

THREE ESSAYS ON AUDIT MARKET DEVELOPMENT: EVIDENCE

FROM CHINA'S RECENT REFORMS

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THESIS ABSTRACT

This thesis examines the impact of China's market developments on the accounting industry over the period 2003 to 2014. In this period China initiated the Split-share Structure Reform (SSSR) to privatise Local State-owned Enterprises (LSOEs). Moreover, China announced "Document 56" with the aim of developing its domestic accounting industry. The thesis consists of an introductory chapter, an institutional background chapter, three empirical essays, and a concluding chapter.

The first essay investigates audit firm choice by listed firms in China over the period 2003 to 2014. The chapter examines the development of a domestic Chinese accounting industry by promoting its domestic accounting firms over the international Big 4 accounting firms. Studying a Chinese sample from 2003 to 2014, I find that Chinese firms have tended to hire higher quality audit firms since the SSSR and Document 56. Nonetheless, this tendency is mainly driven by the hiring of domestic Big 6 audit firms rather than the international Big 4. The study also highlights how market development increases high quality auditor choice, and how it moderates state influence over the firm's auditor choice. By decomposing high quality accounting firms into the international Big 4 and Chinese domestic Big 6, this paper extends the literature on political economy and auditor choice. Moreover, it explains how China has developed its domestic accounting industry through the SSSR and Document 56.

The second essay investigates auditor independence in China throughout the period from 2003 to 2014. It uses the propensity to issue a modified auditor opinion (MAO) as a surrogate for auditor independence. Using a sample of 1,826 Chinese listed firms, I report a negative impact of state influence on auditor independence. The results also show a decline in the propensity to issue a modified auditor opinion in the period after the SSSR. Nevertheless, following the announcement of Document 56, there is an overall improvement in auditor independence. A detailed analysis shows that this tendency to issue modified auditor opinions is mainly through attaching an emphasis of matter paragraph to an unqualified audit opinion instead of issuing an audit qualification. Even though I do not find a significant impact of high quality auditor choice on improved auditor independence, it moderates the LSOEs' influence on the propensity to issue an MAO. The study provides empirical evidence for regulators to assess how the SSSR and Document 56 improve auditor independence in the country. It also highlights the role of the auditor choice in three groups in correspondence to the auditor choice essay findings.

The third essay examines audit quality in China over the period 2003 to 2014. It uses audit fees as a surrogate for higher audit quality. From a sample of 1,826 Chinese listed firms, the main results show that government influence impairs audit quality as I find that LSOEs are charged lower audit fees compared with NSOEs. Consistent with the previous literature, I find that big audit firms, both domestic Big 6 and international Big 4, charge higher audit fees. After the completion of the SSSR, I find a decline in audit quality, followed by an overall improvement in audit quality in the period after the announcement of Document

56. Hence this study provides some basis for policymakers to evaluate how market deregulation (i.e., the SSSR) affects audit quality.

Overall, the thesis casts light on China's recent structural reforms and how they, in turn, improve the development of the accounting industry in the country. It summarises the differences between China's institutional setting and the more western capitalist economies such as the UK and the US. Hence, it incorporates China's unique characteristics (i.e., concentrated ownership, diffused audit market and the market development differences across different regions) in studying the determinants of auditor choice, auditor independence and audit quality (as proxied for by the pricing of audit services). By doing so, this study provides an empirical investigation into the developments of China's audit market in the light of its recent reforms. The findings and implications of this study can also be incorporated into the transfer of the Chinese experience to other transitional economies with similar structural designs.

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ABBREVIATIONS

ASBE: Accounting System for Business Enterprises

BLR: Binary Logistic Regression

CAS: Chinese Accounting Standards

CASB: Chinese Auditing Standards Board

CIAS: China's Independent Auditing Standards

CICPA: Chinese Institute of Certified Public Accountant

CMI: Capital Market Index

CPA: Certified Public Accountant

CPI: Consumer Price Index

CSMAR: China Stock Market and Accounting Research

CSOE: Central State-owned Enterprise

CSRC: China Securities Regularity Commission

FMI: Factor Market Index

GAAP: Generally Accepted Accounting Standards

GDI: Government Decentralisation Index

GMM: Generalised Method of Moments

IAS: International Accounting Standards

IASC: International Accounting Standards Committee

IFRS: International Financial Reporting Standards

IPO: Initial Public Offering

ISA: International Standards on Auditing

LEI: Legal Environment Index

LSOE: Local State-owned Enterprise

MAO: Modified Auditor Opinion

MAR: Mandatory Audit Rotation

MDI: Market Development Index

MLR: Multinomial Logistic Regression

MOF: Ministry of Finance

NAO: National Audit Office

NAS: National Accounting Standards

NERI: National Economic Research Institute

NSOE: Non-state-owned Enterprise

OLS: Ordinary Least Squares

PMI: Product Market Index

QFII: Qualified Foreign Institutional Investor

SASAC: State-owned Assets Supervision and Administration Commission

SOE: State-owned Enterprise

SSSR: Split-share Structure Reform

VIF: Variance Inflation Factor

1. INTRODUCTION

1.1 RESEARCH BACKGROUND

This thesis investigates audit market developments in China in the light of China's recent structural reforms. An audit aims to provide assurance for external users about the creditability of financial statements. Therefore, research on audit quality attracts interest from academics, practitioners and policymakers, because it is needed to attest that the firm is presenting an 'error-free' set of financial statements following the appropriate accounting standards. Nonetheless, the quality of audit services remains a major issue, especially after the Enron scandal in early 2001. Enron, among the largest natural gas merchants in the US in the late 1990s, filed for bankruptcy in December 2001 due to fraudulent financial statements (Healy and Palepu, 2003). Arthur Andersen, the former auditors for Enron, were deemed to have presided over the biggest external audit failure in history.¹ Hence, concern was raised regarding the quality of audit services provided by audit firms.

In China, the first firm to be de-listed from the stock exchange market was Shenzhen Yuanye, in 1992, because of falsified, inflated and fraudulent applications to meet listing requirement (Jones et al., 2011). One year later,

¹ Arthur Andersen, an American holding company and formerly one of the 'Big five' international audit firms (i.e., PricewaterhouseCoopers, Deloitte, Ernst & Young, and KPMG), surrendered its licenses to practice voluntarily after the Enron case.

another scandal occurred in the Great Wall fundraising case when the company's president and vice-president embezzled around £70 million. Moreover, the company recorded fake capital of £20 million and over £10 million of fixed assets using fake invoices. More recently, in 2000, Zhengzhou Baiwen, which was the fifth largest of 800 listed firms in 1997, was unable to pay its debts because of fabricated accounts and fraudulent practices. In 2001, Zhongtianqin, one of the largest Chinese domestic audit firms, was dismissed by the China Security Regularity Commission (CSRC) due to its fraud with Yinguangxia.

These, and other audit failures, stressed the need for changes in the financial and audit markets in China. As a consequence, China started some structural reforms that aim to convert the state capitalism of China into an open economy that can be compared with more western capitalist economies such as the UK and the US (Chen, 2013). First, in 2005 the Chinese government started a transformation of the State-owned Enterprises' (SOE) non-tradable shares ('state-shares') into tradable shares, in order to reduce agency problems and develop the capital market (Liao et al. 2014). Second, the Institute of Certified Public Accountants (CICPA) introduced a five-year strategy to develop Chinese domestic accounting firms (Gillis 2014, 242). Finally, China underwent continuous development in its credit markets, in government decentralisation and in legal enforcement, as indicated by the periodic indexes of marketisation produced by the National Economic Research Institute (NERI).²

² See Appendix A for the NERI Market Development Index (MDI) score for each province for the period 2003 to 2014.

1.2 MOTIVATIONS AND OBJECTIVES

In this thesis, I focus on three important issues while studying the developments of the Chinese audit market during the period 2003 to 2014. First, in 2005, China started the SSSR as part of the effort to fully privatise LSOEs. The SSSR involved the Chinese government effecting a transformation of LSOE non-tradable shares held by the ‘state’ into tradable shares in order to reduce agency problems and develop the capital market (Liao *et al.* 2014; Li *et al.* 2011), with the aim of improving the pricing of China’s capital market and empowering free market control over listed firms (Joyce, 2008).

In the period before the SSSR, Wang *et al.* (2008) argue that Chinese firms, under the control of the state, have lower incentives to hire high quality audit firms compared to non-state-owned enterprises (NSOEs) due to reasons of demand, local knowledge and collusion. Moreover, they suggest that the state exerts an influence on auditor opinions, and obscures information about the LSOE’s actual performance. These findings are based on the Chinese institutional setting in the period between 1993 and 2003. Nonetheless, several studies provide evidence of improved auditor independence due to regulations that aim to limit government influence over audit firms in China (Gul *et al.*, 2009; Chen, 2010; Firth *et al.*, 2012; Chi *et al.*, 2013). Hence, in this thesis, I study the impact of the SSSR on the development of the Chinese audit market. In particular, I speculate that the findings of Wang *et al.* (2008) will not have persisted subsequent to the SSSR.

The second motivation of the thesis is the government initiative to develop China's domestic audit market in 2009 about which the State Council, the highest executive institution in China, produced “Document 56”, a national policy entitled “A Number of Opinions on Accelerating the Development of Certified Public Accountants” to develop the Chinese domestic accounting industry (Gillis 2014, 227). This policy sets a five-year strategy to develop the domestic audit profession in order to produce three classes of audit firms: i) 10 large audit firms that can run cross-border operations and provide high quality audit services to China’s large firms, and are capable of competing with the international Big 4 audit firms; ii) 200 medium-sized firms that can provide audit services to medium and large Chinese listed firms; and finally, yet importantly, iii) small audit firms that can provide services to small Chinese enterprises and clients in rural areas (Gillis, 2014, 243).

To do so, China provided a range of services and support to large Chinese audit firms³. Moreover, China encouraged domestic accounting firms to expand their cross-country operations and partnerships. The Chinese government not only facilitated the operations of domestic audit firms but also put more constraints on the foreign accounting firms to provide audit services in the country. For instance, the Ministry of Finance (MOF) issued “Caikuai, No. 8”⁴ that tightens the requirements on the international Big 4 audit firms if they are to continue

³ For example, China provided local audit firms with research and development support, several investment promotions and facilitated foreign exchange.

⁴ Caikuai, No. 8 is a notice issued in 2012 providing guidance on the requirements and procedures for audit firms who want to provide audit services for listed firms in mainland China.

providing their services in the country (Jui and Wong, 2015). It requires audit firms to obtain a license from the MOF that can be renewed periodically. Licensees are required, under the oversight of the MOF, to comply with state-secrets laws, where Chinese companies' records cannot be taken outside China or shared with third parties outside the license.

Document 56 and notice "Caikuai, No. 8" create a unique audit market structure that is different from audit markets in more developed western markets like the UK and US. In the latter markets, a large proportion of listed firms are audited by the international Big 4, while the audit market of China is diffused (Lu and Fu, 2014). The international Big 4 audit firms provide audit services for as little as 5% of listed firms, while China's Big 6 domestic audit firms' audit around 50% of listed firms in China, based on the study sample. This indicates the need to distinguish between three types of audit firms in China: the international Big 4 audit firms, domestic big audit firms, and other small local accounting firms.

Finally, in this thesis, I consider the differences in the market development across China's 31 provinces. When the NERI publishes periodic reports on the Index of Marketisation of China's provinces, it assigns a market development score for each province based on the province's capital market development, government decentralisation, legal environment, product markets and factor markets. Audit literature provides evidence that regional development will also affect firms' demand for higher quality audit (Wang *et al.*, 2008; Guedhami *et al.*, 2009). I investigate whether the development of the region where the firm

operates affects the firm's audit choice, the degree of auditor independence and audit quality (as proxied for by the pricing of audit services). It is likely that weak legal environments will impose legal costs on auditors, whereas firms operating in more developed regions will pay more attention to rules and regulations (Francis *et al.*, 2009).

Hence, the main objective of the thesis is to study the impact of these structural reforms in the Chinese financial and audit markets on the development of the accounting industry in the country. In particular, I investigate how firms' auditor choice, audit independence and audit quality (as proxied for by the pricing of audit services) develop in correspondence to these reforms. Studying these reforms (i.e., the SSSR and Document 56) provides not only empirical evidence for practitioners and policymakers in China but also in other economies with similar market structure (i.e., transition economies).

1.3 RELEVANT THEORIES

The industrial revolution in the 1760s led to the need for the division of labour, which was first discussed by Adam Smith in 1776. Since then, the division of labour is believed to have affected the efficiency of businesses positively and, hence, caused structural reforms in the organisational hierarchy (i.e., the separation between management and ownership). Management separation from ownership means that managers are employed as external agents to the principals (owners) in order to achieve specific goals (DeAngelo, 1981). Jensen and

Meckling (1976) suggest an agency problem when principals engage agents (management) to act on their behalf. With the agent obtaining the authority to act independently, a separation between ownership and management creates the opportunity for agents to act differently from the achievement of the principals' goals, to maximise their own interests. Agency theory suggests the means to control for any potential conflicts of interest between these two parties.

DeAngelo (1981) argues that audit as an oversight tool is demanded in order to control for any potential conflicts of interest between managers and stakeholders. The demand for and the supply of audit quality, however, depends upon the incentives and competences of the client and the audit firm (DeFond and Zhang, 2014). Nonetheless, managers as agents are motivated to hire high quality audit firms to either show competence in presenting financial statements or to satisfy stockholders' demand for a third party to monitor managers' decisions. In her important paper, DeAngelo (1981) argues that audit quality is not independent from audit firm size, leading to many research papers that, in turn, try to measure audit quality (Bartov *et al.*, 2000; Gul *et al.*, 2009; DeFond and Zhang, 2014).

One common definition of high audit quality is “a greater assurance that the financial statements faithfully reflect the firm's underlying economics, conditioned on its financial reporting system and innate characteristics” (DeFond and Zhang, 2014, 276). Audit quality is associated with the amount of information that is relevant for decision-making, about the firm's financial

performance, and which is available for decision-makers (Dechow *et al.*, 2010). More informative disclosure helps investors make decisions using more accurate predictions and forecasts (Healy and Palepu, 2003). In theory, audit firm size, audit firm specialisation, audit fees and the propensity to issue a modified audit opinion are associated with higher audit quality and higher auditor independence (Bartov *et al.*, 2000; Gul *et al.*, 2009).

One other theory that deals with information asymmetries between managers and owners is signalling theory by (Spence, 1973). Signalling theory analyses the behaviours of agents as a consequence of the information gap between the managers and the owners of the firm. In order to signal a reduced information asymmetry, management will disclose more information and use high quality audit firms that, otherwise, will uncover any material misstatement in the financial statements. This theory, however, assumes the existence of an efficient market, where wrong financial reporting signals will damage managers' reputations. It also, along with agency theory, assumes that agents' incentives to conceal or falsify financial statements are solely to maximise self-interest. These theories also discuss the conflicts between agents and principals of the firm, in an environment where maximising self-interest dominates the market.

In China, however, the conflict could be more pronounced between the owners, themselves, rather than with the managers, as the state uses its influence over firms to ignore the interests of the minority shareholders (i.e., private individuals and institutional investors) (Lu and Fu 2014). Moreover, in China, audit research

is mainly focussed on corporate governance mechanisms, and how they affect the audit firms. In particular, how does ownership structure, in a country where the state dominates the market, affect the accounting industry. This includes studies on ownership structure and auditor choice (Wang *et al.*, 2008; Guedhami *et al.*, 2009; Lin *et al.*, 2009; Liu *et al.*, 2016), auditor independence (DeFond *et al.*, 2000; Gul *et al.*, 2009; Chi *et al.*, 2013; Bandyopadhyay *et al.*, 2014) and the level of audit fees (Hu *et al.*, 2012; Liu and Subramaniam, 2013; Leung and Cheng, 2014). For example, Wang *et al.* (2008) show that, compared with NSOEs, SOEs can use political power to affect firms' audit choice, also accessing private management information. Such effects lead to different agency costs and different incentives towards signalling based on the ownership structure e.g., signalling better infrastructure and employment rates to increase the likelihood of receiving promotions regardless of firm performance.

The Chinese stock market faced many fundamental changes since 1979, however, when China started to move from centralisation towards a more open market economy. During the 1980s, China started establishing SOEs as a replacement for government ministries (Chen, 2013). This movement led to a partial elimination of governmental centralisation. Furthermore, in the 1990s, private investors were allowed to own shares in SOEs but, still, it was a minority proportion of total shares (Lu and Fu, 2014).

On the one hand, this partial privatisation is associated with higher firms' value, better transparency of information and higher audit quality (Wei *et al.*, 2005;

Wang *et al.*, 2008; Gul *et al.*, 2009). On the other hand, privatisation weakens a firm's political connection and, hence, reduces its IPO opportunities, and negatively affects share prices as, when it goes public, the firm loses any available benefits offered in the form of government bailouts during times of financial distress (Francis *et al.*, 2009; Calomiris *et al.*, 2010).

These unique characteristics of the Chinese institutional setting, along with the structural reforms during the last decade, raise the question of whether or not these traditional theories apply in China. For example, it is not clear whether maximising firm value is the ultimate goal for a firm that is owned by the state. On the contrary, it might be more reasonable to assume that managers of these firms will be concerned more about the stability of the region, such as infrastructure and employment rates (Shen and Lin, 2009).

1.4 METHODOLOGY AND MAIN RESULTS

The thesis consists of three self-contained essays, each addressing a specific aspect of audit market development in China following the country's recent structural reforms (i.e., the SSSR and Document 56). The three empirical chapters are briefly discussed as follows. Chapter 3 explores audit firm choice by listed firms in China over the period 2003 to 2014. In developed stock market economies such as the UK and the US, studies of audit choice examine the demand for 'high quality' audits in an environment of dispersed ownership. Hence, these studies identify, *a priori*, the providers of 'high quality' audits and

estimate a qualitative response model which models the determinants of audit choice between ‘high quality’ audit providers and other (presumably ‘low quality’ audit providers).⁵ ‘High quality’ auditors, as a group, are regarded as indistinguishable from each other, as are ‘low quality’ auditors.

In the Chinese context, Wang *et al.* (2008) study the impact of government ownership and market development on firms’ audit choices. In an environment where the state dominates the financial market, they report that LSOEs are more likely to hire a small local audit firm compared to NSOEs.⁶ In more developed provinces, however, there is a lower tendency towards hiring local and small audit firms. They explain their findings using three main arguments: i) LSOEs get government and banks’ preferential treatment through facilitating their listings and giving them better access to bank loans; ii) in financial distress, LSOEs are more likely to obtain government bailouts, compared to NSOEs, due to their political connections; and, finally, iii) small local audit firms have the required experience and knowledge to audit LSOEs compared with international audit firms, due to the close relationship of small local audit firms with local

⁵ There seems to be no consensus on how to define ‘high quality’ audit firms in China. For example, Guedhami *et al.* (2009) and Guedhami *et al.* (2014) use the international Big 4 as the high quality audit firms; Chen *et al.* (2011) use the largest eight firms (i.e., the international Big 4 and the four largest Chinese firms); Wang *et al.* (2008) use the largest 10 firms (i.e., the international Big 4 and the six largest Chinese firms); and Yang (2013) and Liu and Subramaniam (2013) use the largest 14 firms (i.e. the international Big 4 and the 10 largest Chinese firms).

⁶ Wang *et al.* (2008) study period, from 1993 to 2003, does not include the third and final wave of privatisation of LSOEs (the SSSR). Around 80% of listed firms in their study period were under the control of the state in one of its guises.

governments.⁷ This experience possessed by the small and local audit firms increases the tendency of SOEs to hire them instead of large audit firms.

Nonetheless, subsequent to their study period, and after the SSSR and Document 56, it is not clear if their arguments persist. Guedhami *et al.* (2009) report that as ownership moves from state to foreign investors, auditor choice moves from lower to higher quality auditors. Moreover, Gillis (2014, 242) highlights the efforts of the CICPA to improve the efficiency and competitiveness of domestic audit firms against the Big 4 international audit firms. Also, the MOF issued “Caikuai, No. 8” specifically targeting the international Big 4 audit firms to restrict their audit market share in order to favour the Chinese domestic big audit firms (Jui and Wong, 2015). Finally, the weak legal infrastructure in China (e.g., no private securities litigation against accounting frauds) affects different regions differently. Since 2001, however, the regulatory agencies in China have pursued several public enforcement actions (i.e., in 2002, the Supreme Court started to accept civil lawsuits against false financial statements) in an effort to help improve China’s legal environment (Chen, 2010).

In light of these reforms, in Chapter 3, I initially run binary logit regressions (BLRs) to capture the determinants of auditor choice. I classify audit firms into two groups. The first group includes the top ten⁸ audit firms in China in a year,

⁷ Until 1997, audit firms were affiliated to the state at its various levels before the Auditor Disaffiliation Programme was launched in the period between 1997 and 1998 to eliminate the subscription of audit firms to local governments.

⁸ The sum of the domestic Big 6 firms in that year plus the international Big 4 international audit firms.

representing the ‘high quality’ auditors, and the second group includes the remaining Chinese audit firms. Doing so, however, does not allow me to investigate whether there are systematic differences between the determinants of choosing a domestic Big 6 auditor versus an international Big 4 auditor.⁹ Hence, I also run multinomial logit regressions (MLRs) to compare three possible choices of audit firms *via* which I can investigate whether Chinese firms express a preference for domestic Big 6 auditors, consistent with the Chinese government policy, after 2009, with this tendency magnified in SOEs.¹⁰ In both types of regression, I investigate the mediating effects of the level of market development in the province in which a firm is located in influencing auditor choice.

The main results of Chapter 3 can be summarised as follows. In a context within which the number of Chinese listed firms has greatly increased over the period I study (in the sample, by 80%), I first document that the market share (by number of firms) of the international Big 4 has slightly increased over time, whereas that for the domestic Big 6 has increased substantially (from 5% to 55% in the sample). Regarding the structural reforms in the Chinese market (i.e., the SSSR and Document 56), I find that, after the SSSR and the announcement of Document 56, there is a higher general tendency to hire higher quality audit firms. This tendency is towards hiring domestic Big 6 audit firms relative to both the international Big 4 and non-Big-10 Chinese audit firms, however. Further,

⁹ Appendix B provides a list of Big 10 audit firms in China for each year of the study period 2003 to 2014, based on the CICPA annual ranking of China top-100 accounting firm.

¹⁰ The three groups are the international Big 4 audit firms, the domestic Big 6 audit firms in a year, and the remainder of Chinese audit firms.

higher market development improves the probability of hiring a high quality auditor.

In Chapter 4, I examine auditor independence in China over the period 2003 to 2014. Studies on auditor independence in more developed markets (i.e., the UK and the US) use the propensity that an auditor will issue a Modified Auditor Opinion (MAO) as a surrogate for higher auditor independence. Hence, the research design for these studies estimates a qualitative response model of the propensity to issue an MAO relative to a standard unqualified auditor opinion to indicate higher auditor independence.

In the context of China, studies often investigate how market deregulation and laws aim to develop the audit industry and, hence, improve auditor independence (DeFond *et al.*, 2000; Gul *et al.*, 2009; Chi *et al.*, 2013; Firth *et al.*, 2012). For instance, Gul *et al.* (2009) report that regulations that eliminate the subscription of audit firms to local governments improve auditor independence. Firth *et al.* (2012) report that Mandatory Auditor Rotation (MAR) also improves auditor independence.

Moreover, Chi *et al.* (2013) provide evidence that regulations that limit state control over firms' auditor choice improve auditor independence. A common characteristic of previous studies is that they focus on the "overall" effect of new regulations on enhancing auditor independence in China. As a consequence, they do not consider ownership structures dominated by state control at the various

levels of government. Also, they often do not distinguish between big and small audit firms and, if they do so, they do not distinguish between international and domestic big audit firms. Hence, the main objective in Chapter 4 is to study auditor independence in China in the light of this institutional setting.

Chapter 4 concludes that the auditors of LSOEs display a lack of auditor independence compared with those auditing NSOEs. High quality audit choice, however, improves auditor independence. The results show a decrease in the likelihood of issuing an MAO in the period subsequent to the SSSR. Nevertheless, the results report an improvement in auditor independence subsequent to the announcement of Document 56. When I allow a more nuanced analysis that distinguishes between the types of MAOs, the results show that auditor independence improvement is mainly translated through the issuance of unqualified auditor opinions with an emphasis of matter paragraph instead of an actual audit qualification.¹¹ This indicates that, in the Chinese context, the binary outcome of the audit opinion leads to inaccurate conclusions about auditor independence in China.

Finally, Chapter 5 investigates how ownership structure and market development affect audit quality in China. Studies on audit quality in developed stock markets, such as the UK and the US, use archival data and econometrics

¹¹ In China, an auditor can issue an unqualified auditor opinion with emphasis on matter paragraph to indicate any significant events (i.e., pending lawsuits) that might affect the firm (Chen *et al.*, 2016).

to develop models that, in turn, can define high quality audit as a binary outcome of the audit process (DeFond and Zhang 2014). I use audit fees as my measure for audit quality. Pricing of audit services is widely used in literature as a proxy for high quality audit (DeAngelo, 1981), assuming that the higher the fee charged by the audit firm, the more the time and effort the audit firm will perform and, hence, the higher the audit quality. To do so, I build on Simunic's (1980) four factors that affect audit pricing - monopoly pricing, production economies, increase in auditor's share of losses, and increase in loss exposure.

Therefore, I follow previous literature that estimates the determinants of audit fees assuming that firm characteristics determine the normal audit fee. I then use experimental variables that test for the impact of China-related characteristics (i.e., LSOE, the SSSR, Document 56 and market development) on audit fees and, hence, audit quality.

In China, Wang *et al.* (2008) argue that audit pricing is a function of demand for high quality audit. They assume, and find, that LSOEs have an apparently lower demand for high quality audit firms and, hence, they are charged lower audit fees. In particular, they observe that small auditors charge LSOEs less compared with NSOEs. Hu *et al.* (2012) demonstrate that the external audit has an economic good to the client, and the quantity of audit demanded is a trade-off between the client's benefits (i.e., having the auditors attest that the financial reports are reliable) and costs (i.e., potential legal liability) from hiring a high quality audit firm. They also find that central government controlled SOEs

(CSOEs) have the least audit risk and highest bargaining power, followed by LSOEs and NSOEs respectively. Liu and Subramaniam (2013) further support Hu *et al.*'s (2012) argument and add to it that political benefits from SOEs outweigh the auditor's litigation risk and, hence, impair audit quality.

