounting experience. | They were lacking in integrity. |
| Petro China | They did not disclose internal control weaknesses | | They had no internal control training. | They did not have accounting certification. | They did not have accounting experience. | They were lacking in integrity. |
| Citic Pacific | They disclosed internal control weaknesses. | 702.93 | They had no internal control training. | They did not have accounting certification. | They did not have accounting experience. | They were lacking in integrity. |

Appendix D: Examples of company internal control reports⁴⁴

Shandong Xinhua Pharmaceutical Limited

Liability Company 2011 Annual Internal Control Self Evaluation Report

To the Shareholders of Shandong Xinhua Pharmaceutical Limited Liability Company

We have evaluated the effectiveness of internal control of the firm according to the requirement of Basic Standard.

1. Statement of the board of directors

All board members guarantee that the concrete content of this report is true, accurate and Complete. There is no significant missing information. We are responsible for this report.

The board's responsibility is to establish, improve and carry out effective internal control.

The board of supervisors oversees the boards of directors. Management organizes the operation of internal control.

The goal of internal control over financial reporting is to guarantee the safety of assets, the reliability of financial reporting and relevant information, improve the efficiency and effectiveness of operations, and promote the realisation of development strategy. Because there are inherent limitations in internal control, we can only provide a reasonable guarantee of the above goals. The effectiveness of internal control may vary with the internal and external environment and operating conditions. The firm has mechanisms to check and oversee internal control. We will remediate deficiencies immediately once we identify them.

2. Review of internal control evaluation

⁴⁴ Source: the websites of Shanghai Stock Exchange (<http://www.sse.com.cn/>)

In 2010, we set up an internal control team. The board of directors empowered the auditing department to take the responsibility for internal control implementation. The internal control assessment team consists of internal auditing and related departments.

The auditing department makes the assessment plan. The assessment team evaluates the design and operation of internal control according to internal control five factors. These include: organizing and implementing self-assessment, concluding assessment results, and writing the assessment report.

During the process of assessment, the internal control team reports on the assessment situation and discusses the preliminary report. Internal control report is submitted to the board of directors after verification. This assessment report will be disclosed after the meeting of the board of director.

We employed the ShineWing Accounting Firm to audit the effectiveness of internal control of the company.

3. The benchmark of internal control assessment

This report is based on the requirements of Basic Standard for Enterprise Internal Control and Application Guidelines. We evaluated the effectiveness of design and operation of internal control in 2011.

4. The range of internal control assessment

The range of internal control assessment covers different kinds of businesses, including organization structure, development strategy, human resources, social responsibility, firm culture, funding of activities, purchasing, asset management, sales, research and development, engineering projects, guarantees, business outsourcing, financial reporting,

comprehensive budgeting, contact management, internal information transmission, information systems, related party transactions and subsidiary company control.

The director board has evaluated internal control over financial reporting according to Basic Standard for Enterprise Internal Control (*caikuai* [2008] No.7) and consider it is effective on 31st Dec, 2011.

5. The process and the method of internal control evaluation

According to Evaluation Guidelines, internal control evaluation process includes making the plan of assessment, setting up the assessment team, carrying out a spot test, concluding assessment results and writing the assessment report.

During the process of evaluation, the assessment team uses methods including interview, questionnaires, seminars, sample inspections, fieldwork and comparative analysis. We collect effective evidence about the design and operation of internal control and fill in the evaluation work papers, then analyze and identify internal control deficiencies. We quantitatively and qualitatively evaluate the design and operation of internal control.

6. Internal control deficiencies and affirmation

The benchmark of judging internal control deficiencies not only includes whether there are limitations in the control system, but also looks at whether this concern influences the reasonable guarantee for the realization of internal control goals.

According to Basic Standard and Application Guidelines, we confirm the affirmation standard of internal control deficiencies as follows:

| Classifications | Methods | Ratio | Control deficiency | Significant deficiency | Material weaknesses |
|-----------------|---------|-------|--------------------|------------------------|---------------------|
|-----------------|---------|-------|--------------------|------------------------|---------------------|

| | | | | | |
|--|---------------------|---|---|---|---|
| Internal control weakness over financial reporting | Quantitative method | The percentage of the misstatement amount to the amount of assets | < 0.5% | 0.5%-1% | >1% |
| Internal control weakness over non-financial reporting | Quantitative method | The percentage of loss in financial reporting to total assets | < 0.5% | 0.5%-1% | >1% |
| | Qualitative method | Daily operation | It is nearly impossible to result in the failure of business operation. It will not endanger other business in the firm or operating goals. | It is possible to result in the failure of business operation. However, it will not endanger a going concern. | It is possible to result in the loss of part of business ability. It will endanger a going concern. |
| | | Financial loss | It is nearly impossible to result in slight financial loss. | It is possible to result in medium financial loss. | It is possible to result in material financial loss. |
| | | Firm reputation | It is nearly impossible to result in the spread of negative information in locally and slightly harm firm reputation. | It is possible to result in the spread of negative information in some areas and medially harm firm reputation. | Possible resulting in the spread of negative information throughout country and seriously harm firm reputation. |

According to the above standards, we found a material weakness. The subsidiary firm (Pharmaceutical Trade Company) grants too much credit to clients, which leads to a huge loss.