Chapter 5, in light of China's recent reforms (i.e., the SSSR and Document 56) concludes the following. Consistent with previous literature, state influence impairs audit quality. Big audit firms (i.e., international Big 4 and domestic Big 6) provide a higher quality audit. The results fail to show an incremental effect of auditor choice of Big 10 audit firms on the quality of audit services provided to LSOEs. Finally, despite the overall reduction in audit fees in the period after the SSSR, there is a slight improvement in audit quality after the announcement of Document 56.

1.5 STRUCTURE OF THE THESIS

The remainder of my thesis consists of a chapter that introduces the institutional setting of China in light of its recent structural reforms (i.e., the SSSR and Document 56). This is followed by three self-contained essays, each essay addressing a specific aspect of the audit market development in China following these structural reforms. I organise these three studies as separated empirical chapters instead of an overarching study under the umbrella of 'Audit quality' to emphasise the importance of the distinctive nature of the Chinese market as discussed in the introduction section. Moreover, I provide a concluding chapter

that links between the three empirical chapters provided in this thesis, and summarises the main findings of my work discussing the limitations I faced and suggested future work.

More specifically, the three empirical chapters are as follows. Chapter 3 investigates firm audit choice by listed firms in China. It explores how China develops its domestic accounting industry by promoting its domestic accounting firms over the international Big 4 accounting firms through LSOEs. Chapter 4 examines auditor independence in China in the same period. Finally, Chapter 5 casts light on the determinants of audit quality in China. Although the three empirical chapters are independent, self-contained, studies, taken together, they serve as an investigation into audit market developments in China in the light of China's recent structural reforms - the SSSR and Document 56.

The findings of Chapter 3 show that the role of the Chinese state in auditor choice remains but, in contrast to prior work, has turned towards the use of domestic Big 6, 'high quality', auditors. The findings in Chapter 4, as a consequence, separate the international Big 4 and domestic Big 6 audit firms. The chapter also looks at a different aspect of audit market development – auditor independence. It uses output measures of the audit process – MAO – providing the bases for Chapter 5 that uses an input measure – the level of audit fees. In Chapter 5. I also consider the previous findings on the importance of differentiating between three

types of audit firms in China.¹² Chapter 6 concludes the thesis where it casts light on the development of the domestic accounting industry in China over the period from 2003 to 2014, considering its ownership structure reforms, as well as China's audit market developments.

¹² The international Big 4 audit firms, domestic Big 6 audit firms, and other small Chinese non-Big-10 audit firms.

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1.7 APPENDICES

Appendix A												
Market development Index for the period 2003 to 2014												
Province	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Anhui	5.37	5.99	6.73	7.29	7.73	7.64	7.88	7.89	8.24	8.07	8.32	9.17
Beijing	7.50	8.19	8.48	8.96	9.55	9.58	9.87	10.09	10.26	10.74	11.13	11.51
Chongqing	6.47	7.20	7.35	8.09	8.10	7.87	8.14	8.16	8.30	8.91	9.19	9.80
Fujian	7.97	8.33	8.94	9.17	9.45	8.78	9.02	8.81	9.02	9.45	9.62	10.25
Gansu	3.32	3.95	4.62	4.95	5.31	4.88	4.98	4.53	4.58	4.48	4.73	5.14
Guangdong	8.99	9.36	10.18	10.55	11.04	10.25	10.43	10.50	10.68	11.14	11.46	12.12
Guangxi Zhuang	5.00	5.42	6.04	6.12	6.37	6.20	6.17	5.64	5.83	6.72	6.87	7.04
Guizhou	3.67	4.17	4.80	5.22	5.57	5.56	5.56	4.68	4.76	5.49	5.65	5.98
Hainan	5.03	5.41	5.63	6.35	6.88	6.44	6.40	6.74	6.86	7.59	7.82	8.09
Hebei	5.59	6.05	6.61	6.93	7.11	7.16	7.27	6.64	6.87	7.15	7.34	7.76
Heilongjiang	4.45	5.05	5.69	5.93	6.27	6.07	6.11	6.00	6.18	7.17	7.36	7.38
Henan	4.89	5.64	6.73	7.07	7.42	7.78	8.04	8.06	8.21	8.35	8.54	8.87
Hubei	5.47	6.10	6.86	7.12	7.40	7.33	7.65	7.51	7.75	8.24	8.63	9.20
Hunan	5.03	6.11	6.75	6.98	7.19	7.18	7.39	7.43	7.68	7.67	7.81	8.73
Inner-Mongolia	4.39	5.12	5.74	6.28	6.40	6.15	6.27	5.97	6.09	6.75	6.74	6.51
Jiangsu	7.97	8.63	9.35	9.80	10.55	10.58	11.54	11.66	12.26	13.03	12.96	12.71

Jiangxi	5.06	5.76	6.45	6.77	7.29	7.49	7.65	7.71	7.92	7.79	7.95	7.84
Jilin	4.69	5.49	6.06	6.44	6.93	6.99	7.09	6.69	6.84	7.35	7.43	7.62
Liaoning	6.60	7.37	7.92	8.18	8.66	8.31	8.76	8.38	8.46	8.67	8.72	9.02
Ningxia Hui	4.24	4.56	5.01	5.24	5.85	5.78	5.94	5.47	5.54	5.92	6.05	6.81
Qinghai	2.60	3.10	3.86	4.24	4.64	3.52	3.32	3.02	3.03	3.13	3.33	3.02
Shandong	6.81	7.52	8.44	8.42	8.81	8.77	8.93	6.45	6.55	6.74	6.93	6.93
Shanghai	9.36	9.81	10.25	10.79	11.71	10.42	10.96	8.71	8.86	9.25	9.39	9.77
Shaanxi	4.63	5.13	5.28	5.84	6.12	6.18	6.11	11.26	11.35	11.19	11.41	12.29
Shanxi	4.11	4.45	4.81	5.11	5.36	5.66	5.65	5.29	5.71	6.52	7.05	7.70
Sichuan	5.86	6.38	7.04	7.26	7.66	7.23	7.57	7.34	7.40	7.64	7.80	8.16
Tianjin	7.03	7.86	8.41	9.18	9.76	9.19	9.43	9.75	10.06	11.64	12.07	11.94
Tibet	0.79	1.55	2.64	2.89	4.25	1.36	0.38	3.02	3.03	3.13	3.33	3.02
Xinjiang Uygur	4.26	4.76	5.23	5.19	5.36	5.23	5.12	4.48	4.56	4.55	4.59	5.10
Yunnan	4.23	4.81	5.27	5.72	6.15	6.04	6.06	6.53	6.70	6.01	6.09	6.46
Zhejiang	9.10	9.77	10.22	10.80	11.39	11.16	11.80	11.78	11.93	12.88	12.99	13.33

Market Extracted from the National Economic Research Institute (NERI) periodic reports on Index of Marketisation of China's provinces 2003 to 2014.

APPENDIX B

CICPA TOP-10 CHINA AUDIT FIRMS FOR THE PERIOD FROM 2003 TO 2014

2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
PwC	PwC	PwC	PwC	PwC	PwC	PwC	PwC	PwC	PwC	PwC	PwC
KPMG	KPMG	KPMG	E & Y	E & Y	E & Y	E & Y	Deloitte	Deloitte	Deloitte	Deloitte	Deloitte
Deloitte	Deloitte	Deloitte	Deloitte	Deloitte	Deloitte	Deloitte	KPMG	KPMG	E & Y	Ruihua	Ruihua
E & Y	E & Y	E & Y	KPMG	KPMG	KPMG	KPMG	E & Y	E & Y	KPMG	E & Y	BDO
BDO	BDO	BDO	BDO	BDO	RSM	RSM	RSM	RSM	BDO	BDO	E & Y
Jiangxi	Yue Hua	Shine Wing	Yue Hua	Ruihua	BDO	BDO	BDO	BDO	RSM	KPMG	KPMG
Rightson	Shine Wing	Asia-Pacific	Shine Wing	Shine Wing	Shine Wing	Wan Long	Shine Wing	Crowe Horwath	Pan-China	Daxin	Pan-China
Jingdu	Asia-Pacific	Yue Hua	Wan Long	Asia-Pacific	Daxin	Pan-China	Pan-China	Pan-China	Shine Wing	Pan-China	Da Hua
Shine Wing	Rightson	Rightson	Asia-Pacific	Rightson	Wan Long	Daxin	Crowe Horwath	Shine Wing	Crowe Horwath	Shine Wing	Shine Wing
Asia-Pacific	Jiangsu Notary	Jingdu	Rightson	Wan Long	Leanda	Shine Wing	Daxin	Daxin	Da Hua	Da Hua	Daxin

Big 10 audit firms based on The Chinese Institute of Certified Public Accountants (CICPA) Top-100 Accounting Firms annual reports. The CICPA rank the Top 100 on basis of their comprehensive evaluation scores (i.e. revenue, number of employed CPAs, internal governance, practice quality, human resource, global business, IT and social responsibilities of accounting firms).

2. THE INSTITUTIONAL SETTING OF CHINA

2.1. INTRODUCTION

This chapter introduces the institutional setting of China in light of its structural reforms that aim to create a more market-oriented economy in the country, an economy more similar to other more developed capitalist markets like in the UK and the US. In particular, this chapter explores the distinctive features of state capitalism in China and its reforms over the last few decades, following a threefold analysis of the structural changes in the Chinese market, as follows. First, it introduces China's state capitalism and the power of the single ruling party that dominated the Chinese economy until the 1990s. It also summarises the main structural reforms that aim, in turn, to allow private investors to actively engage in the financial markets.¹³

Second, it highlights the financial and audit markets development in China that converge China's national accounting standards with the International Financial Reporting Standards (IFRS) and International Standards on Auditing (ISA).¹⁴ It also highlights the deregulation of the audit market, through the Auditor

¹³ China launched two financial stock markets in Shanghai and Shenzhen in 1990 and 1991 respectively as an attempt to allow private investors to trade actively in the financial market on a split-share structure basis between tradable and non-tradable shares.

¹⁴ China's accounting standards convergence with IFRS started in 1992 in four stages starting with the introduction of GAAP. The convergence with IFRS was accomplished by the end of 2006 (Peng and Smith, 2010).

Disaffiliation Programme.¹⁵ In addition, it explores China's efforts to develop its domestic accounting industry. Lastly, yet importantly, this chapter sheds light on the market development differences across China's 31 provinces.

The literature survey provided in this chapter raises a number of empirical research questions that are investigated in the later chapters of this thesis. First, it highlights the market segmentation of Chinese listed firms based on ownership (i.e., SOEs and NSOEs).¹⁶ SOEs are controlled by the various levels of government, whereas NSOEs are controlled by individual and institutional private investors. It also identifies three types of audit firms that provide audit services for these firms (i.e., the international Big 4 audit firms, the domestic Big 6 Chinese audit firms and other small domestic audit firms).¹⁷ Hence, it raises the empirical question in Chapter 3, does ownership structure affect auditor choice? Moreover, how do market development and the other structural reforms that took place over the past few decades affect auditor choice in China?

The other main empirical question that is raised from the literature survey and discussed in Chapter 4, is an investigation into auditor independence in China in

¹⁵ In the period between 1997 and 1998, China removed the subscription of audit firms to the state in the attempt to improve the accounting industry and auditor independence in the country (Gul et al., 2009).

¹⁶ SOEs are then divided into Local SOEs and Central SOEs based on the level of government that exerts control over the firm (i.e., the central government and other local governments).

¹⁷ Previous studies that investigate audit types in China often classify audit firms into two groups (i.e., Guedhami et al. (2009) and Guedhami et al. (2014) use the international Big 4 vs all other firms; Chen et al. (2011) use the largest eight firms vs all other firms; Wang et al. (2008) use the largest 10 firms vs all other firms (i.e., the international Big 4 and the six largest Chinese firms); and Yang (2013) and Liu and Subramaniam (2013) use the largest 14 firms (i.e., the international Big 4 and the 10 largest Chinese firms) vs all other firms.

the light of China's institutional setting and its recent reforms. Finally, the literature survey provided in this chapter and the findings of Chapters 3 and 4 raise the empirical question of how ownership structure and its reforms affect the pricing of audit services in China and, hence, audit quality, as discussed in Chapter 5.

The remainder of the chapter is structured as follows. Section 2 introduces China's state capitalism. Section 3 explains the Split-share Structure Reform (SSSR). Sections 4 and 5 summarise the structural reforms in the Chinese financial and audit markets, and Section 6 highlights the market development differences across China's 31 provinces. Section 7 concludes the chapter.

2.2. CHINA'S STATE CAPITALISM

The Chinese market is different from capital-based economies in that many of its firms are sponsored or administered by state agencies at various levels of the government (Wong, 2016). However, several reforms intended to open the Chinese market to both private and foreign investors have occurred since 1979 when China first introduced SOEs to replace government ministries (Chen, 2013). Furthermore, China launched the Shanghai and Shenzhen stock exchanges in the early 1990s to allow private and institutional investors to enter the financial market.¹⁸ Since then, private investors have been allowed to trade

¹⁸ The newly launched stock exchanges were the first step to create NSOEs that are controlled by private individual and institutional investors on a split-share structure basis upon the issuance of new shares.

in newly issued shares, although typically leaving them as minority shareholders with a total share of less than one-third of total share capital. Meanwhile, the majority of shares were held by the state at its various levels and were not allowed to be traded in the financial markets (Lu and Fu, 2014). During that period, political connections in China were crucial (e.g., the need for China Securities Regulatory Commission (CSRC) approval before any initial public offering (IPO)). Such connections resulted in private firms also establishing political connections to facilitate IPO listings (Lu and Fu, 2014).

The Chinese stock market, following the Split-share structure, was divided into tradable and non-tradable shares. Both hold the same cash flow and voting rights. Non-tradable shares, however, were held by the state or legal person investors, and they could only transfer ownership upon pre-approval from the Securities Regulatory Commission (SRC). The price was set based on the book value of the firm instead of the market share price. Hence, the primary source of income for the holders of non-tradable shares was dividends, and they were less concerned about the market value of the firm.

Tradable shares, on the other hand, were held by minority private investors and could be traded openly on the stock market. Tradable shares consisted of: 1) A-shares traded domestically by individuals and denominated in RMB currency; 2) B-shares also domestically listed of China-incorporated companies, but denominated in USD for Shanghai Stock Exchange and HKD for Shenzhen Stock Exchange; and 3) foreign shares, listed outside Mainland China (i.e., H-shares listed on the Hong Kong stock exchange, N-shares listed on the New York

Stock Exchange and S-shares listed on the Singapore Stock Exchange). Until 2001, only domestic investors were allowed to trade in A-shares, while foreign investors could only trade in B-shares. By the end of 2002, however, both domestic investors and Qualified Foreign Institutional Investors (QFIIs) were allowed to trade in both types. As a result, the latter required higher standards of corporate governance leading, in turn, to improved audit effectiveness in the country (Leung and Cheng, 2014).

2.3. SHARE ISSUE PRIVATISATION

The Split-share structure dominated the Chinese financial market until 2005 when the state introduced the SSSR. The SSSR aims to convert all non-tradable state shares into tradable A-shares that can be traded freely in the financial markets. The SSSR aims to improve the pricing of China's capital market, empower free market control over listed firms, and restructure LSOEs into NSOEs with an ultimate goal of maximising firms' value (Joyce, 2008). Empirical research shows that, on the one hand, this partial privatisation is associated with higher firms' value, better information transparency and higher audit quality (Wei *et al.* 2005; Wang *et al.* 2008; Gul *et al.* 2009). On the other hand, privatisation weakens a firm's political connections and, hence, reduces its IPO opportunities and negatively affects share prices as the firm will lose the benefits offered by government bailouts in times of financial distress when it goes public (Francis *et al.*, 2009; Calomiris *et al.*, 2010).

The SSSR, however, was applied in stages upon the reaching of a consensus between tradable shares shareholders, who held two-thirds or more of the total tradable shares, and non-tradable shares shareholders on a proposal summarising the procedures of the reform and the compensation to be given to tradable share shareholders (i.e., cash or shares reallocation). After approval of the reform plan, non-tradable shares shareholders are not allowed to trade for one year; then, one year later, they are allowed to sell a maximum of 5% of their share, and no more than 10% of the total shares two years following implementation. In this thesis I assume that the SSSR takes effect on the date when the reform plan is approved. By doing so I consider that once the state agrees on the reform plan, the state-shares will become tradable subject to the reform plan restrictions, and their value will be determined based on the financial stock markets' price.

In 2004, before the SSSR, 60% of total shares were non-tradable (of which 56% were state shares). By the end of 2009, when the SSSR was almost completed, only 18% of total shares remained non-tradable. Despite the completion of the SSSR in 2010, however, the state still maintained ownership of 53% of shares, while the other 47% were allocated between individuals, institutional investors and private firms (Piotroski and Wong, 2012). Nonetheless, following the State-owned Assets Supervision and Administration Commission (SASAC) "Guidance for Promoting State-owned Assets Adjustment and State-owned Enterprises Reorganization" the state, gradually and steadily over time, sought to sell its remaining ownership in firms falling in industries other than national defence, infrastructure, mineral resources, common products and hi-tech industries.

I conjecture that the privatisation of Chinese LSOEs will improve information transparency and, hence, be associated with higher audit quality and audit independence following related literature (Wei *et al.*, 2005; Gul *et al.*, 2009). Moreover, the SSSR might also be associated with more tendency to hire big reputable audit firms instead of local small audit firms (Wang *et al.*, 2008).

2.4. CHINA'S AUDIT MARKET REFORMS

The Chinese Institute of Certified Public Accountants (CICPA), supervised by the Ministry of Finance (MOF), was founded in late 1988 in order to examine and develop professional standards and regulations for CPAs in China. The responsibilities for the CICPA are to manage CICPA memberships, conduct annual quality assurance for the profession, organise CPA examinations and to give guidance that supports CPAs to adhere to Chinese laws and regulations (CICPA, 2014). The Chinese government, through the MOF and the CICPA, has taken several steps to develop the accounting profession in China.

First, the MOF and the CICPA launched the Auditor Disaffiliation Programme between 1997 and 1998 to eliminate the subscription of audit firms to local governments in order to improve auditor independence where audit firms were closely affiliated with local governments in the early 1990s until China adopted the International Auditing Standards as in 1995 that comply with the ISA (Lu and Fu, 2014).

Gul *et al.* (2009) investigated whether the Auditor Disaffiliation Programme in 1997 has actually improved auditor independence. They study a sample of 1,248 Chinese listed firms through the period 1995 to 2000, and they find that subsequent to the completion of the disaffiliation programme, the likelihood of issuing a modified auditor opinion (MAO) increased substantially. They also report that small audit firms were affected by the disaffiliation programme more than big reputable audit firms (i.e., Big 10 Chinese audit firms). Gul *et al.* (2009), moreover, highlight an improvement in earnings quality after the disaffiliation programme, using non-core operating earnings as a proxy to measure earnings management behaviours.

China continued with the institutional changes aiming to improve auditor independence in 2000, when more restrictions were added for audit firms wishing to qualify for the performance of audit services for Chinese listed firms. For example, only CPA firms with more than 20 qualified CPAs, or revenue of more than 8 million RMB in the previous year, can provide audit services to listed companies (Lu and Fu, 2014). As a result of these reforms, a wave of audit firm mergers occurred in the country, where large audit firms acquired or merged with smaller audit firms, thereby creating bigger audit firms that are no longer considered as regional firms which, in turn, changed the structure of the Chinese audit market (Hu *et al.*, 2012).

In 2004, moreover, China implemented a Mandatory Auditor Rotation (MAR) requiring firms to change the signing auditor every five years, with a cooling off

period of two years, in an attempt to maintain higher auditor independence. For Central SOEs, the SASAC issued two rules in 2004, making the SASAC responsible for assigning auditors for Central SOEs, and requiring them to retain auditors for 2-5 consecutive years (Gillis 2014, 253). Moreover, the National Audit Office (NAO), in 2006, obtained the authority and responsibility to oversee auditing of SOEs following Article 7, 8, 17, and 41 of the revised Audit Law of the People's Republic of China in February, 2006 (Audit Law of the People's Republic of China, 2006). Article 1 of the revised Audit Law of the People's Republic of China, summarises the aims of these reforms as follows: “To strengthening State supervision through auditing, maintaining the fiscal and economic order of the country, improving the efficiency in the use of government funds, promoting the building of a clean government and ensuring the sound development of the national economy and society”.

More recently, in 2011, the MOF issued more guidelines encouraging LSOEs to appoint audit firms among the top 50 in order to have an auditor tenure longer than five consecutive years.¹⁹ In 2006 China started the adoption of National Accounting Standards (NAS) that converged with the ISA. In 2011 the EU Commission “Decision 2011/30/EU1” declared China amongst the 10 nations that follow an equivalent audit oversight regime (the other nine countries comprise: Australia, Canada, Croatia, Japan, Singapore, South Africa, South Korea, Switzerland, and the United States) (Kleinman *et al.*, 2014).

¹⁹ The CICPA provides a ranking for the Chinese top-100 accounting firms that is published annually on their official website.

In 2009, China started a major structural change in the audit market to develop its domestic accounting industry. In order to create a domestic accounting industry capable of competing with the international Big 4 audit firms, State Council, the highest executive institution in China, issued “Document 56”, a policy that provides “A Number of Opinions on Accelerating the Development of Certified Public Accountants” (Gillis 2014, 242).

Document 56 sets out a five-year strategy to set up a structure of (7000-200-10) Chinese accounting firms as follows: : i) small audit firms that can provide services to Chinese small enterprises and those in rural areas; ii) medium-sized firms that can provide audit services to medium and large Chinese listed firms; and, finally, yet most importantly, iii) large audit firms that can run cross-border operations and provide high quality audit services to China’s large firms, and are capable of competing with the international Big 4 audit firms (Gillis 2014, 243).

The government’s effort to create large Chinese audit firms capable of competing with the international Big 4 audit firms was translated in two ways. On the one hand, the government provided a numerous range of services and support to Chinese large audit firms (i.e., research and development, investment promotions and foreign exchange). It also encouraged them to expand their cross-country operations and partnerships. On the other hand, the MOF issued “Caikuai, No. 8” Notice on Issuing the Scheme on the Localised Restructuring of Sino-Foreign Cooperative Accounting Firms, in 2012 which specifically

targets the international Big 4 audit firms and provides guidance on the requirements and procedures of how to convert into special general partnerships after their joint venture expired in the years 2012 and 2013 (Jui and Wong, 2015).²⁰

Gillis (2014, 243) summarises the requirements of “Caikuai, No. 8” for the international Big 4 audit firms to continue their operations in China in the form of special general partnerships as follows: i) it should include 25 partners with a minimum of 100 CPAs and a capital of 10 million RMB; ii) CPA partners should have five years of experience at least three years of which should be in China; and, iii) partners should not have disciplinary proceedings against them. Hence, audit firms, in order to perform audit services in mainland China, are required to obtain a license from the MOF that can be renewed periodically. Licensees are required, under the oversight of the MOF, to comply with China’s regulations and, in particular, the state secrets laws (i.e., Chinese companies’ records cannot be taken outside China or shared with third parties outside the license). Any breach can lead to penalties by the MOF that can include a temporary suspension of the audit firm license (Jui and Wong, 2015).

The structural reforms in the Chinese accounting profession create a setting that is different from audit markets in more developed western markets like the UK and the US. In the latter markets, a large number of firms are audited by

²⁰ The international Big 4 audit firms entered the Chinese audit market through the establishment of joint ventures with domestic Chinese audit firms in the early 1980s (Gillis 2014, 77).

‘reputable’ audit firms (usually regarded as the Big 4 international audit firms). In contrast, the audit market of China is diffused (Lu and Fu, 2014). By mid-2014, there were around 100,000 practising CPAs in China with more than 8,000 audit firms providing audit services to approximately 3.5 million enterprises around China, of which there are 2,537 listed firms (CICPA, 2014). In the same year, the percentage of firms audited by the 10 biggest Chinese firms, based on the CICPA ranking, was 64% of listed firms. However, the international Big 4 audit firms audit only less than 5% of listed firms and the remaining percentage of 31% of listed firms receive audit services by other medium-sized and small Chinese audit firms. After the announcement of Document 56, I conjecture that the market share of Chinese big audit firms will further increase at the expense of the international Big 4 audit firms.

2.5. CHINA’S NATIONAL ACCOUNTING STANDARDS CONVERGENCE

Along with China’s efforts to create a more market-oriented economy, China also worked on the convergence of its national accounting standards with the IFRS. By doing so, China aimed to develop a financial market comparable to more well-developed capitalist economies (Lu and Fu 2014). With guidance from the International Accounting Standards Committee²¹ (IASC), China worked on harmonising national Generally Accepted Accounting Standards

²¹ The main objectives for the IASC being to create standards that can: i) serve as a model for national standards setters to build on, ii) restrict the range of acceptable methods of accounting for certain types of transactions, iii) provide broad principles that have some flexibility so they do not conflict with the national standards applied, and iv) create standards that are more descriptive than prescriptive (i.e. guidelines of what is acceptable) (Pacter, 2005).

(GAAPs). Peng and Smith (2010) summarise the process of China's national accounting standards convergence with the IFRS throughout the period from 1992 to 2006 in four stages as follows.

First, the MOF²² started a series of regulations including the introduction of GAAP in 1992. The second stage of development started in 1998 when the MOF added another 10 Chinese Accounting Standards (CASs) to the 1992 GAAP in order to enhance the level of protection for investors as a result of the rapid development of the capital market. The convergence process with IFRS continued in 2001 when the MOF introduced another 16 CASs and applied the Accounting System for Business Enterprises (ASBE) to replace the GAAP of 1998. The fourth and final stage, in 2006, was through importing an additional 36 items that were taken directly from the IFRS, making the CASs 77% successfully converged with the 2006 GAAP which became effective by 2007.

After the 15-year strategic plan to converge China's national accounting standards with IFRS, many studies investigate the effects of this evolutionary reform (Ding and Su, 2008; Peng *et al.*, 2008; Peng and Smith, 2010). The majority of the previous studies use the year 2007 as the cut-off point that divides the *pre*- and *post*-China national standards convergence with the IFRS. Among the early studies on the convergence with the IFRS in China, Peng *et al.* (2008) study both firms' compliance with accounting regulations, the consistency of

²² The MOF is the government entity that is entitled to establish Chinese accounting standards.

firm's choices between the two sets of regulations (i.e., China's national standards and IFRS) and how the regulation change affects net income figures. They use a unique sample of Chinese firms that issue both A and B-shares, over the period between 1999 and 2002. Hence, the same firm was producing annual reports using a different set of accounting standards (i.e., China's national accounting standards (China GAAP) for A-shares and the IFRS for B-shares). The findings are that, despite incomplete compliance with the IFRS, there remained a significant improvement in compliance, consistency and comparability of financial statements.

More recently, Liu *et al.* (2011) provide evidence that the last stage of China's GAAP convergence with the IFRS in 2006 also contributes to improving overall accounting quality. Using data from 3,240 firm-year observations for the period 2005 to 2008, they report higher quality in reported accounting measures accompanied by decreasing income smoothing practices and increasing value relevance.

2.6. MARKET DEVELOPMENT ACROSS MAINLAND CHINA

This section summarises the diversity across China's different regions. The National Economic Research Institute (NERI) issues an index of marketisation that shows how China's provinces differ from each other. The report includes indexes conducted by Fan and Wang (2003) that divide overall market development scores for each province into five main subcategories, each of

which combines a number of attributes that, together, determine the total score as follows: 1) the Credit Market Development Index that measures the percentage of deposits taken by non-state financial institutions and the percentage of short-term loans to the non-state sector; 2) the Government Decentralization Index that reflects: (a) the provincial government's spending as a percentage of provincial GDP; (b) the tax rates in the province; (c) the time spent by entrepreneurs in dealing with the bureaucracy; and d) the time needed for firm registration and to obtain various licenses; 3) the Legal Environment Index, constructed based on: (a) the number of lawyers as a percentage of the provincial population; (b) the efficiency of local courts measured by the percentage of lawsuits pursued by the courts; and (c) the protection of property rights; 4) the Product Market Index including measures for the market effect on prices and government local producer protection; and 5) the Factor Market Index with proxies to reflect financial liberalisation, market competition and foreign investment.²³

These five categories, combined, create a Market Development Index score (MDI) for each province that varies across regions and over time, and where the existence of laws and regulations does not necessarily mean a developed legal enforcement that is effective in practice. In particular, many laws and regulations in China are not enforced effectively due to the power of the single ruling party (Allen *et al.*, 2005; Cai 2007). Moreover, the weak legal infrastructure in China (e.g., no private securities litigation against accounting frauds) weakens capital market development (Piotroski and Wong, 2012; Gillis 2014). Since 2001,

²³ These proxies are designed by Fan and Wang (2003) and published periodically by the NERI.

however, the regulatory agencies in China have pursued several public enforcement actions (e.g., in 2002, the Supreme Court started to accept civil lawsuits against false financial statements) which, in turn, helps to improve China's legal environment (Chen *et al.* 2010).

2.7. SUMMARY AND CONCLUSION

This chapter has examined the China economic setting and how it is different from more developed capitalist markets such as the UK and the US. It summarises China's evolutionary developments at the financial level, starting with the introduction of SOEs to replace government ministries' financial control in the late 1970s. It also traces the share issue privatisation started in the early 1990s which was accomplished by 2009 following the SSSR. Finally, it describes the convergence of China's national accounting and auditing standards with international standards (i.e., the IFRS and ISA), and the introduction of Document 56.

This chapter, also, is suggestive of the empirical research questions that are investigated in later chapters of the thesis. First, it suggests a firm's auditor choice can be a function of ownership characteristics and other China-specific features (i.e., structural reforms and differences across China's different regions). Second, it suggests an empirical question of whether these reforms improve auditor independence. Finally, it suggests the question of how ownership structure and market reforms affect audit quality in China. It also

suggests future research topics that can link these market reforms to other research areas (i.e., corporate governance, earnings management and corporate social responsibility). The empirical chapters of the thesis, hence, investigate the development of the Chinese audit market in light of China's recent reforms.

In summary, this chapter introduces China's state capitalism and how the financial and audit markets were regulated under the power of the single ruling party until 1978 when decentralisation strategies took place, and SOEs came to exist. It then summarises the remaining phases of the market deregulation through the introduction of NSOEs in the early 1990s when private investors were first invited to trade on the Shanghai and Shenzhen stock exchanges for a limited proportion of shares upon IPO and how these restrictions were relaxed during the final stage of privatisation through the SSSR between 2005 and 2009. In addition, it highlights the other main structural reforms that combine with the SOE privatisation (i.e., the convergence of China's national standards with the IFRS and ISA).

The chapter also sheds light on the Chinese government's efforts to develop its domestic accounting industry to compete against the international Big 4 audit firms, by providing the domestic accounting firms with the needed financial and logistic support (e.g., providing training courses, facilitating foreign collaboration, and encouraging domestic firms to enter international memberships) and by imposing more restrictions on the international Big 4 audit firms (i.e., converting the international Big 4 joint ventures to special general

partnerships that should follow strict regulations and abandon some ownership to the benefit of domestic audit firms). Finally, it raises the issue that mainland China consists of a number of different regions with different market development levels which, in turn, might affect the subsequent conjectures about the Chinese market as a whole.

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3. OWNERSHIP STRUCTURE AND AUDITOR CHOICE: EVIDENCE FROM CHINA

Abstract

This paper studies how China has developed its domestic accounting industry by promoting its domestic accounting firms over the international Big 4 accounting firms. Following the privatisation effort of Local State-owned Enterprises (LSOEs) through the Split-share Structure Reform (SSSR) from 2005, in 2009 the State Council announced a five-year national policy, known as “Document 56”, to develop 10 large domestic accounting firms capable of competing with the international Big 4 accounting firms in the future. Studying a Chinese sample from 2003 to 2014, I find that Chinese firms have tended to hire higher quality audit firms following the SSSR and Document 56. A detailed investigation reveals that this tendency toward higher quality audit is mainly driven by the hiring of large domestic audit firms rather than the international Big 4 audit firms. In fact, Chinese firms now tend to avoid hiring the international Big 4 audit firms, indicating that the impact of the State Council’s policy is taking effect. Consistent with the literature, firms under the government’s control or influence tend to avoid hiring the international Big 4. This is not a search for low quality audit, however, as LSOEs still tend to hire larger domestic audit firms. This study also highlights the role of market development in improving the likelihood of hiring high quality auditors, as well as how it counteracts the state influence over the firm’s auditor choice. By decomposing high quality accounting firms into the international Big 4 and the Chinese domestic Big 6,

this paper extends the literature on political economy and auditor choice and explains how China is developing its domestic accounting industry through LSOEs and Document 56.

3.1. INTRODUCTION

This paper investigates audit firm choice by listed firms in China over the period 2003 to 2014. Studies of audit choice in developed stock market economies such as the UK and the US typically do so in the context of modelling the demand for ‘high quality’ audits in an environment of dispersed ownership. As a consequence, the research design of these studies identifies, *a priori*, the providers of ‘high quality’ audits and involves estimating a qualitative response model which models the determinants of audit choice between ‘high quality’ audit providers and other (presumably ‘low quality’ audit providers). ‘High quality’ auditors, as a group, are regarded as indistinguishable from each other, as are ‘low quality’ auditors.

There are three important issues to take into account when studying auditor choice in China over the study period. These issues concern particular features of the Chinese listed firm environment that can cause audit firm choice determinants to differ from those in more well-developed capitalist economies. First, dispersed ownership has not been a characteristic of listed Chinese firms over this period. In particular, many listed firms were, and still are, controlled by the Chinese state, in one of its guises. As is common, I refer to these firms as State-owned Enterprises (SOEs). Wang *et al.* (2008) argue that Chinese SOEs tend to hire small, local, audit firms, instead of large, high quality, audit firms, due to reasons of demand, local knowledge and collusion. By hiring small local audit firms, SOEs and the government can exert more influence on the audit opinion and obscure information about an SOE’s actual performance.

Nonetheless, it is not clear that such audit choice preferences will have persisted subsequent to the period studied by Wang *et al.* (2008). First, the SSSR occurred between 2005 and 2009, which was not included in their study period. As part of the effort to fully privatise LSOEs, the SSSR involved the Chinese government effecting a transformation of SOE non-tradable shares held by the ‘state’ into tradable shares, in order to reduce agency problems and develop the capital market (Liao *et al.* 2014; Li *et al.* 2011).

Joyce (2008) summarises the aims of the SSSR as: (i) to improve pricing in the Chinese capital markets; (ii) to empower free market control of listed firms, and (iii) to restructure SOEs into non-state-owned enterprises (NSOEs), with an ultimate goal of maximising firms’ value. As a result of the SSSR, the proportion of listed LSOEs in the Chinese economy decreased significantly over time from 69% of all listed firms in 2003 to 35% in 2014, based on the sample data. Hence, even if SOEs prior to the SSSR tended to have a preference for using small local audit firms, for the reasons detailed above, it is not clear that they will retain such a preference when operating in a more apparently capitalist environment. Arguably, Chinese firms, both SOEs and NSOEs, subsequent to the SSSR will have increased incentives to hire high quality audit firms as a consequence. Consequently, the empowered free market policy will, in turn, push towards an improved accounting transparency and reduced agency costs.

The second important issue that needs to be taken into account is that the Chinese government wants to develop its domestic accounting industry (Gillis 2014, 227). Specifically, since the inception of the Chinese Institute of Certified Public

Accountants (CICPA) in 1988, the Chinese government has taken steps to develop the accounting profession in the country. One of the latest measures is the introduction of a national policy - “A Number of Opinions on Accelerating the Development of Certified Public Accountants” - in 2009 by the State Council, the highest executive institution in China (Gillis 2014, 242).

Also known as Document 56, the policy by the CICPA sets out a five-year strategy to develop Chinese domestic accounting firms in order to allow competition with international accounting firms. Specifically, the State Council aims to create 10 large firms, 200 medium-sized firms, and a large number of small accounting firms by 2014, with developing the large firms as the first priority. Document 56 characterises ‘large firms’ as international accounting firms with the capability of providing integrated services to large Chinese firms with international operations. Therefore, the large domestic audit firms are intended to have the capacity to compete with the international Big 4 accounting firms.

Given the SSSR and the Chinese government initiative to promote large domestic accounting firms, I conjecture that the determinants of auditor choice are likely to have changed over time. In particular, I conjecture that, subsequent to 2009, after the SSSR and the announcement of the Chinese government initiative ‘Document 56’, Chinese firms are generally more likely to engage higher quality auditors. By high quality auditors, I mean either one of the largest six domestic audit firms in a year (I subsequently refer to these firms as ‘domestic Big 6’) or one of the international Big 4 audit firms. Further, given the

Chinese government initiative, I conjecture that, *ceteris paribus*: (i) all Chinese firms are more likely to hire domestic Big 6 firms after 2009;²⁴ and (ii) because of their state control, SOEs are likely to follow government policy and, hence, are even more likely than NSOEs to hire domestic Big 6 auditors after 2009.

The third important issue to be taken into account is the differences in market development between China's 31 provinces, based on the National Economic Research Institute (NERI) periodic reports on Index of Marketisation of China's provinces from 1997 to 2014. The reports show the average Market Development Index (MDI) for each province constructed based on five sub-categories: Capital Market Index (CMI), Government Decentralisation Index (GDI) Legal Environment Index (LEI) and Product and Factor Market Development Indexes (PMI and FMI). The MDI score varies from 11 points in provinces such as Zhejiang, Jiangsu and Shanghai, to less than five points in Gansu, Qinghai, and Tibet regions.²⁵

Moreover, Guedhami *et al.* (2009), using cross-country data, and Wang *et al.* (2008), using Chinese data, report that, as firm location moves from less to more developed regions with a stronger level of governance, auditor choice moves from lower to higher quality audit firms. Higher market development, as a signal of a more decentralised economy, might also be reflected in a lower influence of

²⁴ The government initiative to improve pricing in Chinese capital markets and develop and empower free market control (Joyce, 2008) will arguably affect both SOEs and NSOEs at different levels.

²⁵ See Appendix A for the average MDI score for each province over the study period 2003 to 2014.

the state over firms' auditor choice. Hence, I conjecture that the government's influence over firms' auditor choice in more developed regions might be less pronounced compared to firms in less developed regions. Nonetheless, I also conjecture that the influence of the level of regional market development on auditor firm choice will be reduced after 2009 as Chinese listed firms generally move towards a more capitalist economy approach to auditor firm choice.

To investigate the conjectures, I initially run Binary Logit Regressions (BLRs) capturing the determinants of auditor choice. I classify audit firms into two groups, first, the top ten audit firms in China in a year (the sum of the domestic Big 6 firms in that year plus the international Big 4), representing the 'high quality' auditors, and the second, the remaining Chinese audit firms (representing 'low quality' firms).²⁶ Such regressions do not allow investigation of whether there are systematic differences between the determinants of choosing a domestic Big 6 auditor versus an international Big 4 auditor,²⁷ however. As a consequence, I also run multinomial logit regressions (MLRs) in which there are three possible choices of audit firms – one of the international Big 4; one of the domestic Big 6 in a year; or one of the remainder of Chinese small audit firms.

²⁶ Previous studies on Chinese listed firm auditor choice exhibit no consensus on how to define 'high quality' audit firms. For example, Guedhami et al. (2009) and Guedhami et al. (2014) use the international Big 4 as the high quality audit firms; Chen et al. (2011) use the largest 8 firms (i.e., the international Big 4 and the 4 largest Chinese firms); Wang et al. (2008) use the largest 10 firms (i.e., the international Big 4 and the 6 largest Chinese firms); and Yang (2013) and Liu and Subramaniam (2013) use the largest 14 firms (i.e. the international Big 4 and the 10 largest Chinese firms).

²⁷ Appendix B provides a list of Big 10 audit firms in China for each year of the study period 2003 to 2014, based on the CICPA annual ranking of China top-100 accounting firm.

By doing so, I can investigate whether Chinese firms expressed a preference for domestic Big 6 auditors, consistent with Chinese government policy, after 2009, with this tendency magnified in SOEs. In both types of regressions, I investigate the mediating effects of the level of market development in the province in which a firm is located in influencing auditor choice.

In a context within which the number of Chinese listed firms has greatly increased over the period I study (in the sample, by 80%), I first document that the market share (by number of firms) of the international Big 4 has slightly increased over time, whereas that for the domestic Big 6 has increased substantially (from 5% to 55% in the sample). Further, the proportion of the LSOE audit market attributable to domestic Big 6 firms has increased, although not to the extent of the growth in market share overall, with a slight increase in market share for international Big 4 auditors in that market segment. These changes in market share for the domestic Big 6 audit firms have generally occurred steadily over time.

After controlling for other firm characteristics that have been found to be associated with audit firm choice in more developed capitalist economies, the results are as follows. In the BLR analyses considering the following effects independently, I find that, after the SSSR and the announcement of Document 56, there is a higher general tendency to hire higher quality audit firms. Further, the higher the level of market development in the region in which a firm is located, the more likely is the hiring of a high quality auditor. The results also show that LSOEs have weaker incentives to hire a Big 4 international audit firm,

consistent with Wang's *et al.* (2008) findings. Further, in the period subsequent to the SSSR and Document 56, high quality audit choice has increased relative to the periods before and during the SSSR. In this period, however, firms that remained as LSOEs were more likely to pick a small audit firm relative to the period before the SSSR and Document 56.

When I allow a more nuanced analysis that distinguishes between domestic Big 6 and international Big 4 audit firms, I find the following. First, the conclusions in the more conventional logit analysis carry over to the determinants of the likelihood of using a domestic Big 6 audit firm relative to using a non-Big-10 firm. Second, the determinants of the choice of international Big 4 audit firms relative to non-Big-10 firms are often significantly different from those for the choice of domestic Big 6 audit firms relative to non-big-10 firms. In particular, after the SSSR Chinese listed firms, generally, are *less* likely to use an international Big 4 auditor relative to using a non-Big-10 auditor. Also, they are more likely to hire a domestic Big 6 audit firm compared with Big 4 international and Chinese small audit firms. This tendency further develops in the period after the announcement of Document 56.

Overall, the role of the Chinese state in auditor choice remains but, in contrast to prior work, has turned towards the use of domestic Big 6, 'high quality', auditors, especially if an LSOE is located in a region with low levels of market development. In regions with high levels of market development, LSOEs behave more like other firms in that region, *ceteris paribus*. The conjecture that the

reforms I study would alter the impact of state ownership on audit choice, however, turns out to be unfounded.

The paper contributes to the literature on auditor choice in China in the following ways. First, I analyse the effects of two major reforms – the SSSR and Document 56 – on the choice of ‘high quality’ auditors by Chinese listed firms. Second, motivated by the Chinese government initiative, I distinguish between international Big 4 and domestic Big 6 audit firms in the analysis of audit firm choice. Overall, it casts light on the effects of these reforms on audit firm choice, and the development of a domestic accounting industry in China.

The remainder of the paper is structured as follows. Section 2 introduces related literature and develops the hypotheses. Section 3 explains the methodology, and Section 4 describes the sample selection. The main results are reported in Section 5, followed by the conclusion in Section 6.

3.2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

DeAngelo (1981) argues that audit as an oversight tool is demanded to control for the potential conflicts of interest between managers and stakeholders.²⁸ The demand and supply of audit quality, however, is a trade-off between the

²⁸ Jensen and Meckling (1976) suggest an agency problem can exist when principals (owners) engage agents (management) to act on their behalf. With the agent obtaining the authority to act autonomously, a separation between ownership and management creates the opportunity for agents to act differently from pursuing the principals' goals in order to maximise their own self-interest.

incentives that the clients have, and the competencies of the assigned auditor (DeFond and Zhang, 2014). For example, to signal a reliable representation of the financial statements, firms will seek a high quality, reputable, audit firm (e.g., big audit firms). Clients with incentives to conceal bad information or manage earnings, however, might target low quality auditors (e.g., lack of competence).²⁹

Different proxies have been used to measure audit quality, including audit firm size, audit firm specialty, audit fees and the propensity of the audit firm to issue qualified audit opinions (DeAngelo, 1981; Bartov *et al.*, 2000; Gul *et al.*, 2009; Francis, 2011; DeFond and Zhang, 2014; Christensen *et al.*, 2016). The incentives for a Chinese firm to adopt high quality governance are not necessarily subject only to the preferences of managers but also to the institutional environment where the firm is operating (Wong, 2016). This paper adds to a large body of research that studies how political connections affect auditor choice criteria (DeFond *et al.*, 2000; Wang *et al.*, 2008; Guedhami *et al.*, 2009; Chi *et al.*, 2013; Bandyopadhyay *et al.*, 2014; Piotroski *et al.*, 2015), by focusing on the Chinese market and its recent reforms.

In the Chinese context, Wang *et al.* (2008) study the effect of ownership structure, the level of market development, legal institutional development and government power over auditors on auditor choice. Using data from 1993 to 2003, they divide their sample into three ownership types: Central SOEs

²⁹ Signalling theory explains this behaviour as a consequence of information asymmetries between managers of firms and the actual owners. In order to reduce information asymmetry, the management of high quality firms will disclose more information and use high quality audit firms.

controlled by central government, Local SOEs controlled by local state governments, and NSOEs controlled by individual and institutional private investors. They find that both central and LSOEs are more likely to hire small or local audit firms compared to NSOEs operating in the same region. In provinces with more developed institutions based on the legal environment index (i.e., the percentage of lawyers over the population and local courts efficiency), however, they find a lower tendency towards hiring local and small audit firms.

They explain this tendency through three main arguments. First, SOEs receive preferential treatment from government and banks via the facilitating of their listings and the better access to bank loans. Hence, they have less demand for reputable audit firms to signal higher quality accounting compared to NSOEs. Second, in financial distress, SOEs are more likely to obtain government bailouts, compared to NSOEs, due to their political connections. Finally, although the audit disaffiliation programme in the late 1990s led to a separation between the government and the audit profession, auditors in local firms kept their experience and knowledge about SOEs. Such experience of small and local audit firms increases the tendency of SOEs to hire them instead of large audit firms. Another reason why SOEs are less likely to hire high quality audit firms is the fact that small audit firms might help in meeting China Securities Regularity Commission's (CSRC) targets for IPO, where political connections are found to be associated with better chances to go public (Francis *et al.* 2009).

The introduction of the mandatory auditor partner rotation (MAR), however, has improved auditor independence in China (Sati *et al.* 2014; Chen *et al.* 2008).

Moreover, a set of market reforms was started in 2001 to better develop the legal environment in China (Lin and Liu, 2009). Hence, there is a need to further examine Wang's *et al.* (2008) findings regarding auditor choice patterns in China as their study period excludes most of these events (i.e., SSSR, and Document 56).

Lin and Liu (2009), covering the period from 2001 to 2004, before the SSSR, study the impact of corporate governance, including ownership concentration, on auditor choice. Again, they classify audit firms into Big 10 and non-Big-10 as a proxy for high quality audit and introduce a trade-off argument between hiring a high quality auditor to sustain corporate governance and hiring a low-quality auditor to create "opaqueness gains" for the controlling owners. In their argument, the controlling owner may hire high quality auditors to signal credible financial reporting to other stakeholders, leading to lower share price discounts. This would be the case when the benefits outweigh the costs of having a high quality audit, however, which will limit the controlling owner's opaqueness gains.

Following this trade-off, Lin and Liu (2009) expect, and find, that firms with more concentrated ownership, based on the shareholding percentage of the largest shareholder, are less likely to hire high quality audit firms. Nonetheless, the better the corporate governance of the firm, the higher the likelihood that the firm will appoint a high quality audit firm. These findings, however, reflect the Chinese market in the pre-reform period where concentrated ownership was dominating the stock market. Guedhami *et al.* (2009), however, using a cross-

country sample, show that, as ownership moves from state to foreign investors, auditor choice moves from lower to higher quality auditors, using Big 4 audit firms as a proxy for high quality audit. These findings might hold under the settings in China, where the legal environment developments and the ownership structure reforms suggest a trend towards hiring higher quality auditors. Moreover, as the legal enforcement is weak in China (Wong, 2016), stockholders might demand an independent, high quality, auditing committee to keep their rights protected.

For the SSSR in China, Chen *et al.* (2008) evaluate the gains and efficiency of the transfer of control from the state to private hands and how it is associated with better operating performance and positive market reactions. In their study, the increase in minority private ownership is shown to be associated with a higher perceived firm value, similar to the findings of Wei *et al.* (2005) and Gul *et al.* (2009). However, Calomiris *et al.* (2010) find that when partially privatised firms announce proposed sales of remaining government shares, the stock market reacts negatively and there is a symmetric positive reaction if cancellation of such a plan happens. This might be due to the unique institutional setting (e.g., weak legal enforcement and overall poor corporate governance) where the monitoring role of private ownership over companies is weak (Wong, 2016). After the SSSR in 2005, however, it is expected to have a more pronounced monitoring role for private investors as the government is giving up control following the “Guidance for Promoting State-owned Assets Adjustment and State-owned Enterprises Reorganization”.

The SSSR left researchers with two different perspectives about how it will affect auditor choice in China. On the one hand, Leung and Cheng (2014) assume that, after the SSSR, the controlling shareholders (state shares) will no longer be blocked from realising their shares for cash. Accordingly, they might hire high quality auditors to protect their interests. On the other hand, Liu *et al.* (2016) argue that firms with large controlling shareholders will be less likely to hire high quality auditors in China, despite the nature of the ownership (i.e., state shares or private investors). They also study how the political connections will affect Chinese firms' auditor choice, and find an inverse U-shaped relation indicating that firms with weak political connections will hire higher quality audit firms compared to firms with no connections. Firms with strong political connections, however, tend to go for lower quality audit firms. They explain that this is because administrative and economic resources remain under the control of the government. They assume, however, that as the transition completes, connected firms will demand high quality audit firms instead. Although their study period from 2004 to 2012 is appropriate, their sample is restricted to private firms, and they exclude partially privatised SOEs.

The classification of audit firms to be used to study auditor choice in China and its implications should be taken with caution. As mentioned earlier in this chapter, many scholars have used Big 10 (including the international Big 4) audit firms to reflect high quality audit, while others use the international Big 4 audit firms to signal higher quality (Lin and Liu 2009; Li and Luo 2011; Chi *et al.* 2013; Leung and Cheng 2014). Gillis (2014, 242), however, highlights how the CICPA started several significant reforms that are intended to improve the

efficiency and competitiveness of domestic audit firms relative to the Big 4 international audit firms.

Leung and Cheng (2014) summarise how the CICPA, which governs the accounting profession in China and operates the Chinese Auditing Standards Board (CASB), has a substantial effect on the accounting profession in China as follows: The audit signing CPA should be a member of the CICPA and follow the Chinese Accounting Standards (CASs) of 2006. In addition, the accounting firms should possess "The Securities and Futures Related Business License" to be eligible to provide external audit services in China.

The CICPA follows a strategy that aims to: 1) cultivate accounting talent in China; 2) have international standards convergence; and 3) develop larger domestic audit firms that can compete with the international audit firms (Wang, 2006).³⁰ This suggests a new classification of audit firms that distinguishes between the international Big 4 and domestic Big 6 audit firms where both are presumed to produce high quality audit services, but with the support of the Chinese government being provided to the domestic Big 6 audit firms. Due to the national policy in 2009 established by the State Council, Document 56, a policy that establishes a five-year strategy to develop Chinese domestic accounting firms in order to compete with international accounting firms. I expect that in the period after the SSSR and the announcement of Document 56, there will be an increase in the propensity to select domestic Big 6 audit firms

³⁰ The Chinese government initiative, through the MOF and the CICPA, aims to develop the accounting industry in the country affecting all listed firms despite ownership structure (i.e., SOEs and NSOEs).

relative to both the international Big 4 audit firms, and the remaining non-Big-10 audit firms. Hence, the first and second hypotheses are constructed as follows:

Hypothesis 1. The propensity to select a domestic Big 6/international Big 4 audit firm relative to non-Big-10 audit firm increases after the SSSR and before Document 56.