First, Pharmaceutical Trade lacks the requirements for multi-management. The industry sales department and business sales department of this branch company grants credit to the same clients separately, which causes too much credit.

Second, the internal control system of Pharmaceutical Trade Company requires credit amounts to be less than the registered capital. However, some credit amounts are more than the registered capital. At the same time, Pharmaceutical Trade Company delivers goods without granting credit.

The above material weakness resulted in 60 million receivables in Shandong Xingkangqi Firm. Xingkangqi Firm suffers from abnormal operation and; capital chain rupture, which may lead to a huge loss for the firm.

7. Internal control weakness remediation

We remediated internal control weaknesses by setting up and improving related systems. In terms of the control of the subsidiary firm, we remediated their internal control system, prohibited multi-granting-of-credit and strengthened their supervision and inspection, in order to avoid new credit risks due to excess-granting of credit.

8. Internal control effectiveness

During the period of reports, we failed to maintain effective internal control over financial reporting in all material aspects according to Basic Standards. The internal control had not changed since the base day of internal control assessment reports until reports day.

We note that; internal control should adapt to firm size, business scope, the competition situation and the risk level. Internal control should also vary with changes in situation.

In the future, we will continue to improve the internal control system, standardize the implementation of the internal control system, and strengthen supervision and inspection in order to promote the healthy and sustainable development of the firm.

Shandong Xinhua Pharmaceutical Limited Liability Company 23/Mar/2012

Internal Control Auditing Report

To the Shareholders of Shandong Xinhua Pharmaceutical Limited Liability Company

We have audited the effectiveness internal control of Xinhua Pharmaceutical at 31th Dec 2011 according to the Internal Control Auditing Guidelines and Chinese CPA professional standards.

1) Directors' Responsibility

The Directors are responsible for setting up and improving internal control and evaluate its effectiveness.

2) Auditor's Responsibility

The responsibility is to express an independent opinion on internal control effectiveness. We also disclose identified internal control material weaknesses over non-financial reporting.

3) The inherent limitations of internal control

Internal control has inherent limitations. We may not prevent and discover misstatement. Further, the changes of situations may make internal control become improper or reduce the following degree towards control policies and processes. It is risky to predict the effectiveness of internal control in the future according to the results of internal control evaluation.

4) The issues leading to negative opinions

Material weaknesses are a significant deficiency or combination of control deficiencies, which causes the firm to deviate the goal seriously.

First, the subsidiary firm (Pharmaceutical Trade Company) lacks the requirement about multi-management. The industry sales department and business sales department of branch company grant credit to the same clients separately, which causes too much credit.

Second, internal control system of Pharmaceutical Trade Company requires that credit amount should be less than the registered capital. However, some credit amount is more than the registered capital. At the same time, Pharmaceutical Trade Company delivers goods without granting credit.

The above material weakness results in 60 million receivables in Shandong Xingkangqi Firm. Xingkangqi Firm suffers from abnormal operation, capital chain rupture, which may lead to the huge loss of the firm. In 2010, Xinhua Pharmaceutical drew bad-debt provision of 49.6 million.

The effective internal control can provide the reasonable guarantee for reliability and completeness of financial reporting and relevant information. However, above material weaknesses make internal control of Xinhua Pharmaceutical lose this function.

The management of Xinhua Pharmaceutical has identified the above material weaknesses and include them in internal control assessment report. The above material weaknesses were reflected fairly in all material aspects. We have considered the influence of the above material weaknesses of the nature, time arrangement and range of the auditing process. This report has no influence on the 2011 auditing report of Xinhua Pharmaceutical we issue on 23rd Mar 2011.

5) Auditing opinion

We believe that Xinhua Pharmaceutical failed to maintain effective internal control over financial-reporting in all material aspects according to Basic Standard at 31th Dec 2011.

ShineWing Accounting Firm CPA: Tang Xuan

CPA: Xue Genlei

Beijing China

23/Mar/2012

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