Hypothesis 2. The propensity to select a domestic Big 6 audit firm relative to a non-Big-10/international Big 4 audit firm increases after the announcement of Document 56.

Following Wang *et al.* (2008) and Guedhami *et al.* (2009), I further assume that firms in more developed regions will have a higher demand for high quality auditors. This is due to the better credit market development, less government centralisation, and higher levels of legal enforcement in the more developed regions. I also predict that market development will counteract any potential negative government influence on firms' auditor choice. Hence the third hypothesis is:

Hypothesis 3a. Firms in more developed regions tend to hire the international Big 4 or domestic Big 6 audit firms over small audit firms.

Hypothesis 3b. The higher the level of market development the lower the impact of state ownership over auditor choice.

3.3. METHODOLOGY

Table 1 summarises the definition of variables used in this essay. To test the hypotheses concerning auditor choice in China, I build on Wang *et al.* (2008) by using three sets of variables as follows: 1) ownership structure: the nature of the controlling shareholder (LSOE) to capture the government influence over firms; 2) regional development index: the average MDI from the NERI Index of Marketisation of China's provinces to capture the differences in auditor choice preferences across regions; and 3) a set of control variables for firm characteristics that, presumably, have an effect on auditor choice based on the previous literature (DeFond *et al.*, 2000; Wang *et al.*, 2008; Guedhami *et al.*, 2009).

The control variables I use are as follows. The percentage of total shares held by Qualified Foreign Institutional Investors (QFII) and the proportion of shares held by domestic institutional investors (Institutional Investors) are used to study the private ownership concentration effect on auditor choice where I assume that private foreign and domestic institutional investors will affect auditor choice either towards high quality audit firms to signal credible financial reporting or toward low-quality audit firm to obtain opaqueness gains benefits as in Lin and Liu (2009). I control for firm size using ($\ln(\text{Total Assets})$), and I use return on total assets (RoA) as a measure of profitability. Leverage (Leverage) and the current ratio (Current Ratio) are used as measures of risk. Sales growth (Sales Growth) is used as a proxy for capital needs for audit. To capture the effects of a firm's operation complexity, I calculate receivables and inventories to total

assets (Receivables & Inventories) and asset turnover (Asset Turnover). Issuance of equity (Equity Issuance) is also included to capture the propensity to hire high quality audit firms in order to signal a better reputation when raising capital.

[TABLE 1]

I also add industry dummies to allow the likelihood of auditor choice to behave differently for each industry. Moreover, I add region dummies for China's six regions: Metropolis, Northeast, Coast, Central, Northwest and Southwest, following Sun and Graham's (2013) classification, which is based on *per capita* GDP data at a provincial level from 1949 to 2011.³¹ To investigate the hypotheses, I initially run BLRs to capture the determinants of auditor choice. Two groups of audit firms are used, the top 10 audit firms in China in a year (the sum of the domestic Big 6 firms in that year plus the international Big 4), representing the 'high quality' auditors, and the other group representing the remaining non-Big-10 Chinese audit firms ('low quality' firms). I also run multinomial logit regressions (MLRs) in which there are three possible choices of audit firms – one of the international Big 4; one of the domestic Big 6 in a year; or one of the remaining Chinese small audit firms.³²

Therefore, I investigate the impact of market development and the introduction of the SSSR and Document 56 in China on high quality audit choice by

³¹ *Per capita* GDP data are from China Compendium of Statistics (NBS 2010) and China Statistical Yearbook 2012 (NBS 2013).

³² I also perform interactions between the experimental variables to better understand how the SSSR and Document 56 affect auditor choice in China.

estimating the following equations on an unbalanced panel of Chinese listed firms.³³

In the first estimation equation, I replicate Wang's *et al.* (2008) model that examines how state influence and market development impact firms' auditor choice without incorporating the effects of the SSSR and Document 56, as a benchmark for the more nuanced analysis that follows.

$$\begin{aligned}
& \ln \left(\frac{P(\text{Audit Choice}_{it} = \text{Big } 10)}{P(\text{Audit Choice}_{it} = \text{Non Big } 10)} \right) \\
&= b_0 + b_1 \text{Local SOE}_{it} + b_2 \text{MDI}_{it} + b_3 \text{Local SOE} \cdot \text{MDI}_{it} \\
&+ \sum_{k=4}^n \beta_k \text{Control}_{it}
\end{aligned} \tag{1}$$

In equation 2 I look at the effects of the SSSR and Document 56 on auditor choice without separating between the two types of big audit firms (i.e., the international Big 4 and domestic Big 6 audit firms). This provides a benchmark of the overall effect of these major reforms on big audit firms' auditor choice.

³³ Control variables are defined in Table 1.

$$\begin{aligned}
& \ln \left(\frac{P(\text{Audit Choice}_{it} = \text{Big } 10)}{P(\text{Audit Choice}_{it} = \text{Non Big } 10)} \right) \\
&= b_0 + b_1 \text{Local SOE}_{it} + b_2 \text{MDI}_{it} + b_3 \text{Local SOE} \cdot \text{MDI}_{it} \\
&+ b_4 \text{Post SSSR}_{it} + b_5 \text{Post Document } 56_{it} \\
&+ \sum_{k=6}^n \beta_k \text{Control}_{it}
\end{aligned} \tag{2}$$

Lastly, before proceeding to the hypothesis testing, I examine whether the effects of the SSSR and Document 56 impact LSOEs and NLSOEs differently following equation 3.

$$\begin{aligned}
& \ln \left(\frac{P(\text{Audit Choice}_{it} = \text{Big } 10)}{P(\text{Audit Choice}_{it} = \text{Non Big } 10)} \right) \\
&= b_0 + b_1 \text{Local SOE}_{it} + b_2 \text{MDI}_{it} + b_3 \text{Local SOE} \cdot \text{MDI}_{it} + b_4 \text{Post SSSR}_{it} \\
&+ b_5 \text{Local SOE} \cdot \text{Post SSSR}_{it} + b_6 \text{Post Document } 56_{it} \\
&+ b_7 \text{Local SOE} \cdot \text{Post Document } 56_{it} \\
&+ \sum_{k=8}^n \beta_k \text{Control}_{it}
\end{aligned} \tag{3}$$

Following the argument that the Chinese government would provide a special treatment to domestic big audit firms in order to compete with the international Big 4 audit firms (Gillis 2014, 242), I run multinomial logit regressions (MLRs) to compare three possible choices of audit firms *via* which we can investigate whether Chinese firms express a preference for domestic Big 6 auditors, consistent with the Chinese government policy, after 2009, with this tendency

magnified in SOEs³⁴. First, in equation 4, I run a basic estimation model that examines government influence and market development impact on auditor choice as follows.

$$\begin{aligned}
& \ln \left(\frac{P(\text{Audit Choice}_{it} = \text{Domestic Big 6})}{P(\text{Audit Choice}_{it} = \text{Non Big 10})} \right) \\
&= b_{10} + b_{11} \text{Local SOE}_{it} + b_{12} \text{MDI}_{it} + b_{13} \text{Local SOE} \cdot \text{MDI}_{it} \\
&+ \sum_{k=14}^n \beta_{1k} \text{Control}_{it}
\end{aligned} \tag{4a}$$

$$\begin{aligned}
& \ln \left(\frac{P(\text{Audit Choice}_{it} = \text{International Big 4})}{P(\text{Audit Choice}_{it} = \text{Non Big 10})} \right) \\
&= b_{20} + b_{21} \text{Local SOE}_{it} + b_{22} \text{MDI}_{it} + b_{23} \text{Local SOE} \cdot \text{MDI}_{it} \\
&+ \sum_{k=4}^n \beta_{2k} \text{Control}_{it}
\end{aligned} \tag{4b}$$

In equation 5 I expand the analysis to include the effects of the SSSR and Document 56. By doing so, I test how the SSSR and Document 56 affect the propensity to choose domestic Big 6 audit firms relative to the international Big 4 audit firms.

³⁴ The three groups are the international Big 4 audit firms, the domestic Big 6 audit firms in a year, and the remainder of Chinese audit firms.

$$\begin{aligned}
& \ln \left(\frac{P(\text{Audit Choice}_{it} = \text{Domestic Big 6})}{P(\text{Audit Choice}_{it} = \text{Non Big 10})} \right) \\
&= b_{10} + b_{11} \text{Local SOE}_{it} + b_{12} \text{MDI}_{it} + b_{13} \text{Local SOE} \cdot \text{MDI}_{it} \\
&+ b_{14} \text{Post SSSR}_{it} + b_{15} \text{Post Document 56}_{it} \\
&+ \sum_{k=16}^n \beta_{1k} \text{Control}_{it}
\end{aligned} \tag{5a}$$

$$\begin{aligned}
& \ln \left(\frac{P(\text{Audit Choice}_{it} = \text{International Big 4})}{P(\text{Audit Choice}_{it} = \text{Non Big 10})} \right) \\
&= b_{20} + b_{21} \text{Local SOE}_{it} + b_{22} \text{MDI}_{it} + b_{23} \text{Local SOE} \cdot \text{MDI}_{it} \\
&+ b_{24} \text{Post SSSR}_{it} + b_{25} \text{Post Document 56}_{it} \\
&+ \sum_{k=26}^n \beta_{2k} \text{Control}_{it}
\end{aligned} \tag{5b}$$

Finally, I test if the impact of the SSSR and Document 56 is magnified in SOEs particularly, or if it affects all Chinese listed firms the same way. Hence, equation 6 provides the main estimation model for testing the hypotheses.

$$\begin{aligned}
& \ln \left(\frac{P(\text{Audit Choice}_{it} = \text{Domestic Big 6})}{P(\text{Audit Choice}_{it} = \text{Non Big 10})} \right) \\
&= b_{10} + b_{11} \text{Local SOE}_{it} + b_{12} \text{MDI}_{it} + b_{13} \text{Local SOE} \cdot \text{MDI}_{it} \\
&+ b_{14} \text{Post SSSR}_{it} + b_{15} \text{Local SOE} \cdot \text{Post SSSR}_{it} \\
&+ b_{16} \text{Post Document 56}_{it} \\
&+ b_{17} \text{Local SOE} \cdot \text{Post Document 56}_{it} \\
&+ \sum_{k=18}^n \beta_{1k} \text{Control}_{it}
\end{aligned} \tag{6a}$$

$$\begin{aligned}
& \ln \left(\frac{P(\text{Audit Choice}_{it} = \text{International Big 4})}{P(\text{Audit Choice}_{it} = \text{Non Big 10})} \right) \\
&= b_{20} + b_{21} \text{Local SOE}_{it} + b_{22} \text{MDI}_{it} + b_{23} \text{Local SOE} \cdot \text{MDI}_{it} \\
&+ b_{24} \text{Post SSSR}_{it} + b_{25} \text{Local SOE} \cdot \text{Post SSSR}_{it} \\
&+ b_{26} \text{Post Document 56}_{it} \\
&+ b_{27} \text{Local SOE} \cdot \text{Post Document 56}_{it} \\
&+ \sum_{k=28}^n \beta_{2k} \text{Control}_{it} \tag{6b}
\end{aligned}$$

I estimate the equations above to study the development of Chinese listed firms' auditor choice. More Specifically, b_{11} , captures the increase/decrease in the relative probability of selecting domestic Big 6 compared with non-Big-10. While, b_{21} , represents the increase/decrease in the relative log odds of selecting international Big 4 compared with non-Big-10. The difference between the two equations for each estimator (i.e. $b_{11} - b_{21}$) identifies the increase/decrease in the relative probability of selecting domestic Big 6 compared with the international Big 4 audit firms.

To identify the impact of MDI, the SSSR and Document 56 on high quality auditor choice and government influence throughout the sample period, the estimation models above compare the increase/decrease in the relative probability of selecting domestic Big 6 and international Big 4 compared to non-Big-10, respectively. Finally, I investigate whether Chinese firms express a preference for domestic Big 6 auditors, consistent with the Chinese government policy, after 2009, with this tendency magnified in SOEs by studying the

interaction³⁵ terms in b_{15} and b_{17} in equation 6a, and b_{25} and b_{27} in equation 6b, as well as the difference between the estimators in both equations (i.e. $b_{15} - b_{25}$ and $b_{17} - b_{27}$).

3.4. DATA AND SAMPLE

The China Stock Market and Accounting Research (CSMAR) database serves as the main source of data on firms' ownership structure and other financial information. Audit firms are classified based on the CICPA Top-100 Accounting Firms, which has published these reports annually since 2003 based on variant audit quality indicators (i.e., total revenue, the number of employed CPAs, internal governance and practice quality). Regional development data is constructed based on the National Economic Research Institute (NERI) periodic reports on Index of Marketisation of China's provinces from 2003 to 2014. The sample period starts from 2003, for which data on controlling shareholders are first available on CSMAR, until 2014. The final sample covers 1,831 Chinese listed firms with 15,000 firm-year observations that can be used in the analysis.

Table 2 summarises the sample selection process. I include firms that only issue A-shares, excluding firms with B-shares and H-shares, following Wang *et al.* (2008), in order to select firms operating in similar regulatory environments. I

³⁵ In nonlinear models (i.e., logit and probit) to study the magnitude and the significance of an interaction effect it is suggested to compute the cross derivative of the expected value of the dependent variable instead of the coefficient of the interaction term (Ai and Norton, 2003; Norton *et al.*, 2004). Therefore, I produce additional analysis of the interaction effects based on the cross-partial derivative in Appendix D.

further exclude firms in the financial industry for the same reason, leaving firms in five industries with the majority being industrial firms, accounting for 60% of the sample size, followed by properties and public utility firms covering 10% each and, finally, firms in commerce and conglomerates. This indicates a diversified sample consistent with prior recent research on the Chinese market such as Dedman *et al.* (2015). I further restrict the sample to firms with no missing data on ownership structure, auditor choice, and other financial information. Finally, I exclude CSOEs from the sample³⁶ because China's State-owned Assets Supervision and Administration Commission (SASAC) issued two rules in 2004, which requires the SASAC to assign auditors for CSOEs and requires them to retain auditors for 2-5 consecutive years, meaning that CSOEs do not choose their auditors based on their characteristics.

[TABLE 2]

I assume that the Big 10 audit firms produce high quality audit following DeAngelo's (1981) argument of audit firm size and audit quality. I further classify audit firms into the international Big 4 audit firms (i.e., PricewaterhouseCoopers, Deloitte, Ernst & Young, and KPMG), domestic Big 6 audit firms (based on the CICPA Top-100 Chinese accounting firms for each year), and other non-Big-10 audit firms.

³⁶ In order to keep the arguments consistent in the three empirical essays in this thesis, I exclude CSOEs from all the empirical analyses performed. The implications of this are further discussed in the concluding chapter of this thesis.

I classify firms as LSOEs or NSOEs, where a firm is considered as an LSOE if the state or a state agency meets any of the following criteria: “1) the one with the maximum shareholding in the shareholder list of listed company unless the opposite evidence exists; 2) the one who can execute and control superior voting rights than the shareholder with the maximum shareholding of a listed company; 3) the one who holds and controls 30 per cent or above of shares and voting rights unless opposite evidence exists; 4) the one who can decide the election of over half of the members of the board of directors of a listed company by executing voting rights; 5) the one who is under other circumstances (i.e., identified by the securities regulatory authorities of the State Council) as the stipulations of CSRC. Following Clause 41 of the Guidelines for the Articles of Association of Listed Companies, released by the CSRC on December 16, 1997” (CSMAR user guide 2017, 29).

Table 3 shows the sample by ownership structure and auditor choice throughout the sample period, where we can see a trend of hiring Big 6 audit firms over those other small audit firms. For example, in 2003 more than 80% of listed firms had a non-Big-10 auditor. This figure dropped to 40% in 2014. Of the 60% choosing Big 10 audit firms in 2014, 92% were picking Big 6 audit firms rather than the international Big 4. The market share of the international Big 4 remains stable, however, over the sample period with an average of 5% of listed firms as a different way of representing the market share of the international Big 4 auditors audited around 20% of the total assets audited throughout the sample period.

[TABLE 3]

3.5. MAIN RESULTS

Table 4 summarises firms' characteristics³⁷ mean value throughout the sample period and for each ownership type. To remove extreme values and reduce the effect of potential outliers, all continuous variables are winsorized at the top and bottom 1%. The table shows that the market share of the international Big 4 audit firms remained unchanged with an average of 5% of total firms. Domestic Big 6 audit firms' market share, on the other hand, doubled ten times since 2003, with a market share of 56% of total firms in 2014, accompanied by a significant drop in non-Big-10 audit market share.

Also there is a significant drop in the number of LSOEs since 2005 (the beginning of the SSSR) where it decreased from 69% in 2003 to 35% in 2014. Market development grows gradually over the sample period. The table also summarises the changes in the control variables' mean value throughout the sample period. Consistent with the Wang *et al.* (2008) sample, I find that LSOEs tend to be of a larger firm size and lower complexity compared to NSOEs. However, LSOEs have higher leverage and lower current ratios compared with NSOEs.

[TABLE 4]

³⁷ I provide summary statistics for the aggregated sample throughout the study period in Appendix C.

Table 5 lists the Pearson correlations for all variables included in the tests. Correlations between the dependent variables and the experimental variables have the expected signs. When classifying the Big 10 audit firms into domestic Big 6 and international Big 4 audit firms, however, we see a negative correlation between the choice of domestic Big 6 audit firms and LSOE.³⁸ Correlations between independent variables do not indicate multicollinearity problems. The Variance Inflation Factors (VIF) in the multivariate models are below 4 (not tabulated).

[TABLE 5]

Table 6 presents the BLR model results. The coefficients of the estimated regressions are accompanied with the associated t-statistics and reported based on robust standard errors. In the analysis, I control for industry fixed effects by adding industry dummies. I also control for regional fixed effects by adding region dummies to allow firms in different regions to respond differently to any potential regional effect, as suggested by Sun and Graham (2013). Furthermore, adding region dummies will help in capturing the availability of big audit firms.³⁹

³⁸ This negative correlation does not necessarily indicate a negative relationship between domestic Big 6 audit choice and LSOE - this is further investigated in the multivariate regressions analyses later in this chapter.

³⁹ The tests of VIF including both regional dummies (i.e., classifying mainland China into six different regions based on geographic location) and MDI for each province (i.e., market development score for each of China's 31 provinces) are less than 8 indicating no resulting multicollinearity from using both sets of variables in the same estimation model.

Hence, market development (MDI) can capture the demand side for high quality audit instead of the geographic location of the firm.

Model 1 replicates the Wang *et al.* (2008) study after updating the study period. It ignores the potential impact of the SSSR and Document 56 and shows that, consistent with Wang *et al.* (2008), MDI has a positive impact on high quality audit choice. It does not show a significant impact of state influence on audit choice, however. Moreover, it shows that the MDI effect on audit choice is reduced in the case of LSOEs. Model 2 includes the SSSR and Document 56 dummies. The regression results show a positive impact of SSSR on high quality auditor choice, with an incremental effect of the State Council's national policy in improving high quality auditor choice in China. Finally, in Model 3, I include LSOE interaction terms⁴⁰ with both the SSSR and Document 56. The results, however, do not provide strong evidence that LSOEs have a preference for hiring a Big 10 audit firm over other small Chinese audit firms in the period following the SSSR.

Additionally, I find a reduced impact of LSOE on the likelihood of a firm choosing a high quality audit firm in the period following the announcement of Document 56. The results also show a positive impact of market development on the choice of high quality audit firms. The significant negative interaction term between market development (MDI) and government influence (LSOE) shows that market development lowers the impact of state ownership on auditor

⁴⁰ A further analysis of the interaction terms, considering the nonlinear nature of the regression I use, is provided in Appendix D following Ai and Norton (2003) and Norton *et al.* (2004).

choice.⁴¹ These results indicate that the state influence decreases as we move to more developed regions with more capitalist market characteristics (i.e., lower market centralisation and higher legal enforcement).

The BLR results, nevertheless, do not show a significant role for private institutional investor's ownership (i.e., foreign and domestic institutional ownership) in selecting a firm's auditor. This suggests that private institutional ownership impact on Chinese listed firms' managerial decisions is not taking effect. The results, however, show that firm size is associated with higher quality auditor choice. The results also show that equity issuance is negatively associated with Big 10 audit choice.⁴² There is no significant effect of return on assets, current ratio and asset turnover on auditor choice. Sales growth, leverage and receivables and inventories to assets are associated with higher non-Big-10 auditor choice. Following Wang *et al.* (2008), I use receivables and inventories to assets as a measure for the complexity of operations. The results show a negative relationship between the complexity measure and high quality audit choice, however. This suggests that, under the institutional environment of China, other measures for firms' complexity might be more appropriate rather than receivables and inventories to assets.

[TABLE 6]

⁴¹ I also run the tests after adding MDI interactions with the SSSR and Document 56 events to study how MDI impact changes throughout the study period. The results do not show any significant trends.

⁴² Aharony *et al.* (2010) explain this by the potential earnings management behaviour in the periods surrounding IPOs in which firms might target low quality audit firms in order to do so.

A detailed investigation of auditor choice in China is presented in Table 7, where MLR results are reported. As illustrated earlier, instead of restricting auditor choice to either Big 10 or non-Big-10, in the MLR models, I allow three group comparisons.⁴³ The coefficients indicate the degree of increase or decrease in the likelihood of picking one group of auditors (Big 4 or Big 6) over the base outcome (non-Big-10). I also check the difference between these coefficients between the international Big 4 and the domestic Big 6 using Chi-square tests. Those differences are reported in the third column of each model.

The results reveal that the conclusions in the more conventional logit analysis carry over to the determinants of the likelihood of using domestic Big 6 audit firms relative to using a non-Big-10 firm. In particular, the impact of MDI on auditor choice, and its mediating effect on state influences is applicable when a domestic Big 6 audit firm is chosen against non-Big-10 audit firms. Moreover, MDI increases the likelihood to pick a domestic Big 6 audit firm over the international Big 4 audit firms.

Model 2 reports the positive impact of the SSSR, and the State Council's national policy is exclusive to domestic Big 6 audit firms over both small domestic audit firms and the international Big 4 audit firms. This confirms the efforts of the Chinese government in supporting high quality domestic Chinese accounting firms. Hence, the argument of Wang *et al.* (2008), that LSOEs have weaker

⁴³ Domestic Big 6 compared to non-Big-10, international Big 4 compared to non-Big-10 and domestic Big 6 compared to international Big 4.

incentives to pick big audit firms relative to small ones, is only applicable in the case of international Big 4 audit firms.

In Model 3, I investigate the role of state influence in developing high quality domestic audit choice. The results show that LSOEs prefer domestic Big 6 over the international Big 4 audit firms, as well as over other small domestic non-Big-10 audit firms in the period before the SSSR and Document 56. In the period following these reforms, however, there seems to be no direct evidence of state influence on firms' audit choice. Nonetheless, state influence over domestic Big 6 auditor choice relative to non-Big-10 audit firms is reduced in the period after the announcement of Document 56, though the effect is only slightly significant, this is further investigated in Appendix D, where I provide additional estimates considering the nonlinear nature on the logit regression following Ai and Norton (2003) and Norton et al. (2004).

[TABLE 7]

3.6. SUMMARY AND CONCLUSION

This chapter extends the auditor choice literature by focusing on the institutional setting of China, where “quality” is not the only criterion determining the choice of auditor. As the government plays a major role in both the financial and audit markets in China (Wong, 2016), this paper has investigated how ownership structure and market development affect firms' auditor choice. More specifically, this paper has studied the implications of the introduction of

national policy “A Number of Opinions on Accelerating the Development of Certified Public Accountants” in 2009 by the State Council “Document 56” that sets a five-year strategy to develop Chinese domestic accounting firms in order to compete with international accounting firms (Gillis 2014, 242). Hence, *via* a classification of audit firms that distinguishes between three types of audit firms: 1) international Big 4 audit firms; 2) domestic Big 6 audit firms; and 3) non-Big-10 audit firms; I study the influence of the state on auditor choice.

The summary statistics of the sample from 2003 to 2014 show a significant reduction in state ownership concentration, accompanied by a higher propensity to hire domestic Big 6 audit firms. The main findings show that the overall demand for high quality audit firms (i.e., the international Big 4 and domestic Big 6 combined) has increased significantly since 2009, the year of the announcement of Document 56. The decomposition of the high quality audit firms into the international Big 4 and domestic Big 6, however, shows that this overall increase in audit quality is mainly driven by a tendency toward hiring domestic Big 6 audit firms rather than the international Big 4. Hence, the findings support Gillis’s (2014) speculation that the government, through the MOF regulations and the CICPA, tries to develop its domestic accounting industry by encouraging the development of big domestic audit firms.

The LSOEs’ tendency to hire domestic Big 6 audit firms over international Big 4 and non-Big-10 audit firms does not persist in the periods following the SSSR and Document 56. Consistent with the findings of Wang *et al.* (2008) and Guedhami *et al.* (2009), market development is found to enhance high quality

auditor choice. The decomposition of the high quality audit firms also reveals that the determinants of the choice of auditor, especially domestic Big 6, are different from that found in literature studying western capitalist markets. In China, high quality is not necessarily the only criterion to choose audit firms, but the institutional environment where the firm operates is also important.

This chapter has extended the literature on political economy and auditor choice and explained how China is developing its domestic accounting industry through LSOEs and national policy. It has extended our understanding of how Chinese firms choose their auditors, following a wave of new regulations that aim to improve the audit profession in China. It has also highlighted the differences between China's 31 provinces and how regional development affects auditor choice and is distinguished between three types of auditors: international Big 4, domestic Big 6 and other domestic small audit firms.

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3.8. TABLES AND APPENDICES

TABLE 1	
VARIABLE DEFINITIONS	
Variable	Definition
Audit Classification	
Auditor Choice	An indicator variable equals to 0, 1 and 2 if the auditor is Non-Big-10, domestic Big 6 and international Big 4, respectively, based on CICPA Top-100 Accounting Firms annual reports
International Big 4	A dummy variable equals to 1 if the auditor is an international Big 4, and 0 otherwise
Domestic Big 6	A dummy variable equals to 1 if the auditor is a domestic Big 6, and 0 otherwise
Big-10 Auditor	A dummy variable equals to 1 if the auditor is a Big 10, and 0 otherwise
Ownership Structure	
LSOE	A dummy variable equals to 1 if the firm is classified as a local state-owned enterprise, and 0 otherwise
QFII %	The percentage of total shares held by Qualified Foreign Institutional Investors
Institutional Investors	The proportion of total shares held by domestic institutional investors
Regional Development	
MDI	Market Development Index
Firm Characteristics	
Ln(Total Assets)	The natural logarithm of total assets
Sales Growth	The natural logarithm of (current sales/previous sales)

RoA	Return on total assets
Leverage	Total debt to total assets
Current Ratio	Current assets to current liabilities
Receivables & Inventories	The sum of receivables and inventories as a proportion of total assets
Asset Turnover	Sales to total assets
Equity Issuance	A dummy variable equals to 1 if the firm issues new shares during the year, and 0 otherwise

TABLE 2												
SAMPLE SELECTION												
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Number of listed firms	1,378	1,465	1,461	1,542	1,654	1,708	1,855	2,211	2,449	2,577	2,621	2,735
<i>Less: firms with B-shares or H-shares</i>	111	109	109	109	109	109	166	296	401	462	485	523
<i>Less: firms in the financial industry</i>	28	28	28	33	41	40	43	48	51	53	53	54
<i>Less: firms without ownership information</i>	8	6	2	2	5	5	8	8	6	14	24	35
<i>Less: CSOs</i>	201	230	235	253	262	287	303	320	318	315	316	321
<i>Less: firms without financial information</i>	105	143	71	128	162	112	146	274	194	129	87	132
Final sample	925	949	1,016	1,017	1,075	1,155	1,189	1,265	1,479	1,604	1,656	1,670

Data covers the period from 2003 to 2014 including 15,000 firm-year observations. Financial data and data on ownership structure available publicly at CSMAR database. All continuous variables are winsorized at the top and bottom 1%.

TABLE 3													
AUDITOR CHOICE BY OWNERSHIP TYPE													
Auditor Choice	Ownership Type	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
International Big 4	Number of firms	60	45	56	49	57	51	50	55	66	72	73	77
	% of LSOEs	77	69	68	73	67	65	72	71	68	65	60	58
	% of NSOEs	23	31	32	27	33	35	28	29	32	35	40	42
Domestic Big 6	Number of firms	47	51	60	109	139	223	347	394	514	791	914	929
	% of LSOEs	81	71	77	67	61	57	49	46	37	33	32	32
	% of NSOEs	19	29	23	33	39	43	51	54	63	67	68	68
Non-Big-10	Number of firms	818	853	900	859	879	881	792	816	899	741	669	664
	% of LSOEs	68	64	60	55	53	50	48	45	40	40	39	37
	% of NSOEs	32	36	40	45	47	50	52	55	60	60	61	63

TABLE 4													
MEAN VALUE FOR FIRM CHARACTERISTICS BY OWNERSHIP TYPE													
Firm Characteristics	Ownership Type	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
International Big 4 %	All firms	0.06	0.05	0.06	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.05
	<i>LSOEs</i>	0.07	0.05	0.06	0.06	0.06	0.06	0.06	0.07	0.08	0.08	0.07	0.08
	<i>NSOEs</i>	0.05	0.04	0.05	0.03	0.04	0.03	0.02	0.02	0.02	0.02	0.03	0.03
Domestic Big 6 %	All firms	0.05	0.05	0.06	0.11	0.13	0.19	0.29	0.31	0.35	0.49	0.55	0.56
	<i>LSOEs</i>	0.06	0.06	0.07	0.13	0.14	0.21	0.29	0.31	0.32	0.43	0.49	0.50
	<i>NSOEs</i>	0.03	0.04	0.04	0.08	0.11	0.17	0.30	0.31	0.37	0.53	0.59	0.59
LSOE %	All firms	0.69	0.65	0.61	0.57	0.55	0.52	0.49	0.46	0.40	0.38	0.36	0.35
MDI	All firms	6.68	7.29	7.96	8.41	8.92	8.65	8.99	9.02	9.34	9.80	9.99	10.40
	<i>LSOEs</i>	6.67	7.28	7.85	8.30	8.77	8.41	8.69	8.70	8.90	9.25	9.46	9.86
	<i>NSOEs</i>	6.71	7.31	8.12	8.55	9.10	8.90	9.29	9.29	9.63	10.13	10.28	10.69
QFII %	All firms	0.01	0.03	0.12	0.23	0.18	0.10	0.14	0.11	0.06	0.06	0.07	0.08
	<i>LSOEs</i>	0.01	0.03	0.11	0.24	0.19	0.10	0.14	0.12	0.08	0.06	0.08	0.11
	<i>NSOEs</i>	0.02	0.03	0.13	0.22	0.16	0.09	0.15	0.10	0.05	0.05	0.07	0.07
Institutional Investors %	All firms	0.04	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05
	<i>LSOEs</i>	0.04	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06
	<i>NSOEs</i>	0.05	0.05	0.05	0.05	0.06	0.05	0.05	0.06	0.05	0.04	0.04	0.05
Ln(Total Assets)	All firms	21.11	21.18	21.17	21.23	21.37	21.37	21.48	21.63	21.75	21.84	21.96	22.08
	<i>LSOEs</i>	21.22	21.34	21.37	21.51	21.69	21.76	21.89	22.07	22.23	22.34	22.47	22.59
	<i>NSOEs</i>	20.86	20.89	20.85	20.86	20.98	20.95	21.08	21.25	21.42	21.54	21.67	21.80

Sales Growth	All firms	0.15	0.18	0.04	0.10	0.19	0.08	0.03	0.23	0.18	0.08	0.12	0.06
	<i>LSOEs</i>	0.15	0.20	0.08	0.10	0.21	0.08	0.05	0.23	0.17	0.06	0.08	0.02
	<i>NSOEs</i>	0.15	0.15	-0.02	0.09	0.18	0.08	0.02	0.24	0.19	0.09	0.13	0.08
RoA	All firms	0.01	0.01	-0.01	0.02	0.04	0.02	0.03	0.05	0.04	0.04	0.04	0.03
	<i>LSOEs</i>	0.02	0.02	0.01	0.02	0.04	0.02	0.02	0.04	0.04	0.03	0.03	0.02
	<i>NSOEs</i>	-0.02	-0.02	-0.04	0.00	0.05	0.03	0.04	0.05	0.05	0.04	0.04	0.04
Leverage	All firms	0.26	0.26	0.26	0.25	0.23	0.22	0.21	0.19	0.17	0.16	0.16	0.15
	<i>LSOEs</i>	0.24	0.25	0.25	0.24	0.23	0.23	0.22	0.21	0.19	0.19	0.19	0.18
	<i>NSOEs</i>	0.30	0.29	0.29	0.27	0.23	0.22	0.20	0.18	0.16	0.15	0.15	0.14
Current Ratio	All firms	1.49	1.39	1.36	1.34	1.38	1.51	1.65	1.93	2.45	2.32	2.17	2.07
	<i>LSOEs</i>	1.51	1.40	1.36	1.29	1.27	1.30	1.38	1.47	1.53	1.52	1.48	1.52
	<i>NSOEs</i>	1.43	1.37	1.37	1.41	1.51	1.73	1.91	2.33	3.07	2.81	2.56	2.37
Receivables & Inventories	All firms	0.30	0.31	0.31	0.30	0.25	0.27	0.26	0.27	0.28	0.28	0.27	0.28
	<i>LSOEs</i>	0.29	0.29	0.29	0.27	0.23	0.24	0.23	0.24	0.25	0.25	0.24	0.24
	<i>NSOEs</i>	0.33	0.34	0.34	0.33	0.28	0.30	0.29	0.29	0.30	0.29	0.29	0.29
Asset Turnover	All firms	0.55	0.62	0.65	0.68	0.71	0.73	0.65	0.69	0.70	0.66	0.65	0.62
	<i>LSOEs</i>	0.58	0.66	0.70	0.73	0.75	0.75	0.67	0.70	0.73	0.69	0.67	0.62
	<i>NSOEs</i>	0.50	0.55	0.58	0.61	0.66	0.70	0.63	0.67	0.67	0.65	0.65	0.62
Equity Issuance	All firms	0.16	0.22	0.15	0.33	0.32	0.37	0.26	0.34	0.39	0.30	0.29	0.35
	<i>LSOEs</i>	0.15	0.22	0.13	0.27	0.27	0.32	0.22	0.26	0.28	0.23	0.21	0.22
	<i>NSOEs</i>	0.18	0.21	0.19	0.41	0.39	0.43	0.30	0.41	0.46	0.35	0.34	0.41

Variables are defined in Table 1. All continuous variables are winsorized at the top and bottom 1%.

TABLE 5																	
CORRELATION COEFFICIENTS																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 Big 10 Auditor	1.00																
2 International Big 4	0.30	1.00															
3 Domestic Big 6	0.90	-0.15	1.00														
4 Post Document 56	0.34	-0.01	0.36	1.00													
5 Post SSSR	0.25	-0.01	0.26	0.53	1.00												
6 LSOE	-0.07	0.09	-0.11	-0.19	-0.14	1.00											
7 MDI	0.27	0.06	0.26	0.33	0.33	-0.20	1.00										
8 QFII %	0.00	0.08	-0.04	-0.05	0.05	0.03	0.03	1.00									
9 Institutional Investors	0.02	0.07	-0.02	-0.03	0.03	0.08	-0.03	0.12	1.00								
10 Ln(Total Assets)	0.22	0.27	0.10	0.25	0.22	0.23	0.12	0.11	0.12	1.00							
11 Sales Growth	-0.02	0.01	-0.02	0.03	0.01	0.00	-0.02	0.03	0.06	0.12	1.00						
12 RoA	0.08	0.06	0.06	0.13	0.17	-0.03	0.12	0.08	0.12	0.19	0.32	1.00					
13 Leverage	-0.11	-0.02	-0.11	-0.23	-0.20	0.09	-0.17	-0.03	-0.07	0.07	-0.05	-0.38	1.00				
14 Current Ratio	0.08	-0.05	0.10	0.19	0.11	-0.20	0.13	-0.02	0.01	-0.13	-0.01	0.21	-0.43	1.00			
15 Receivables & Inventories	-0.03	-0.07	0.00	-0.02	-0.07	-0.13	0.08	-0.04	-0.06	0.00	0.02	-0.09	0.07	-0.01	1.00		
16 Asset Turnover	0.01	-0.01	0.01	0.00	0.05	0.05	0.11	0.06	0.06	0.08	0.16	0.14	-0.08	-0.11	0.05	1.00	
17 Equity Issuance	0.04	-0.01	0.04	0.08	0.12	-0.15	0.08	0.03	0.09	0.13	0.16	0.19	-0.08	0.12	-0.01	0.03	1.00

Variables are defined in Table 1. All continuous variables are winsorized at the top and bottom 1%. Bold numbers indicate significance at 5% level.

TABLE 6			
DETERMINANTS OF BIG 10 (LOGIT MODEL: NON-BIG-10 AS BASE CASE)			
Variables	Model 1	Model 2	Model 3
	<i>Big 10</i>	<i>Big 10</i>	<i>Big 10</i>
<i>LSOE</i>	0.311	0.634*	0.757**
	(0.943)	(1.931)	(2.249)
<i>Post SSSR</i>		0.418***	0.475***
		(4.756)	(3.337)
<i>Post SSSR. LSOE</i>			-0.071
			(-0.405)
<i>Post Document 56</i>		0.844***	0.999***
		(13.990)	(11.465)
<i>Post Document 56. LSOE</i>			-0.304***
			(-2.739)
<i>MDI</i>	0.445***	0.316***	0.310***
	(13.081)	(9.097)	(8.884)
<i>MDI . LSOE</i>	-0.066*	-0.086**	-0.073**
	(-1.850)	(-2.416)	(-1.973)
<i>Ln(Total Assets)</i>	0.457***	0.331***	0.332***
	(11.725)	(7.945)	(7.971)
<i>Sales Growth</i>	-0.179***	-0.214***	-0.222***
	(-3.310)	(-3.905)	(-4.064)
<i>RoA</i>	-0.104	0.115	0.100
	(-0.236)	(0.245)	(0.209)
<i>Leverage</i>	-1.138***	-0.604**	-0.590**
	(-4.146)	(-2.180)	(-2.131)
<i>Current Ratio</i>	0.032*	0.009	0.006
	(1.817)	(0.536)	(0.363)
<i>Receivables & Inventories</i>	-0.700***	-0.642***	-0.648***
	(-2.928)	(-2.634)	(-2.655)
<i>Asset Turnover</i>	-0.077	-0.037	-0.034
	(-0.817)	(-0.382)	(-0.355)
<i>Equity Issuance</i>	-0.130***	-0.115**	-0.116**
	(-2.622)	(-2.272)	(-2.284)
<i>QFII %</i>	-15.519**	-7.090	-6.908
	(-2.249)	(-1.006)	(-0.988)
<i>Institutional Investors</i>	0.071	0.307	0.310
	(0.178)	(0.735)	(0.747)
<i>Constant</i>	-12.896***	-10.511***	-10.638***
	(-14.923)	(-11.550)	(-11.548)
Pseudo R ²	0.132	0.157	0.158
Industry Dummies	Yes		
Region Dummies	Yes		
Observations	15000		

Variables are defined in Table 1. *, ** and *** denote 10%, 5% and 1% significance levels, respectively.

TABLE 7

**DETERMINANTS OF DOMESTIC BIG 6 AND INTERNATIONAL BIG 4
(MULTILOGIT MODEL: NON-BIG-10 AS BASE CASE)**

	Model 1			Model 2			Model 3		
Variables	Domestic Big 6	International Big 4	Difference	Domestic Big 6	International Big 4	Difference	Domestic Big 6	International Big 4	Difference
LSOE	0.438 (1.281)	-1.277 (-1.376)	1.715*** (6.820)	0.906*** (2.658)	-1.671* (-1.737)	2.577*** (6.740)	0.993*** (2.731)	-1.630* (-1.706)	2.623*** (6.820)
Post SSSR				0.816*** (7.382)	-0.788*** (-5.091)	1.604*** (78.540)	0.830*** (4.906)	-0.674** (-2.545)	1.504*** (24.170)
Post SSSR . LSOE							-0.003 (-0.013)	-0.165 (-0.540)	0.162 (0.210)
Post Document 56				1.014*** (16.145)	-0.386** (-2.472)	1.400*** (70.160)	1.148*** (12.794)	-0.422* (-1.897)	1.570*** (45.730)
Post Document 56. LSOE							-0.267** (-2.280)	0.031 (0.125)	-0.298 (1.300)
MDI	0.516*** (14.159)	-0.032 (-0.389)	0.548*** (9.550)	0.353*** (9.742)	0.064 (0.722)	0.289*** (9.990)	0.349*** (9.564)	0.060 (0.671)	0.289*** (9.550)
MDI . LSOE	-0.079** (-2.132)	0.101 (1.050)	-0.180** (4.970)	-0.111*** (-3.002)	0.135 (1.351)	-0.246** (5.800)	-0.101*** (-2.657)	0.142 (1.333)	-0.243** (4.970)
Ln(Total Assets)	0.337***	1.086***	-0.749***	0.171***	1.209***	-1.038***	0.172***	1.210***	-1.038***

	(8.489)	(11.473)	(89.390)	(4.171)	(11.076)	(89.260)	(4.182)	(11.095)	(89.390)
Sales Growth	-0.149***	-0.401***	0.252*	-0.193***	-0.441***	0.248*	-0.200***	-0.441***	0.241*
	(-2.717)	(-3.123)	(3.240)	(-3.441)	(-3.363)	(3.460)	(-3.564)	(-3.359)	(3.240)
RoA	-0.201	3.557	-3.758	-0.041	3.363	-3.404	-0.047	3.318	-3.365
	(-0.488)	(1.608)	(2.230)	(-0.089)	(1.496)	(2.300)	(-0.101)	(1.472)	(2.230)
Leverage	-0.965***	-2.105***	1.140**	-0.267	-2.315***	2.048**	-0.259	-2.307***	2.048**
	(-3.567)	(-2.728)	(6.280)	(-0.980)	(-2.838)	(6.270)	(-0.947)	(-2.829)	(6.280)
Current Ratio	0.046**	-0.199**	0.245**	0.021	-0.170**	0.191**	0.019	-0.170**	0.189**
	(2.574)	(-2.356)	(5.430)	(1.215)	(-2.091)	(5.540)	(1.085)	(-2.096)	(5.430)
Receivables & Inventories	-0.459*	-1.629***	1.170**	-0.336	-1.622***	1.287**	-0.340	-1.628***	1.288**
	(-1.910)	(-2.628)	(4.200)	(-1.371)	(-2.581)	(4.180)	(-1.387)	(-2.590)	(4.200)
Asset Turnover	-0.036	-0.393	0.357*	0.011	-0.441*	0.452*	0.013	-0.438*	0.451*
	(-0.386)	(-1.573)	(3.220)	(0.119)	(-1.771)	(3.240)	(0.130)	(-1.761)	(3.220)
Equity Issuance	-0.084*	-0.378***	0.294**	-0.061	-0.359***	0.298**	-0.062	-0.359***	0.297**
	(-1.656)	(-2.823)	(4.760)	(-1.191)	(-2.691)	(4.780)	(-1.199)	(-2.694)	(4.760)
QFII %	-27.471***	17.381	-44.852**	-18.748**	15.246	-33.994***	-18.626**	15.085	-33.711**
	(-3.709)	(1.402)	(6.550)	(-2.462)	(1.196)	(6.670)	(-2.456)	(1.181)	(6.550)
Institutional Investors	-0.182	0.718	-0.900	0.041	0.620	-0.579	0.045	0.625	-0.580
	(-0.463)	(0.671)	(0.280)	(0.102)	(0.583)	(0.280)	(0.110)	(0.588)	(0.280)
Constant	-10.847***	-26.555***		-7.920***	-28.819***		-8.006***	-28.884***	
	(-12.392)	(-11.753)		(-8.782)	(-11.608)		(-8.679)	(-11.635)	
Pseudo R2	0.160			0.197			0.197		
Industry Dummies	Yes								
Region Dummies	Yes								
Observations	15000								

Variables are defined in Table 1. *, ** and *** denote 10%, 5% and 1% significance levels, respectively. The significance in difference test is based on χ^2 test.

APPENDIX A						
AVERAGE MDI SCORE FOR EACH PROVINCE THROUGHOUT THE STUDY PERIOD 2003 TO 2014						
Province	MDI	CMI	GDI	LEI	FMI	PMI
Anhui	8.87	9.68	8.98	7.96	9.43	8.31
Beijing	11.40	8.43	8.62	17.15	11.96	10.84
Chongqing	8.71	9.07	8.64	8.43	9.27	8.15
Fujian	10.07	11.47	9.42	9.31	10.63	9.51
Gansu	4.53	2.82	5.6	5.17	5.09	3.97
Guangdong	12.17	11.19	9.58	15.75	12.73	11.61
Guangxi Zhuang	6.87	7.6	8.22	4.79	7.43	6.31
Guizhou	4.99	4.65	6.1	4.22	5.55	4.43
Hainan	7.06	8.02	6.87	6.3	7.62	6.50
Hebei	7.93	10.41	8.07	5.3	8.49	7.37
Heilongjiang	6.24	5.6	7.41	5.71	6.80	5.68
Henan	8.53	11.01	8.32	6.26	9.09	7.97
Hubei	8.27	9.11	8.48	7.23	8.83	7.71
Hunan	7.72	8.46	7.47	7.23	8.28	7.16
Inner-Mongolia	6.28	7.34	6.2	5.3	6.84	5.72
Jiangsu	16.00	12.96	9.87	25.16	16.56	15.44
Jiangxi	7.72	9.08	7.76	6.32	8.28	7.16
Jilin	7.18	8.33	7.37	5.84	7.74	6.62
Liaoning	9.28	11.19	7.81	8.84	9.84	8.72
Ningxia Hui	6.22	8.45	6.19	4.01	6.78	5.66
Qinghai	3.94	4.22	4.39	3.21	4.50	3.38
Shaanxi	5.42	4.45	6.34	5.48	5.98	4.86
Shandong	9.89	12.15	8.71	8.8	10.45	9.33
Shanghai	13.05	8.61	9.62	20.91	13.61	12.49
Shanxi	5.25	3.58	6.7	5.47	5.81	4.69
Sichuan	8.11	8.22	8.17	7.95	8.67	7.55
Tianjin	9.68	8.5	8.95	11.6	10.24	9.12
Tibet	3.62	3.11	4.35	3.4	4.18	3.06
Xinjiang Uygur	4.72	4.1	5.28	4.79	5.28	4.16
Yunnan	6.22	6.03	7.31	5.31	6.78	5.66
Zhejiang	15.41	12.53	9.49	24.2	15.97	14.85
Average	8.11	8.08	7.62	8.63	8.67	7.55

Market Extracted from the National Economic Research Institute (NERI) periodic reports on Index of Marketisation of China's provinces 2003 to 2014. Market Development Index (MDI) overall score as well as Credit Market Index (CMI), Government Decentralisation Index (GDI), Legal Environment Index (LEI), Factor Market Index (FMI) and Product market Index (PMI).

APPENDIX B											
CICPA TOP-10 CHINA AUDIT FIRMS FOR THE PERIOD FROM 2003 TO 2014											
2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
PwC	PwC	PwC	PwC	PwC	PwC	PwC	PwC	PwC	PwC	PwC	PwC
KPMG	KPMG	KPMG	Ernst & Young	Ernst & Young	Ernst & Young	Ernst & Young	Deloitte	Deloitte	Deloitte	Deloitte	Deloitte
Deloitte	Deloitte	Deloitte	Deloitte	Deloitte	Deloitte	Deloitte	KPMG	KPMG	Ernst & Young	Ruihua	Ruihua
Ernst & Young	Ernst & Young	Ernst & Young	KPMG	KPMG	KPMG	KPMG	Ernst & Young	Ernst & Young	KPMG	Ernst & Young	BDO
BDO	BDO	BDO	BDO	BDO	RSM	RSM	RSM	RSM	BDO	BDO	Ernst & Young
Jiangxi	Yue Hua	Shine Wing	Yue Hua	Ruihua	BDO	BDO	BDO	BDO	RSM	KPMG	KPMG
Rightson	Shine Wing	Asia-Pacific	Shine Wing	Shine Wing	Shine Wing	Wan Long	Shine Wing	Crowe Horwath	Pan-China	Daxin	Pan-China
Jingdu	Asia-Pacific	Yue Hua	Wan Long	Asia-Pacific	Daxin	Pan-China	Pan-China	Pan-China	Shine Wing	Pan-China	Da Hua
Shine Wing	Rightson	Rightson	Asia-Pacific	Rightson	Wan Long	Daxin	Crowe Horwath	Shine Wing	Crowe Horwath	Shine Wing	Shine Wing
Asia-Pacific	Jiangsu Notary	Jingdu	Rightson	Wan Long	Leanda	Shine Wing	Daxin	Daxin	Da Hua	Da Hua	Daxin

Big 10 audit firms based on The Chinese Institute of Certified Public Accountants (CICPA) Top-100 Accounting Firms annual reports

APPENDIX C							
SUMMARY STATISTICS							
Variable	Mean	S.D.	Min.	25%	Median	75%	Max.
International Big 4 %	0.05	-	-	-	-	-	-
Domestic Big 6 %	0.30	-	-	-	-	-	-
LSOE %	0.48	-	-	-	-	-	-
MDI	8.99	2.39	2.60	7.27	8.99	11.04	13.33
QFII %	0.001	0.004	0.00	0.00	0.00	0.00	0.04
Institutional Investors %	0.05	0.09	0.00	0.00	0.02	0.07	0.74
Ln(Total Assets)	21.58	1.17	18.60	20.80	21.50	22.26	26.05
Sales Growth	0.12	0.39	-2.02	-0.03	0.11	0.26	2.25
RoA	0.03	0.08	-0.82	0.01	0.03	0.06	0.34
Leverage	0.20	0.16	0.00	0.07	0.19	0.31	1.07
Current Ratio	1.83	1.94	0.10	0.90	1.29	1.97	20.82
Receivables & Inventories	0.28	0.18	0.00	0.14	0.25	0.38	0.83
Asset Turnover	0.66	0.48	0.02	0.34	0.55	0.83	3.00
Equity Issuance	0.30	-	-	-	-	-	-

Data covers the period from 2003 to 2014 including 15,000 firm-year observations. Variables are defined in Table 1. All continuous variables are winsorized at the top and bottom 1%.

APPENDIX D

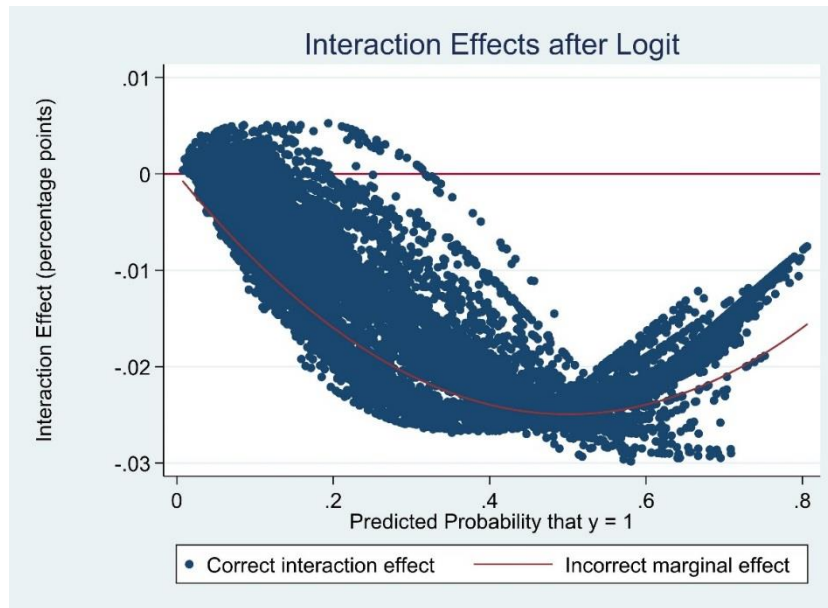
INTERACTION EFFECTS ANALYSIS

In this section, I analyse the interaction effects in the estimation models following Ai and Norton (2003) and Norton *et al.* (2004). In particular, I use the STATA command '*inteff*' that was developed by Norton *et al.* (2004). This command considers the nonlinear nature of the logit regression and derives the standard errors for the interaction effect by applying the Delta method proposed by Ai and Norton (2003). By doing so, I allow the interaction effect to vary for each observation based on the predicted probability that the dependent variable is equal to one. I then present the results in graphs for both the magnitude and the significance of the interaction effect for each of the interaction terms used in the analysis.

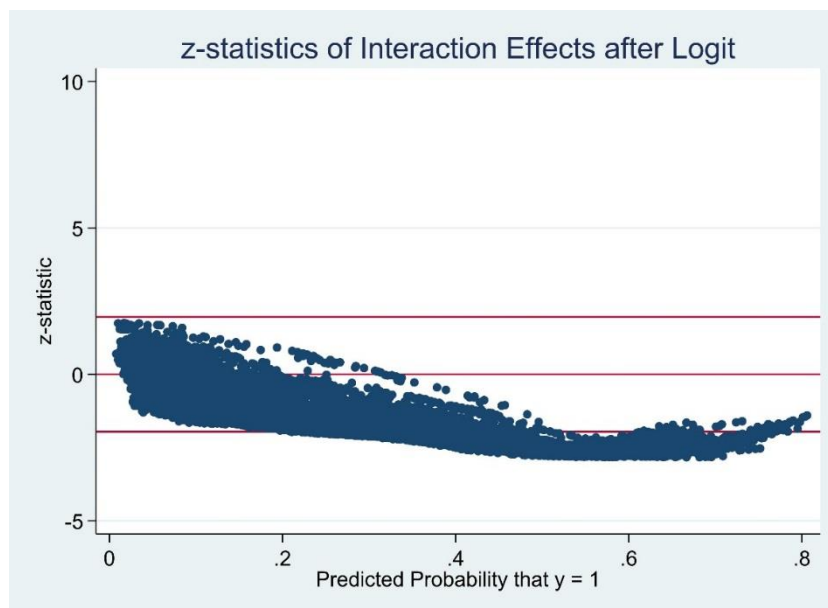
- a. The interaction effect of LSOE . MDI (Domestic Big 6 relative to non-Big-10 audit firms).

Graph 1 shows that the interaction effect for 'LSOE . MDI' is positive when the likelihood that the firm will pick a domestic Big 6 audit firm is small, while it is negative when the predicted probability is relatively high. Nonetheless, the interaction effect becomes significant only when the probability to pick a domestic Big 6 audit firm is relatively big. Hence, the moderating role of MDI takes effect when the predicted probability to pick a domestic Big 6 audit firm is high.

Graph 1 (a): Interaction effect magnitude of 'LSOE . MDI'



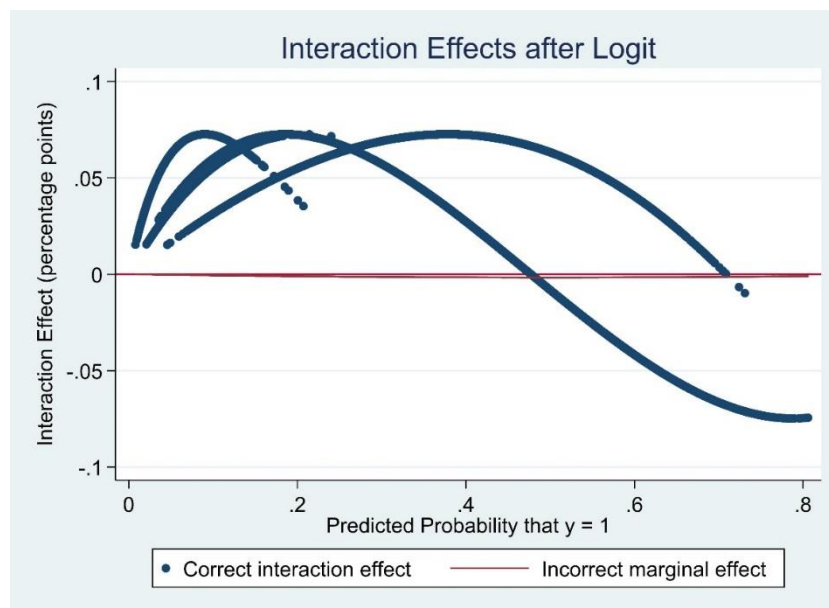
Graph 1 (b): Interaction effect significance of 'LSOE . MDI'



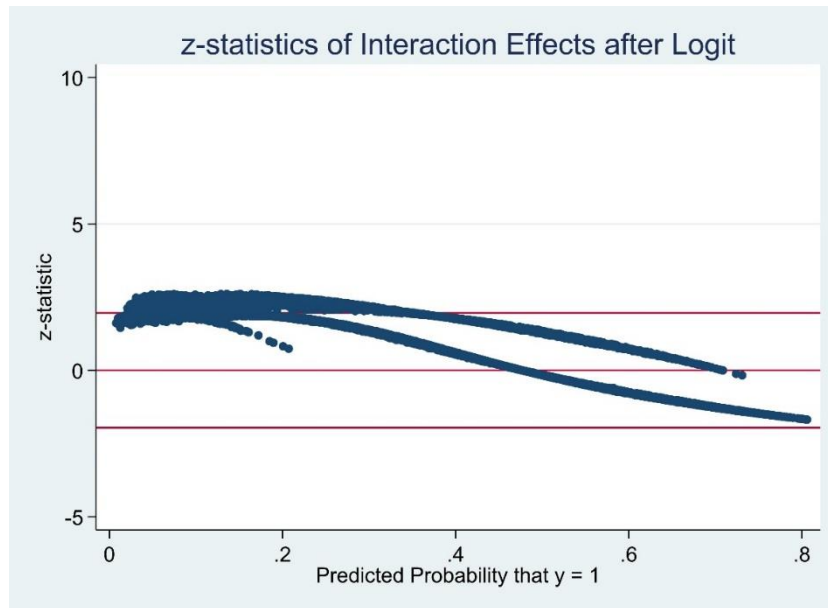
- b. The interaction effect of LSOE . SSSR (Domestic Big 6 relative to non-Big-10 audit firms).

Graph 2 analyses that the interaction effect for ‘LSOE . SSSR’. The interaction effect is mainly positive for all observations. However, it is only significant when the likelihood that the firm will pick a domestic Big 6 audit firm is relatively small. Therefore, the SSSR increases the probability that an LSOE firm will pick a domestic Big 6 auditor when the probability for this tendency is relatively small.

Graph 2 (a): Interaction effect magnitude of ‘LSOE . SSSR’



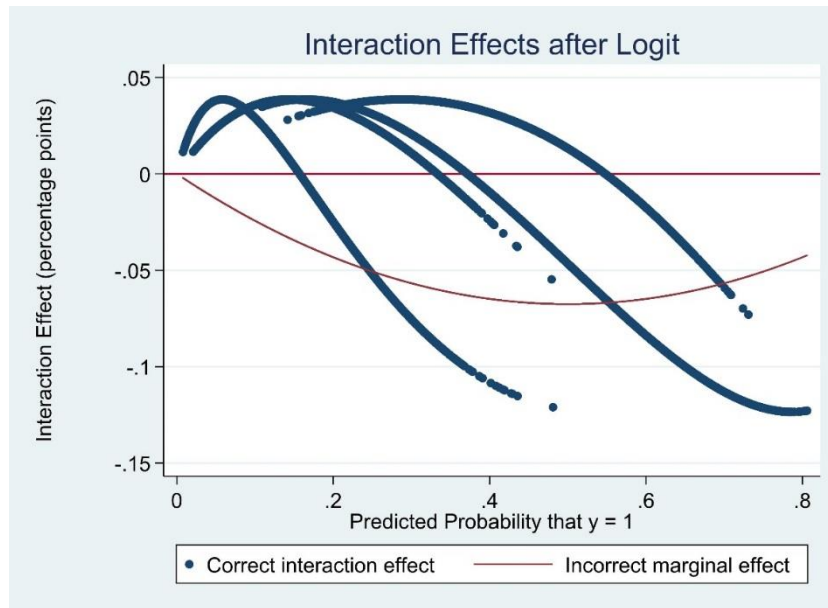
Graph 2 (b): Interaction effect significance of 'LSOE . SSSR'



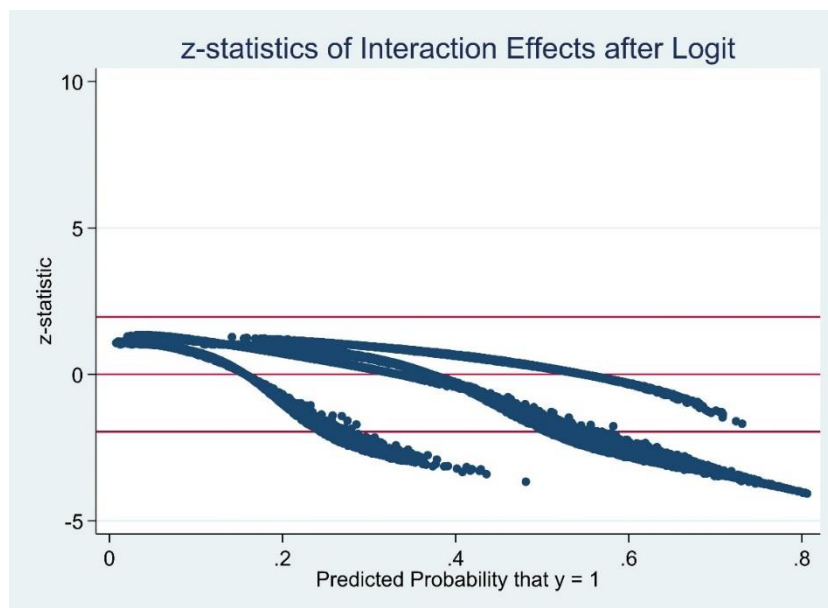
- c. The interaction effect of LSOE . Document 56 (Domestic Big 6 relative to non-Big-10 audit firms).

In Graph 3, I test the magnitude and significance of the moderating role of Document 56 on state influence. The graph shows a positive interaction effect for observations with low probability to pick a domestic Big 6 audit firm, while a negative impact for observations with high likelihood to pick this type of firms. Nonetheless, only the negative interaction effect seems to be significant.

Graph 3 (a): Interaction effect magnitude of 'LSOE . Document 56'



Graph 3 (b): Interaction effect significance of 'LSOE . Document 56'

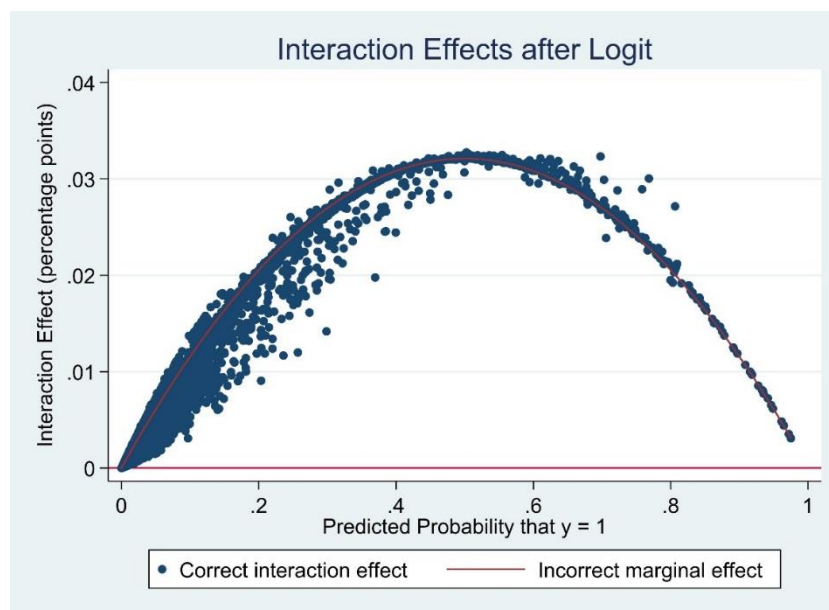


- d. The interaction effect of LSOE . MDI (International Big 4 relative to non-Big-10 audit firms)

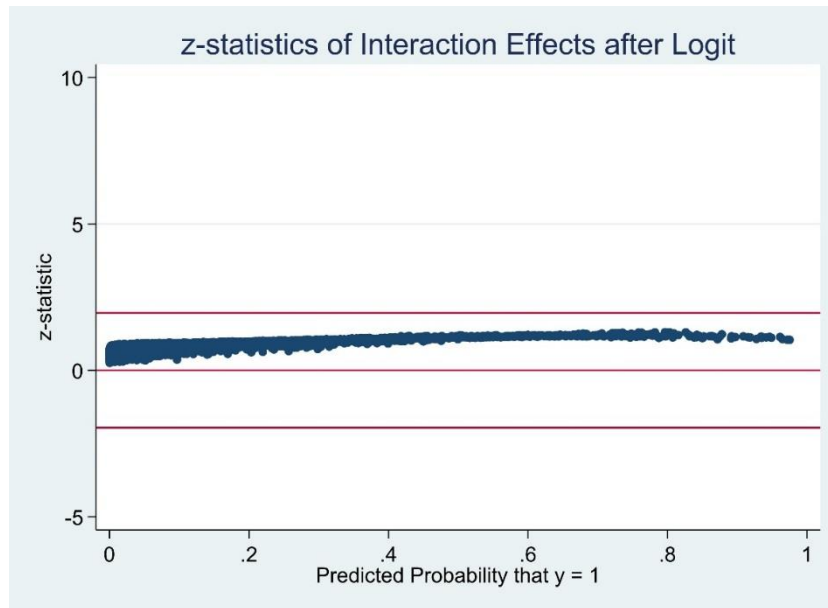
The remaining graphs test the magnitude and significance of the same interaction effect (i.e. LSOE with MDI, SSSR and Document 56), for the other audit choice comparisons (i.e. International Big 4 relative to non-Big-10 audit firms and Domestic Big 6 relative to International Big 4 audit firms).

Graph 4 shows an overall positive interaction effect of LSOE and MDI. However, the interaction effect is not statically significant.

Graph 4 (a): Interaction effect magnitude of 'LSOE . MDI'



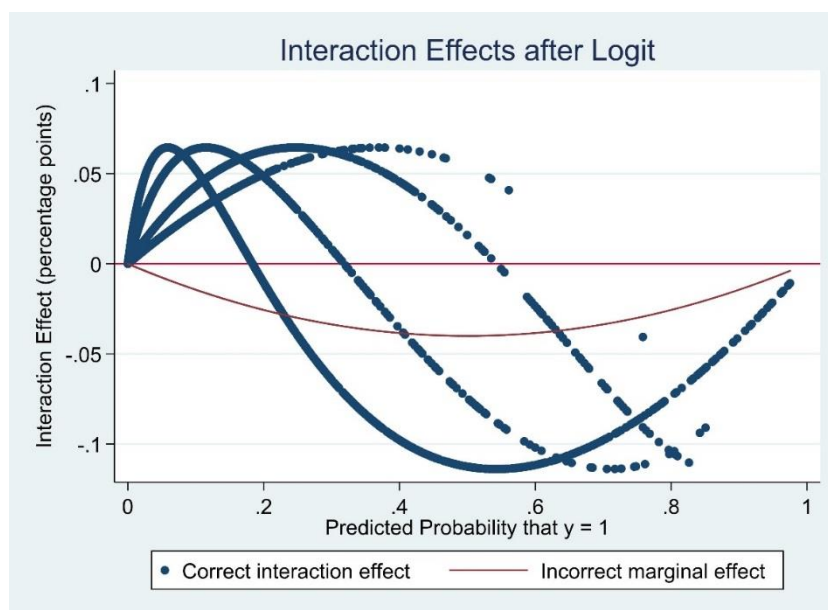
Graph 4 (b): Interaction effect significance of 'LSOE . MDI'



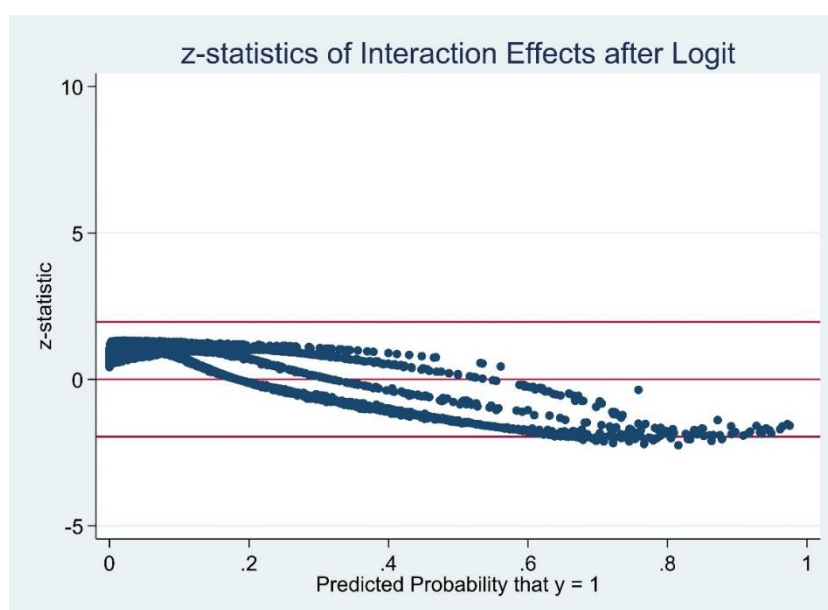
- e. The interaction effect of LSOE . SSSR (International Big 4 relative to non-Big-10 audit firms).

Graph 5 shows a fluctuation in the magnitude of the interaction effect of LSOE and SSSR. However, these interaction effects are not significant.

Graph 5 (a): Interaction effect magnitude of 'LSOE . SSSR'



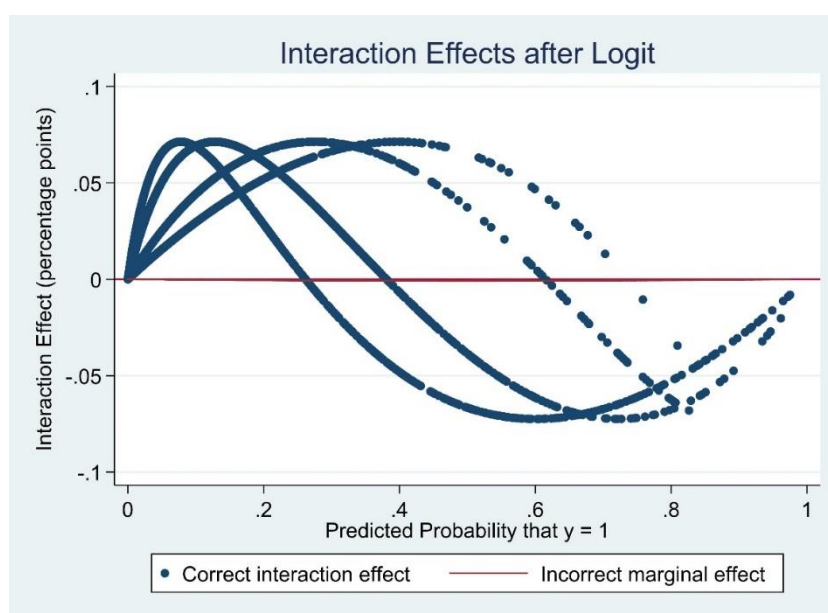
Graph 5 (b): Interaction effect significance of 'LSOE . SSSR'



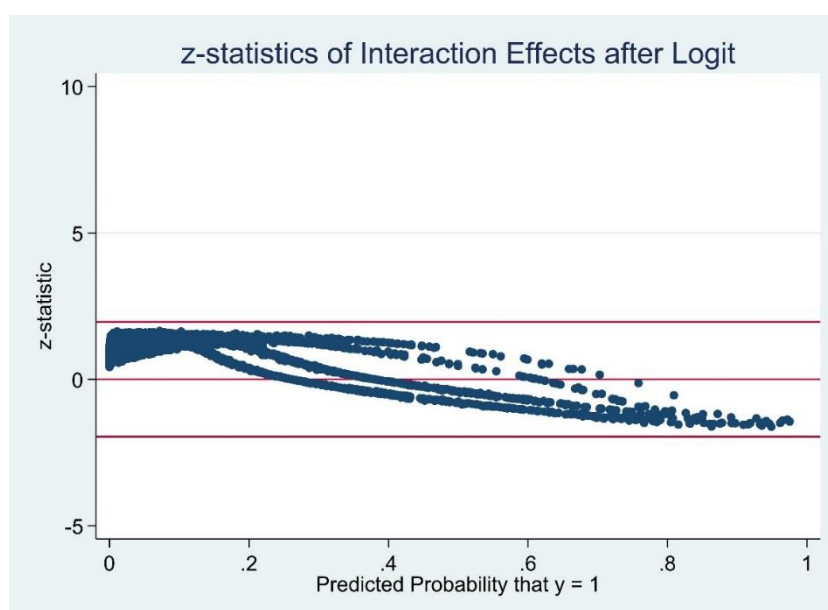
- f. The interaction effect of LSOE . Document 56 (International Big 4 relative to non-Big-10 audit firms).

Similarly, Graph 6 shows an insignificant impact of Document 56 in moderating state influence.

Graph 6 (a): Interaction effect magnitude of 'LSOE . Document 56'



Graph 6 (b): Interaction effect significance of 'LSOE . Document 56'

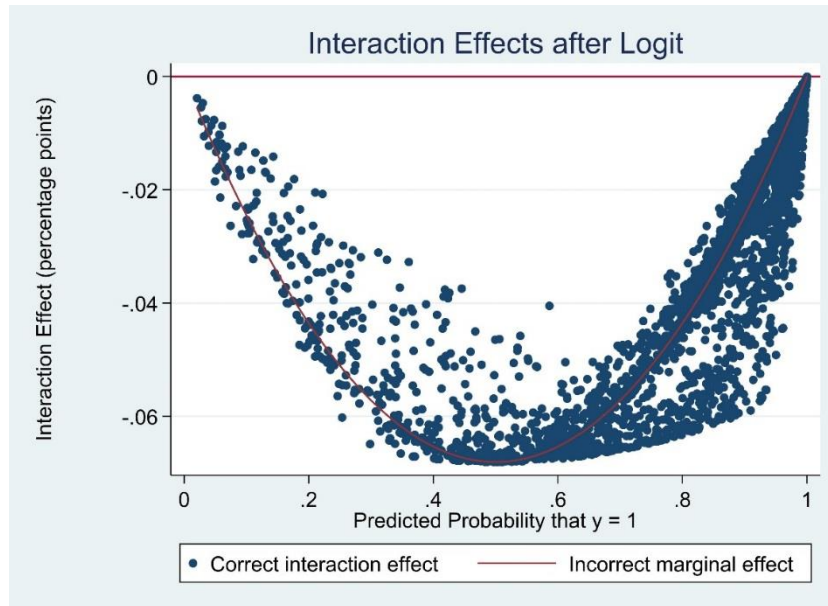


- g. The interaction effect of LSOE . MDI (Domestic Big 6 relative to International Big 4 audit firms).

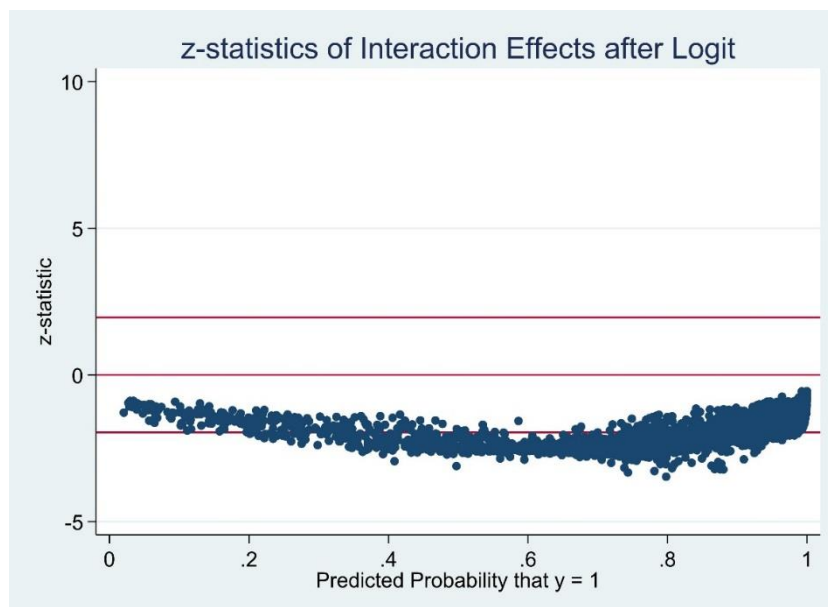
The third and final comparison is between domestic Big 6 auditor choice relative to the international Big 4 audit firms. Graph 7 shows a negative interaction effect

of LSOE and MDI, which is significant for observations with high probability to pick a domestic Big 6 audit firm. Hence, the results show that in regions with higher market development scores, LSOEs are more likely to pick international Big 4 audit firms.

Graph 7 (a): Interaction effect magnitude of ‘LSOE . MDI’



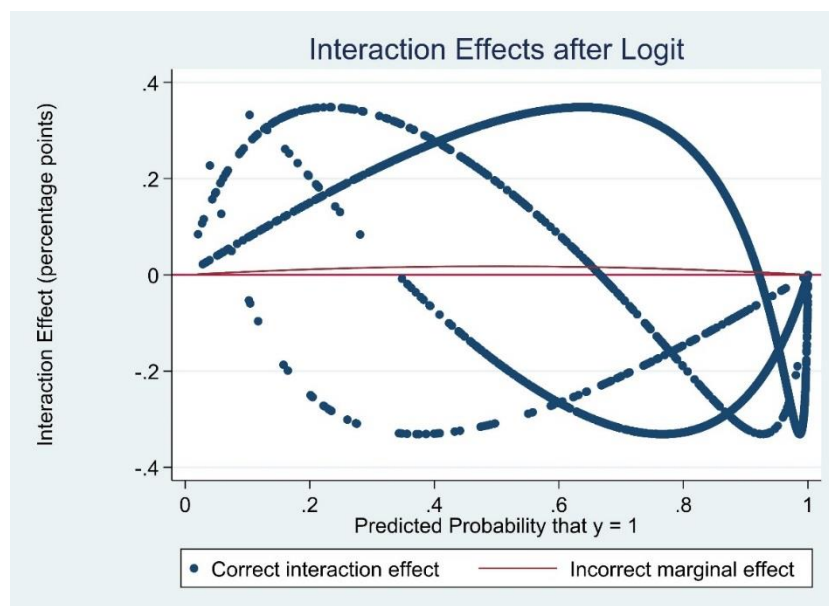
Graph 7 (b): Interaction effect significance of ‘LSOE . MDI’



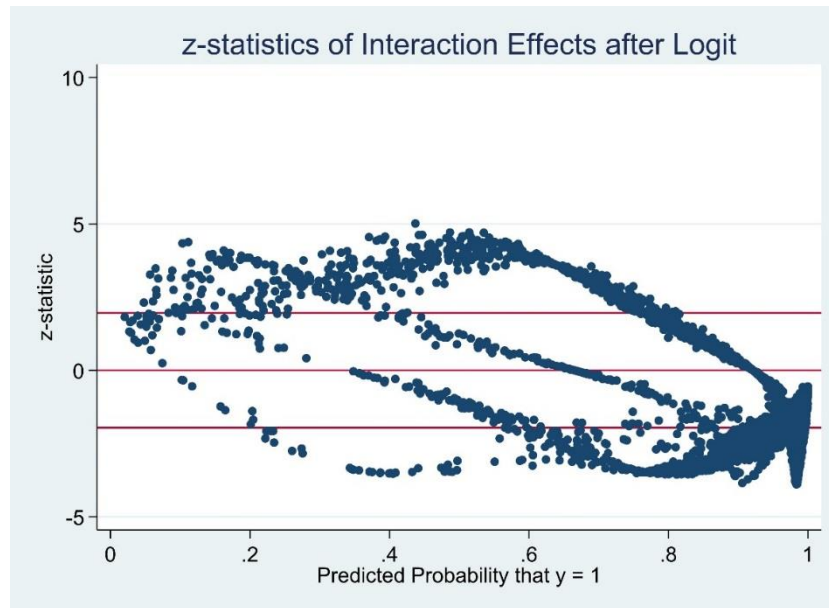
- h. The interaction effect of LSOE . SSSR (Domestic Big 6 relative to International Big 4 audit firms).

Graph 8 shows a fluctuation in both the magnitude and the significance of the interaction between LSOE . SSSR for the case of domestic Big 6 relative to international Big 4 audit firms. This fluctuation indicates that the interaction effect depends on each observation, and that we cannot provide a single magnitude and significance test for this interaction term using the coefficient of the interaction term like in linear regressions.

Graph 8 (a): Interaction effect magnitude of ‘LSOE . SSSR’



Graph 8 (b): Interaction effect significance of ‘LSOE . SSSR’

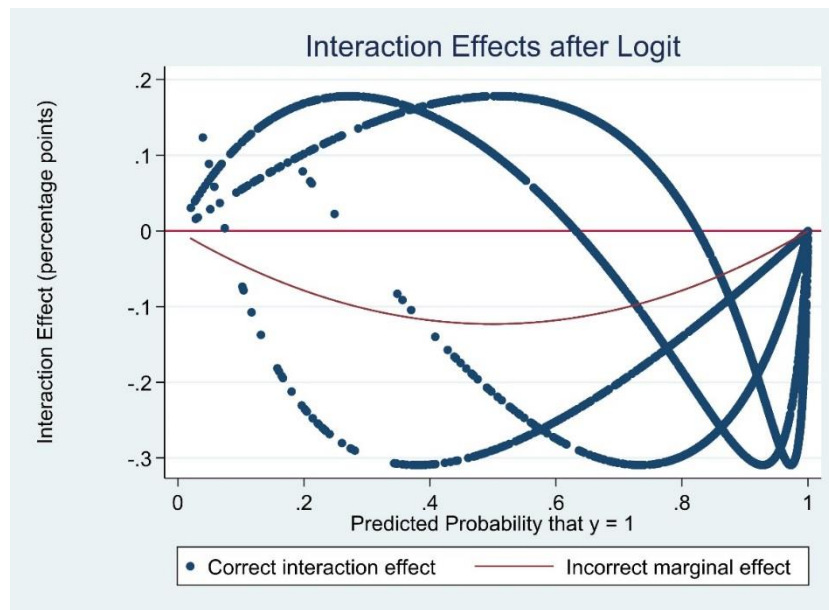


- i. The interaction effect of LSOE . Document 56 (Domestic Big 6 relative to International Big 4 audit firms).

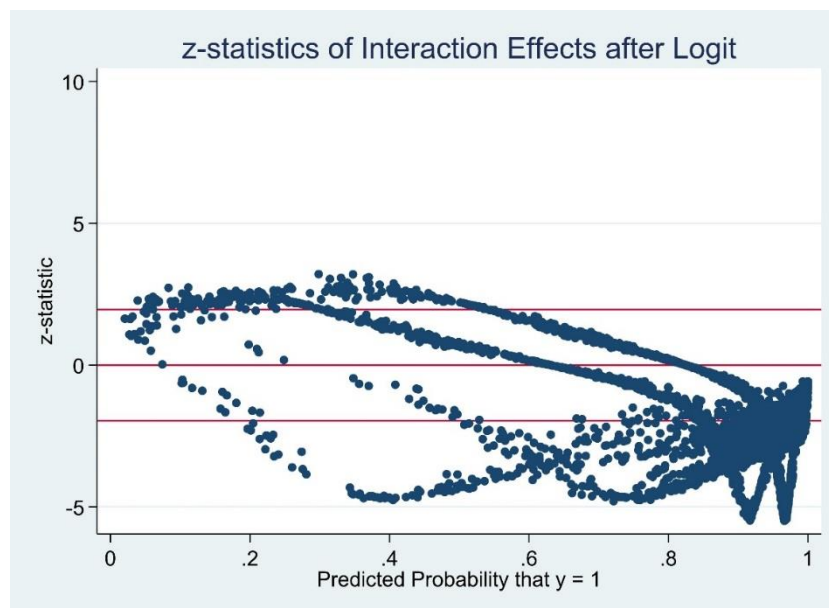
A similar result is provided in Graph 9 for the moderating effect of Document 56. In particular, the interaction effect magnitude and significance level highly dependent on how the other variables affect each observation.

In summary, the analysis of the interaction effects for nonlinear regressions (i.e., logit and probit) provides more detailed and accurate results for the interaction effects compared with testing the magnitude and significance of the coefficient of the interaction terms. This section provides these additional estimates and analyses each of the interaction terms used in the estimation models and discusses them individually and in the light of the other estimates provided in the results section of this chapter.

Graph 9 (a): Interaction effect magnitude of 'LSOE . Document 56'



Graph 9 (b): Interaction effect significance of 'LSOE . Document 56'



4. AUDITOR INDEPENDENCE IN CHINA: EVIDENCE FROM CHINA'S RECENT REFORMS

Abstract

This chapter studies auditor independence in China throughout the period from 2003 to 2014. In particular, it investigates how China's recent structural reforms (i.e., the Split-share Structure Reform (SSSR) in 2005 and the announcement of Document 56 in 2009), and market development, influence auditor independence in the country. It uses the propensity to issue a modified auditor opinion (MAO) as a surrogate for auditor independence. Studying a sample of 1,826 Chinese listed firms over the period 2003 to 2014, the results show that Local State-owned Enterprises (LSOEs) are less likely to receive an MAO compared with Non-state-owned Enterprises (NSOEs). If an LSOE appoints a Big 10 auditor this lower propensity to receive an MAO declines. Although I do not observe a significant impact of market development on auditor independence, the results show a decline in the propensity to issue an MAO in the period after the SSSR. Nevertheless, after the announcement of Document 56, there is a significant increase in the propensity to issue MAOs. A detailed analysis shows that this tendency is mainly through attaching an 'emphasis of matter paragraph' to an unqualified audit opinion instead of issuing an audit qualification. This study contributes to the literature in two ways. First, it gives an empirical investigation into how government ownership and regional market development affect auditor independence in China. Second, it provides

regulators and policy-makers with some evidence for evaluating how the SSSR in 2005 and Document 56 in 2009 affected auditor independence in the country.

4.1. INTRODUCTION

This study examines auditor independence in China over the period 2003 to 2014. In more developed markets (e.g., in the UK and the US), studies use the propensity that an auditor will issue a qualified auditor opinion (e.g., to report any material misstatements in the financial statements when they are detected) as a surrogate for auditor independence. Hence, the research design for these studies design a qualitative response model that estimates the propensity to issue an MAO relative to a standard unqualified auditor opinion to indicate higher auditor independence.⁴⁴

The chapter explores the effects of three important issues in the Chinese financial market during the study period.⁴⁵ These include some structural reforms in the Chinese economy that create an institutional environment different from more capitalist economies such as the UK and the US. Hence, this paper is motivated by literature on China state capitalism (Wang *et al.*, 2008; Chen *et al.*, 2010; Piotroski *et al.*, 2015; Wong, 2016) and auditor independence in China (DeFond *et al.*, 2000; Chen *et al.*, 2001). The first important issue is firms' ownership structure in China's stock markets. Different from more capitalist economies (i.e., the UK and the US), the ownership in the Chinese stock market is not diffused. In contrast, the state in China exerts some type of control over most

⁴⁴ In this study, I am following a similar research design, after allowing for three-fold comparisons of the possible outcomes of an auditor report in China as follows - standard unqualified auditor opinion, unqualified auditor opinion with emphasis of matter paragraph, and MAO (i.e., qualified opinion, an adverse opinion, or a disclaimer of opinion).

⁴⁵ The same three issues were taken into account in Chapter 3 that studies ownership structure and auditor choice in China.

listed firms (Wong, 2016) where many of the Chinese listed firms are either sponsored or administered by state agencies at various levels of the government.

Wang *et al.* (2008) highlight how this market structure affects the accounting profession in China. In particular, they argue that State-owned Enterprises (SOEs) can affect small audit firms' reports to their benefit (i.e., a collusion between the state agencies and small audit firms). This ownership structure dominated by the state, however, has been changing since China started its third wave of privatisation through the SSSR in 2005.⁴⁶ The SSSR involved the Chinese government effecting a transformation of SOE non-tradable shares held by the 'state' into tradable shares, in order to reduce agency problems and develop the capital market (Li *et al.* 2011; Liao *et al.* 2014).

Secondly, after the SSSR was executed, the State Council in China started a five-year strategy to develop Chinese domestic accounting firms. Known as "Document 56", it states "A Number of Opinions on Accelerating the Development of Certified Public Accountants" (Gillis 2014, 242) with the aim to create capable audit firms that can compete with the international Big 4 audit firms, along with a set of medium and small audit firms that can provide audit services to firms of different sizes in China. Again, such a reform in the accounting industry that aims to improve the accounting profession might also affect previous findings about auditor independence in China.

⁴⁶ After China introduced LSOEs to replace government ministries in 1978, and its introduction of NSOEs in the early 1990s, China started the third stage of privatisation with the SSSR, between 2005 and 2009, that converts all non-tradable state shares into tradable A-shares.

Finally, I also investigate the differences between China's different regions. In China, the 31 different provinces can be divided based on market development. As China's legal enforcement and the application of courts are weak, the state might still dominate the economy, in some regions, even when it gives up direct control (Wong, 2016). I use The National Economic Research Institute (NERI) index of marketisation to distinguish between China's different provinces based on: i) credit market development; ii) government decentralisation; iii) legal environment; iv) product market development; and, v) factor market development.⁴⁷ Hence, I calculate an average Market Development Index (MDI) that gives a score for each province based on the aforementioned criteria. This allows an investigation into how market development affects auditor independence in China based on an MDI score for where each firm is based (i.e., using China's 31 provinces and the NERI market development score for each year).

To investigate my conjectures, I use the propensity to issue an MAO to act as a surrogate for auditor independence. Although firms can dodge MAOs using the flexibility of the accounting standards (Chen *et al.* 2001), doing so might affect how investors, creditors and regulators look at the company's profile. Hence, initially, I run Binary Logistic Regression (BLR) capturing the determinants of MAOs, with one group representing MAOs (i.e., unqualified auditor opinion with an emphasis of matter paragraph, qualified auditor opinion, adverse opinion, or a disclaimer of opinion), and the other being a standard unqualified

⁴⁷ See Appendix A for the average MDI score for each province over the study period 2003 to 2014.

auditor opinion. The higher the propensity to issue an MAO, when appropriate, indicates higher auditor independence. I also investigate whether an MAO is translated by an auditor qualification, or by an emphasis of matter paragraph attached to an unqualified auditor opinion, unlike in previous literature that use a binary outcome for auditor report (DeFond *et al.*, 2000; Haw *et al.*, 2003; Gul *et al.*, 2009; Chen *et al.*, 2016). To investigate this issue, I run a multinomial logistic regression model (MLR) that allows a comparison between three types of auditor opinion (i.e., standard unqualified auditor opinion, unqualified auditor opinion with an emphasis of matter paragraph and any other type of MAOs). The distinction between these three types of auditor opinion is important to show if ownership type (i.e., LSOE or NSOE) affects the type of MAO given to the firm (i.e., emphasis of matter paragraph, qualified opinion, an adverse opinion, or a disclaimer of opinion).

The empirical results show that the auditors of LSOEs exhibit lower auditor independence compared with the auditors of NSOEs. Big 10 auditor choice (both the international Big 4 and the domestic Big 6) does not seem to affect the relative probability that NSOEs will receive an MAO. However, it moderates the negative impact of LSOEs on auditor independence. The results also show a decrease in MAOs in the period after the SSSR, followed by an increase in MAOs in the period after the announcement of Document 56.

This improvement in auditor independence, however, is only translated by higher likelihood to issue an unqualified auditor opinion with an emphasis of matter paragraph instead of an audit qualification, however. The results do not

suggest a positive impact of market development on audit independence, as the coefficients are not statistically significant. Furthermore, I do not find that the structural reforms (i.e., the SSSR and Document 56) alter the impact of state control on auditor independence. This is consistent with Wong's (2016) findings that the state in China exerts some type of control over listed firms, even when it gives up direct ownership.

This study contributes to auditor independence literature in two ways. First, it helps in understanding how the institutional environment of the firm affects the independence of its auditor. Also, it helps regulators evaluate how the new rules and regulations e.g., the SSSR and Document 56, help improve auditor independence. The remainder of the paper proceeds as follows. Section 2 introduces relevant literature and develops the research hypotheses. Section 3 introduces the research methodology, while data details are presented in Section 4. The results are discussed in Section 5, and Section 6 concludes the study.

4.2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The demand for external audit services is a consequence of the agency problem arising between the owners of a firm and its management, due to the separation between management and ownership (DeAngelo, 1981). Auditors play an external oversight role to assure that the financial statements are prepared in accordance with the accounting standards. To do so, they are required to issue an auditor opinion to assert that, based on the acquired evidence, the financial statements are reliable, and the firm will be able to achieve the going concern

accounting convention. Hence, the auditor of the firm should become familiar with the client's business, assess its management decisions, check internal control procedures and obtain evidence that the client's financial statements are being prepared in accordance with the accounting standards (Habib, 2013).

As a result, auditors can provide one of the three types of auditor opinions: an unqualified opinion to confirm that their investigation does not identify any material misstatement in the financial statements provided. Alternatively, in some cases, the auditor can issue an emphasis of matter statement to highlight some concerns related to the firm's ability to accomplish the going concern convention (i.e., pending lawsuits). Or, in more severe scenarios, the auditor can issue an audit qualification, adverse opinion or disclaimer of opinion. Consistent with a higher audit quality be defined as "greater assurance that the financial statements faithfully reflect the firm's underlying economics, conditioned on its financial reporting system and innate characteristics" (DeFond and Zhang, 2014). The propensity to issue an MAO, when appropriate, indicates the independence part of audit quality (i.e., the audit firm will report any material misstatement if detected) (DeAngelo, 1981).

In the US context, Francis (2004) argues that MAOs only matter when the auditor is considered to be providing a high quality audit. As a result, an audit qualification report would not necessarily cause a bad reaction from investors compared to an MAO issued by a high quality audit firm. Audit opinion research can be summarised into studies that investigate how audit-specific variables (i.e., audit firm size, audit report lag and audit tenure) and client-specific variables

(i.e., client size, client profitability and client risk) affect MAOs (Habib, 2013). For instance, DeFond *et al.* (2002) use auditor propensity to issue an MAO as a surrogate for auditor independence, and study how audit-specific variables, in particular, total audit fees and non-audit fees, affect auditor independence for 1,158 financially distressed US listed firms. In their study, they argue that market-based institutional incentives (i.e., litigation risk and loss of reputation) outweigh the benefits from compromising audit independence by charging higher audit fees, and they find no association between audit fees or non-audit fees with the propensity to issue an MAO.

Lai (2003) examines how regulations limiting non-audit services can help enhance auditor independence using the propensity to issue an MAO as a proxy for auditor independence. In his study, he investigates the association between the passing of the Sarbanes-Oxley Act, in July 2002, and auditors' propensity to issue MAOs. Using a sample of 12,115 firm-year observations in the period 2000 to 2002, he finds an increase in the likelihood of issuing an MAO after the passing of the Act. The results are also robust to the use of discretionary accruals as an alternative proxy for audit quality, confirming that auditors became more conservative after the passing of the Act. Hence, the Sarbanes-Oxley Act has improved auditor independence by limiting the scope of non-audit fees services.

Among the early studies that examine auditor independence and market deregulation in China, Gul *et al.* (2009) investigate the Auditor Disaffiliation Programme that was executed between 1997 and 1998 to eliminate the subscription of audit firms to the local governments. The disaffiliation

programme aimed to improve auditor independence in China. By studying a sample of 1,248 Chinese listed firms through the period 1995 to 2000, they find that, after the completion of the disaffiliation programme, the likelihood of receiving MAOs increased substantially. They also report that this effect is more pronounced amongst small audit firms rather than big reputable audit firms (i.e., Big 10 audit firms).

With regards to regulations that aim to limit management opportunistic behaviours and improve auditor independence in China, Chi *et al.* (2013) study the effect of two rules in 2004 issued by China's State-owned Assets Supervision and Administration Commission (SASAC). First, the SASAC is responsible for assigning the auditor for CSOEs and, secondly, these firms should retain the assigned auditor for a minimum of two years and a maximum of five years. The new rules, affecting only CSOEs, allow them to study the impact of these regulations on audit quality. They find that the new rules enhance audit quality for CSOEs compared to other firms, using abnormal accruals and the propensity to receive MAOs as proxies for higher quality audit.

DeFond *et al.* (2000) also study the impact of China's adoption of new auditing standards, which replaced the CICPA audit guidance in the 1990s, on auditor independence. First, the Ministry of Finance (MOF) started to establish legal penalties for standards violations and, second, it issued new disclosure rules and regulations regarding the format of the annual reports and accounting consolidations that limit managers' use of discretions. Using a sample of 1,286 firm-year observations for the period 1993 to 1996, they find that the new

regulations enhance auditor independence using MAOs as a proxy for higher auditor independence. Although the propensity to issue a qualified audit opinion, when appropriate, was found to be associated with higher audit independence, DeFond *et al.* (2000) report a “flight from quality” behaviour by Chinese firms after the adoption of new regulations, where firms will tend to avoid higher quality audit firms in the periods of IPO.

Chen *et al.* (2001) further investigate the effects of profitability regulations on management opportunistic behaviour, and the role of audit quality, measured by the propensity to issue an MAO, to study whether firms tend to manipulate financial reports in order to meet stock de-listing targets, or in cases of IPO. Using a sample of 1,521 firm-year observations during the period 1995 to 1997, they find that firms engaging in earnings management activities are more likely to receive MAOs. Chen *et al.* (2010), also, examine the impact of legal and regulatory changes that increase litigation and sanction risks by auditors on audit quality. The regulations they study state that auditors are required to sign audit reports according to China’s Independent Auditing Standard (CIAS) and that two Certified Public Accountants (CPAs) must sign the audit report and specify those responsible for the audit performed and, hence, responsible for regulatory sanctions related to audit failure.

They find that audit quality, measured by the propensity to issue MAOs, has increased as a result of these legal and regulatory changes, using a sample of 8,917 firm-year observation for the period from 1995 to 2004. Firth *et al.* (2012) also, investigate the effect of regulations that affect auditor tenure on audit

quality. In particular, they investigate how the different forms of auditor rotation (i.e., mandatory auditor rotation and voluntary auditor rotation) affect audit quality in China. Their initial sample includes 9,761 firm-year observations over the period 1997 to 2005, and they find that auditor independence for mandatory auditor rotation firms is higher compared with no-rotation firms.

Despite the rich literature on auditor independence in China, a common characteristic of previous studies is that they focus on the overall effect of new regulations on enhancing auditor independence in China. Nevertheless, they do not consider the setting of the Chinese financial market and its reforms. In particular, previous literature on audit regulations that aim to limit management opportunistic behaviours (Chen *et al.*, 2001; Chen, 2010; Firth *et al.*, 2012) do not include variables that control for state ownership in their estimation models. Another characteristic of previous literature on auditor independence in China is that it does not generally distinguish between big and small audit firms and, if it does so, it does not distinguish between big international and domestic audit firms. Finally, other than Firth *et al.* (2012), regulations affecting auditor independence in China are considered to have the same effect across China's different regions.

This study, however, considers China's state capitalism and its reforms (e.g., the SSSR in 2005) and how government ownership might affect auditor independence. Taking into account the potential influence of the state over auditors' reports in the case of LSOEs through political connections (Wang *et al.*, 2008), the first hypothesis can be formed as follows:

Hypothesis 1. *Ceteris paribus*, the auditors of LSOEs exhibit lower auditor independence compared with auditors of NSOEs in China.

I then conjecture that auditor independence in China will improve subsequent to the SSSR.⁴⁸ Also, LSOEs who maintained control after completion of the reform will also gain improved auditor independence. This is due the change in share nature after the agreement on the SSSR for each firm, in particular, the state shares will become tradable when the SSSR is considered as completed, which will be followed by the actual sale of shares depending upon the signed agreement between the major tradable shareholders of each firm and the state. Doing so will, presumably, push the state to act more as NSOEs, therefore, the need for high quality external assurance that the financial statements of the firm are fairly presented might start being applicable for both LSOEs and NSOEs equally. Hence, the second hypothesis can be formed in two parts:

Hypothesis 2a. *Ceteris paribus*, overall auditor independence improves after the completion of the SSSR.

Hypothesis 2b. LSOEs' auditor independence improves after the completion of the SSSR.

⁴⁸ The SSSR aims to improve the pricing of China capital market, and to empower the free market control over listed firms (Joyce, 2008).

I follow a similar argument with respect to the impact of the announcement of “Document 56” by the State Council, the highest executive institution in China, stating “A Number of Opinions on Accelerating the Development of Certified Public Accountants” (Gillis 2014, 242) to develop Chinese domestic accounting firms. Hence, I predict that the announcement of the policy, along with the completion of the SSSR will further improve overall auditor independence in China. Therefore, my third hypothesis is formed as:

Hypothesis 3a. *Ceteris paribus*, overall auditor independence improves after the announcement of Document 56.

Hypothesis 3b. LSOEs’ auditor independence improves after the announcement of Document 56.

Finally, following the NERI periodic reports on the Index of Marketisation of China’s 31 provinces, I expect that the auditors of firms operating in more developed regions exhibit higher auditor independence. This is because more developed regions have higher legal enforcement levels, lower market centralisation and better credit markets compared to firms located in less developed regions. Hence, the final hypothesis is:

Hypothesis 4. *Ceteris paribus*, the higher the market development in the region where the firm operates, the higher the exhibited level of auditor independence.

4.3. METHODOLOGY

Table 1 summarises the definition of variables used in this chapter. To test the hypotheses about auditor independence in China, I estimate a qualitative response model, which models the determinants of auditor independence following previous literature (Chen *et al.*, 2001; DeFond *et al.*, 2002; Habib, 2013; Chen *et al.*, 2010; Firth *et al.*, 2012). I also include China-related variables to test my hypotheses, however. In particular, I include variables to control for ownership structure (LSOE), regional market development (MDI), and the main China market structural reforms in the study period (i.e., the SSSR and Document 56).⁴⁹

I also include variables to control for firm characteristics that previous works suggest have an effect on the propensity that a firm will receive an MAO (DeFond *et al.*, 2000; Chen *et al.*, 2001; Wang *et al.*, 2008), as follows. I include firm size (Ln(Total Assets)) and use return on total assets (RoA) for profitability, leverage (Leverage) and current ratio (Current Ratio) as measures of risk, and

⁴⁹ I classify firms as an LSOE if the state meets one of the following. i) the one with the maximum shareholding in the shareholder list of listed companies unless opposite evidence exists; ii) the one who can execute and control superior voting rights than the shareholder with the maximum shareholding of a listed company; iii) the one who holds and controls 30 percent or above of shares and voting rights unless opposite evidence exists; iv) the one who can decide the election of over half of members of board of directors of a listed company by executing voting rights; or v) the one who is under other circumstances as the stipulations of CSRC (CSMAR, China Listed Firm's Shareholders Research Database user guide).

sales growth (Sales Growth) for capital needs for audit. In addition, to capture the complexity of operations, I include the ratio of the sum of receivables and inventories to total assets (Receivables & Inventories) and asset turnover (Asset Turnover). Issuance of equity (Equity Issuance) is also included to capture the propensity to hire high quality audit firms in order to signal a better reputation. Following Chan and Wu (2011), higher auditor independence is expected for firms with higher profitability, while lower auditor independence is expected for firms with higher leverage, loss occurrence and operations complexity. All continuous variables are winsorized at the top and bottom 1% to limit extreme values and to reduce the effect of potential outliers.

[TABLE 1]

I add industry dummies to control for industry fixed effects, and I add region dummies for China's six regions for the same reason.⁵⁰ To investigate my conjectures, I first run BLRs to capture the determinants of auditor independence in China, using the propensity to receive an MAO as a surrogate for auditor independence. In the estimation response model, I compare and contrast between standard unqualified auditor opinions and all other types of MAOs where the likelihood to receive an MAO, when appropriate, will indicate higher auditor independence.⁵¹

⁵⁰ I split China into six different regions: Metropolis, Northeast, Coast, Central, Northwest and Southwest, following Sun and Graham's (2013) classification which is based on per capita GDP data at provincial level from 1949 to 2011. Data on per capita GDP are from the China Compendium of Statistics (NBS 2010) and China Statistical Yearbook 2012 (NBS 2013).

⁵¹ In China, an auditor can issue an unqualified auditor opinion with emphasis of matter paragraph to indicate any significant events (i.e., pending lawsuits) that might affect the firm

I then introduce some interaction terms⁵² between the experimental variables to test my research hypotheses. I also allow a more detailed comparison between auditor opinions (i.e., standard unqualified, unqualified with an emphasis of matter paragraph and other types of MAOs) to investigate whether auditor independence is translated through audit qualification or by only attaching an emphasis of matter paragraph to an unqualified auditor opinion. To do this, I rerun my estimation models using an MLR model that allows for the three-group comparison I need.

Therefore, I start with running a simple regression that does not incorporate the impact of the SSSR and Document 56, as a benchmark for the more detailed analysis that follows.

$$\begin{aligned}
& \ln \left(\frac{P(\text{Audit Opinion}_{it} = \text{MAO})}{P(\text{Audit Opinion}_{it} = \text{Standard Unqualified})} \right) \\
&= b_0 + b_1 \text{Local SOE}_{it} + b_2 \text{MDI}_{it} + b_3 \text{Local SOE} \cdot \text{MDI}_{it} \\
&+ \sum_{k=4}^n \beta_k \text{Control}_{it}
\end{aligned} \tag{1}$$

(Chen *et al.*, 2016). Hence, I include unqualified auditor opinion with emphasis of matter paragraph in the class of MAOs and in a separate class in my analyses.

⁵² Ai and Norton (2003) and Norton *et al.* (2004) in their economics letters show that in nonlinear models (i.e., logit and probit) to study the magnitude and the significance of an interaction effect it is suggested to compute the cross derivative of the expected value of the dependent variable instead of the coefficient of the interaction. Hence, I produce additional analysis following their arguments in investigating the interaction effects. I summarise the main results in Appendix C.

In equation 2 I look at the effects of the SSSR and Document 56 on auditor independence without separating between the two types of MAO (i.e., unqualified audit opinion with emphasis of matter paragraph and other qualified audit opinions). This provides a benchmark of the overall effect of these major reforms on audit independence.

$$\begin{aligned}
& \ln \left(\frac{P(\text{Audit Opinion}_{it} = \text{MAO})}{P(\text{Audit Opinion}_{it} = \text{Standard Unqualified})} \right) \\
&= b_0 + b_1 \text{Local SOE}_{it} + b_2 \text{MDI}_{it} + b_3 \text{Local SOE} \cdot \text{MDI}_{it} \\
&+ b_4 \text{Post SSSR}_{it} + b_5 \text{Post Document 56}_{it} \\
&+ \sum_{k=6}^n \beta_k \text{Control}_{it} \tag{2}
\end{aligned}$$

Lastly, before proceeding to the hypothesis testing, I examine whether or not the effects of the SSSR and Document 56 impact LSOEs and NLSOEs differently following equation 3.

$$\begin{aligned}
& \ln \left(\frac{P(\text{Audit Opinion}_{it} = \text{MAO})}{P(\text{Audit Opinion}_{it} = \text{Standard Unqualified})} \right) \\
&= b_0 + b_1 \text{Local SOE}_{it} + b_2 \text{MDI}_{it} + b_3 \text{Local SOE} \cdot \text{MDI}_{it} \\
&+ b_4 \text{Post SSSR}_{it} + b_5 \text{Local SOE} \cdot \text{Post SSSR}_{it} \\
&+ b_6 \text{Post Document 56}_{it} \\
&+ b_7 \text{Local SOE} \cdot \text{Post Document 56}_{it} + \sum_{k=8}^n \beta_k \text{Control}_{it} \tag{3}
\end{aligned}$$

I then run multinomial logit regressions (MLRs) to compare between three possible outcomes of the auditor report (i.e., standard unqualified, unqualified with emphasis of matter paragraph and other qualified auditor opinions) via which I can investigate whether audit firms would rather issue an unqualified audit opinion with an emphasis of matter paragraph instead of an audit qualification. First, in equation 4, I run a basic estimation model that examines government influence and market development impact on audit independence having these three outcomes as follows.

$$\begin{aligned}
& \ln \left(\frac{P(\text{Audit Opinion}_{it} = \text{Unqualified with emphasis of matter})}{P(\text{Audit Opinion}_{it} = \text{Standard Unqualified})} \right) \\
&= b_{10} + b_{11} \text{Local SOE}_{it} + b_{12} \text{MDI}_{it} + b_{13} \text{Local SOE} \cdot \text{MDI}_{it} \\
&+ \sum_{k=14}^n \beta_{1k} \text{Control}_{it}
\end{aligned} \tag{4a}$$

$$\begin{aligned}
& \ln \left(\frac{P(\text{Audit Opinion}_{it} = \text{Qualified Audit Opinion})}{P(\text{Audit Opinion}_{it} = \text{Standard Unqualified})} \right) \\
&= b_{20} + b_{21} \text{Local SOE}_{it} + b_{22} \text{MDI}_{it} + b_{23} \text{Local SOE} \cdot \text{MDI}_{it} \\
&+ \sum_{k=4}^n \beta_{2k} \text{Control}_{it}
\end{aligned} \tag{4b}$$

In equation 5 I expand the analysis to include the effects of the SSSR and Document 56. By doing so, I test how the SSSR and Document 56 affect the propensity to issue a particular type of MAO.

$$\begin{aligned}
& \ln \left(\frac{P(\text{Audit Opinion}_{it} = \text{Unqualified with emphasis of matter})}{P(\text{Audit Opinion}_{it} = \text{Standard Unqualified})} \right) \\
&= b_{10} + b_{11} \text{Local SOE}_{it} + b_{12} \text{MDI}_{it} + b_{13} \text{Local SOE} \cdot \text{MDI}_{it} \\
&+ b_{14} \text{Post SSSR}_{it} + b_{15} \text{Post Document 56}_{it} \\
&+ \sum_{k=16}^n \beta_{1k} \text{Control}_{it} \tag{5a}
\end{aligned}$$

$$\begin{aligned}
& \ln \left(\frac{P(\text{Audit Opinion}_{it} = \text{Qualified Audit Opinion})}{P(\text{Audit Opinion}_{it} = \text{Standard Unqualified})} \right) \\
&= b_{20} + b_{21} \text{Local SOE}_{it} + b_{22} \text{MDI}_{it} + b_{23} \text{Local SOE} \cdot \text{MDI}_{it} \\
&+ b_{24} \text{Post SSSR}_{it} + b_{25} \text{Post Document 56}_{it} \\
&+ \sum_{k=26}^n \beta_{2k} \text{Control}_{it} \tag{5b}
\end{aligned}$$

Finally, I test if the impact of the SSSR and Document 56 is magnified in SOEs particularly, or if it affects all Chinese listed firms the same way. Hence, equation 6 provides the main estimation model for testing the hypotheses.

$$\begin{aligned}
& \ln \left(\frac{P(\text{Audit Opinion}_{it} = \text{Unqualified with emphasis of matter})}{P(\text{Audit Opinion}_{it} = \text{Standard Unqualified})} \right) \\
&= b_{10} + b_{11} \text{Local SOE}_{it} + b_{12} \text{MDI}_{it} + b_{13} \text{Local SOE} \cdot \text{MDI}_{it} \\
&+ b_{14} \text{Post SSSR}_{it} + b_{15} \text{Local SOE} \cdot \text{Post SSSR}_{it} \\
&+ b_{16} \text{Post Document 56}_{it} \\
&+ b_{17} \text{Local SOE} \cdot \text{Post Document 56}_{it} \\
&+ \sum_{k=18}^n \beta_{1k} \text{Control}_{it}
\end{aligned} \tag{6a}$$

$$\begin{aligned}
& \ln \left(\frac{P(\text{Audit Opinion}_{it} = \text{Qualified Audit Opinion})}{P(\text{Audit Opinion}_{it} = \text{Standard Unqualified})} \right) \\
&= b_{20} + b_{21} \text{Local SOE}_{it} + b_{22} \text{MDI}_{it} + b_{23} \text{Local SOE} \cdot \text{MDI}_{it} \\
&+ b_{24} \text{Post SSSR}_{it} + b_{25} \text{Local SOE} \cdot \text{Post SSSR}_{it} \\
&+ b_{26} \text{Post Document 56}_{it} \\
&+ b_{27} \text{Local SOE} \cdot \text{Post Document 56}_{it} \\
&+ \sum_{k=28}^n \beta_{2k} \text{Control}_{it}
\end{aligned} \tag{6b}$$

4.4. DATA AND SAMPLE

China Stock Market and Accounting Research (CSMAR) served as the main source of financial data for this study. Data cover the period from 2003 to 2014 and 13,549 firm-year observations are used in the analysis. Table 2 summarises the sample selection process where to maintain a homogeneous sample, it is restricted to non-financial firms with no B-shares or H-shares. I also exclude

Central SOEs to keep the samples comparable in the empirical chapters of this thesis.⁵³

[TABLE 2]

Table 3 shows the sample by ownership structure and auditor opinion throughout the sample period. On average, 95% of audit opinions are standard unqualified auditor opinions, which is a common characteristic of the Chinese audit market.⁵⁴ The results show a jump in the number of MAOs in the years of the SSSR and the announcement of Document 56 relative to the years before. On average, LSOEs receive fewer MAOs compared with NSOEs. This might be due to better accounting quality for LSOEs, in that they have less pressure to engage in earnings management behaviours to achieve IPO goals or to avoid de-listing regulations through their use of political connections (Wang *et al.*, 2008; Chen *et al.* 2001).

[TABLE 3]

⁵³ The China State-owned Assets Supervision and Administration Commission (SASAC) issued two rules in 2004 regarding CSOEs auditor choice and, hence, CSOEs were excluded from the sample in Chapter 3.

⁵⁴ Gul *et al.* (2009) report 90% of their sample of 819 Chinese listed firms have received an unqualified auditor opinion. Haw *et al.* (2003) report 85% of their sample of 2,921 annual earnings announcements received an unqualified auditor opinion. DeFond *et al.* (2000) report an average of 94% of their sample of 1,286 with an unqualified auditor opinion.

4.5. MAIN RESULTS

Table 4 shows the descriptive statistics⁵⁵ for the variables I use in the analysis. It summarises the mean value for each variable in each year to show the changes over time. It also distinguishes between LSOEs and NSOE. On average, NSOE receive more MAOs compared with SOEs, especially in the period before the SSSR. This suggests lower auditor independence for LSOEs, or it reflects the lower earnings management incentives for LSOEs (Chen *et al.*, 2001). Conversely, I note higher regional development scores for NSOE compared with SOEs with an average of 9.1 and 8.5 respectively, which shows a continuous improvement for both types of firms throughout the sample period.

The market share of the international Big 4 audit firms remained unchanged over time with an average of 5% of total firms. Domestic Big 6 audit firms' market share, on the other hand, has doubled ten times since 2003 with a market share of 56% of total firms in 2014. The percentage of LSOEs, however, shows a continuous drop throughout the sample period, reaching 35% of total firms in 2014 after it was almost 70% of all firms in 2003 before the SSSR was introduced and executed in the period 2005 to 2009. The other control variables for firm characteristics that are thought to act as determinants of the likelihood of MAOs being issued in the prior literature and theory show no particular trends over time. We can note that, on average, LSOEs have bigger firm size, higher sales growth, profitability and leverage, and lower audit risk, relative to NSOE.

⁵⁵ I provide summary statistics for the study sample in Appendix B.

[TABLE 4]

Table 5 reports the Pearson Correlation Matrix, which shows the relationships between the independent variables I am using in the analysis. There seem to be no problematic correlations between the variables used and, hence, this suggests no multicollinearity problems in the regression analyses discussed later in this section.

[TABLE 5]

Table 6 presents the BLR results to test the hypotheses. The dependent variable is MAOs (i.e., unqualified auditor opinion with an emphasis of matter paragraph, a qualified auditor opinion, an adverse opinion or a disclaimer) as a surrogate for auditor independence. The estimates for the BLR in Model 1 summarise the determinants of MAOs in China without incorporating the effects from the SSSR and Document 56. The results show that LSOEs are less likely to receive an MAO compared with NSOEs. Although I do not find a significant impact of Big 10 auditor choice (both the international Big 4 and the domestic Big 6) on auditor independence, it moderates the negative relationship between LSOEs and the propensity to issue an MAO.

These findings support the Wang *et al.* (2008) argument that LSOEs appoint small audit firms over which they can exert political power in order to affect

their audit opinion. The results fail to report an impact of MDI on the propensity to issue an MAO, as the coefficients are not statistically significant. This implies that my prediction that market development improves auditor independence is unfounded. Hence, Wong's (2016) claim that China's legal environment (i.e., application of courts) is weak persists.

With regard to the other variables that control for firm characteristics that affect the propensity to receive an MAO, consistent with previous literature, I find a negative association between MAOs and firm's size, profitability (ROA) and liquidity (Current Ratio). Moreover, a positive association between MAOs and reporting losses and leverage (Chen *et al.* 2001; Chi *et al.*, 2013) also exists. For receivables and inventories to total assets, however, I find a negative association with MAO, which might be explained by the lower tendency of Chinese firms to use inventories to manipulate accounting data following Chen *et al.* (2001). This means that higher receivables and inventories do not imply higher risk (i.e., does not accurately measure operational complexity) that might lead auditors to issue an MAO.

To test how the SSSR and Document 56 affect auditor independence in China, Models 2 and 3 provide estimates that include the individual effect of each event on auditor independence and how they moderate the LSOEs' effect on auditor independence respectively. This allows comparing auditor independence in China in three periods, before SSSR, after SSSR and before Document 56, and lastly, after both SSSR and Document 56. Model 2 reports a decrease in the

likelihood to receive an MAO in the period after the SSSR but before Document 56. In that period, most of the Chinese firms were in the process of completing the SSSR. To explain this tendency, I argue that Chinese firms, during the SSSR period, do not seem to have the incentive to manipulate financial data. This is because, during this transition period, the sale of the non-tradable shares owned by the state is based on a consensus price between tradable- and non-tradable-shares shareholders, and not based on market value.⁵⁶

In the period after the announcement of Document 56, however, we see an increase in the propensity to issue an MAO, implying that, in the period after Document 56, the incentives to manipulate accounting data might be the same for both LSOEs and NSOEs,⁵⁷ which is reflected in a general increase in the likelihood to issue an MAO. Model 3 investigates whether the SSSR and Document 56 moderate the effect of LSOEs on auditor independence. There seems to be no incremental effect of state influence on MAOs in the periods after completion of the SSSR and the announcement of Document 56.

[TABLE 6]

⁵⁶ The consensus price is set based on a proposal that summarises the procedures of the reform and the compensation to be given to tradable-shares shareholders (i.e., cash or shares reallocation).

⁵⁷ As a consequence of the Chinese government initiative, the MOF and CICPA aim to develop the accounting industry in the country, affecting all listed firms despite ownership structure.

In Table 7, I compare three types of audit opinions. The standard unqualified auditor opinion is my base outcome, and I compare it with unqualified auditor opinion with an emphasis of matter paragraph, and other types of MAO (i.e., qualified auditor opinion, adverse opinion, and a disclaimer of opinion). By doing so, I test whether the BLRs' higher auditor independence results are translated through audit qualifications or by merely adding an explanatory note to an unqualified audit opinion.⁵⁸ Model 1 shows that auditors of LSOEs are less likely to issue either a qualified auditor opinion, adverse opinion, or disclaimer of opinion compared with auditors of NSOEs. This result is not observed for the likelihood to issue an unqualified auditor opinion with an emphasis of matter paragraph relative to standard unqualified audit opinion.

The results also show that if a Big 10 audit firm is appointed, this will, if only slightly, increase the likelihood that an unqualified auditor opinion with an emphasis of matter paragraph will be issued. Model 2 tests the impact of the SSSR and Document 56 on auditor independence using the three types of audit opinions. The results report a decrease in the propensity to issue a qualified auditor opinion, adverse opinion, or disclaimer of opinion compared with unqualified auditor opinions in the period after the SSSR. The results, however, show an increase in all types of MAOs in the period after the announcement of Document 56.

⁵⁸ In previous literature on audit independence in China, unqualified auditor opinions with an emphasis of matter paragraph are usually considered the same as all other types of MAOs (Chen *et al.*, 2016).

Finally, in Model 3, I add interaction terms⁵⁹ between the SSSR and Document 56, and state influence (LSOE). The results fail to show that LSOE impact over auditor independence has changed after these structural reforms. This suggests that auditor independence in China remains under development. The efforts through the SSSR and the announcement of Document 56 that aim to boost free market strategy in the country might still need more legal enforcement to take effect for all listed firms (i.e., LSOEs and NSOE) to the level that auditors will independently issue an audit qualification to any type of firms when appropriate.

[TABLE 7]

4.6. SUMMARY AND CONCLUSION

This chapter has examined auditor independence in China by studying the effects of ownership structure and regional development, as well as the impact of the SSSR and Document 56, in China. It extends the previous literature on how market deregulation that limits government influence over the market can improve auditor independence in China (DeFond *et al.*, 2000; Chen *et al.*, 2001; Wang *et al.*, 2008). Using a sample of 13,549 firm-years observations over the period 2003 to 2014, the findings can be summarised as follows. Auditors of LSOEs are less likely to issue an MAO compared with auditors of NSOE. Auditor choice of Big 10 audit firms does not seem to have a direct impact on

⁵⁹ I provide a further analysis of the interaction terms, considering the nonlinear nature of the regression I use, in Appendix C following Ai and Norton (2003) and Norton *et al.* (2004).

auditor independence; however, it improves auditor independence for firms auditing LSOEs.

The results show no direct impact of the SSSR on auditor independence development. A decrease in the likelihood of the issuance of an MAO in the period subsequent to the completion of the SSSR is found. The results, however, report an improvement in auditor independence subsequent to the announcement of Document 56. This is assumed to be due to the fact that, during the transition period, firms will transform ownership based on a reform proposal and agreed compensations to the holders of tradable shares instead of selling their shares directly in the financial markets.

A detailed investigation of the increase in the likelihood of issuing an MAO after the completion of the SSSR and the announcement of Document 56 shows the following. The improved auditor independence is translated through a higher likelihood of the issuance of unqualified auditor opinions with an emphasis of matter paragraph, not other types of MAOs (i.e., qualified auditor opinion, adverse opinion, and a disclaimer of opinion). This indicates that, in the Chinese context, treating the outcome of the audit opinion process as binary leads to inaccurate conclusions about auditor independence. Moreover, I did not observe a change in the impact of LSOEs on the likelihood of the issuance of MAOs in the period after the SSSR and Document 56.

Hence, I propose that auditor independence in China remains under development, and the state influence over listed firms remains, even after these

structural reforms, consistent with the views of Wong (2016). Also, the results fail to show a significant impact of market development on auditor independence, which further supports Wong's (2016) arguments on China's weak legal environment and application of courts.

This study is motivated by the unique structure of the Chinese financial and audit markets, and their reforms over the study period. First, it extends auditor independence literature to help in understanding how government ownership and regional market development affect auditor independence in China. Second, it provides some basis for regulators to investigate how the structural reforms (i.e., the SSSR and Documents 56) have affected auditor independence in China.

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4.8. TABLES AND APPENDICES

TABLE 1	
VARIABLE DEFINITIONS	
Variable	Definition
Auditor Characteristics	
International Big 4 Auditor	A dummy variable equals to 1 if the auditor is an international Big 4, and 0 otherwise
Domestic Big 6 Auditor	A dummy variable equals to 1 if the auditor is a domestic Big 6, and 0 otherwise
Big 10 Auditor	A dummy variable equals to 1 if the auditor is a Big 10, and 0 otherwise
MAO	A dummy variable equals to 1 if the firm received a modified auditor opinion in the previous year, and 0 otherwise
Audit Tenure	The period the client kept the same auditor - data from 2003 onwards
Post Document 56	A dummy variable for the event of the State Council's national policy announcement (Document 56)
Ownership Structure	
LSOE	A dummy variable equals to 1 if the firm is classified as a local state-owned enterprise, and 0 otherwise
Post SSSR	A dummy variable equals to 1 if the firm completed the Split-share Structure Reform, and 0 otherwise
Regional Development	
MDI	Market Development Index
Firm Characteristics	

Ln(Total Assets)	The natural logarithm of total assets
Sales Growth	The natural logarithm of (current sales/previous sales)
RoA	Return on total assets
Leverage	Total debt to total assets
Current Ratio	Current assets to current liabilities
(Receivables plus Inventories) to Assets	The sum of receivables and inventories as a proportion of total assets
Asset Turnover	Sales to total assets
Equity Issuance	A dummy variable equals to 1 if the firm issued new shares during the year, and 0 otherwise
Loss last year	A dummy variable equal to 1 if the firm incurred losses in the previous year, and 0 otherwise

TABLE 2												
SAMPLE SELECTION												
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Number of listed firms	1,178	1,209	1,154	1,137	1,188	1,368	1,531	1,743	2,041	2,437	2,485	2,613
<i>Less: firms with B-shares or H-shares</i>	12	11	10	10	16	18	66	145	244	372	394	437
<i>Less: firms in the financial industry</i>	26	25	23	23	26	31	31	35	39	43	37	43
<i>Less: firms without ownership information</i>	6	4	1	1	4	4	6	7	5	12	24	34
<i>Less: CSOs</i>	185	197	197	204	202	234	256	271	287	298	305	310
<i>Less: firms without financial information</i>	96	121	60	92	132	94	107	163	155	126	86	132
Final sample	853	851	863	807	808	987	1,065	1,122	1,311	1,586	1,639	1,657

Data covers the period from 2003 to 2014 including 13,549 firm-year observations. Financial data and data on ownership structure available publicly at CSMAR database. All continuous variables are winsorized at the top and bottom 1%.

TABLE 3													
AUDITOR OPINION TYPE % BASED ON OWNERSHIP TYPE - 2003 TO 2014													
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
LSOEs	Standard Unqualified	0.95	0.93	0.91	0.94	0.95	0.95	0.94	0.95	0.95	0.96	0.96	0.96
	Emphasis of Matter	0.03	0.04	0.06	0.04	0.04	0.04	0.05	0.04	0.04	0.03	0.04	0.03
	Other MAO	0.02	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
NSOEs	Standard Unqualified	0.87	0.80	0.80	0.85	0.90	0.92	0.91	0.92	0.94	0.96	0.96	0.96
	Emphasis of Matter	0.07	0.08	0.06	0.07	0.08	0.05	0.06	0.05	0.05	0.03	0.02	0.03
	Other MAO	0.06	0.11	0.14	0.08	0.02	0.03	0.03	0.03	0.01	0.01	0.02	0.02

The three types of audit opinions are: standard unqualified auditor opinion, unqualified auditor opinion with an emphasis of matter paragraph, and other types of MAO (i.e., qualified auditor opinion, adverse opinion, and a disclaimer of opinion).

TABLE 4													
MEAN VALUE FOR FIRM CHARACTERISTICS BY OWNERSHIP TYPE													
Firm Characteristics	Ownership Type	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Modified Auditor Opinion	All firms	0.08	0.11	0.13	0.10	0.08	0.06	0.08	0.07	0.06	0.04	0.04	0.04
	LSOEs	0.05	0.07	0.09	0.06	0.05	0.05	0.06	0.05	0.05	0.04	0.04	0.04
	NSOEs	0.13	0.20	0.20	0.15	0.10	0.08	0.09	0.08	0.06	0.04	0.04	0.04
Big 10 Auditor %	All firms	0.09	0.09	0.10	0.13	0.17	0.23	0.32	0.35	0.39	0.54	0.59	0.60
	LSOEs	0.10	0.09	0.12	0.15	0.17	0.25	0.33	0.36	0.39	0.51	0.56	0.57
	NSOEs	0.07	0.08	0.08	0.10	0.16	0.20	0.32	0.34	0.38	0.56	0.62	0.61
International Big 4 %	All firms	0.04	0.03	0.04	0.04	0.05	0.04	0.04	0.04	0.05	0.04	0.04	0.04
	LSOEs	0.04	0.03	0.04	0.05	0.05	0.05	0.05	0.06	0.07	0.07	0.07	0.07
	NSOEs	0.04	0.04	0.04	0.03	0.05	0.04	0.02	0.02	0.03	0.02	0.03	0.03
Domestic Big 6 %	All firms	0.05	0.05	0.06	0.09	0.12	0.19	0.29	0.31	0.34	0.50	0.55	0.56
	LSOEs	0.06	0.06	0.07	0.10	0.12	0.21	0.28	0.31	0.32	0.44	0.49	0.51
	NSOEs	0.03	0.05	0.04	0.07	0.11	0.17	0.30	0.32	0.36	0.53	0.59	0.58
LSOE %	All firms	0.68	0.65	0.61	0.56	0.54	0.52	0.50	0.47	0.43	0.37	0.36	0.35
MDI	All firms	6.65	7.28	8.03	8.42	8.89	8.66	9.02	9.02	9.30	9.80	9.98	10.39
	LSOEs	6.63	7.25	7.89	8.30	8.73	8.43	8.75	8.75	8.91	9.24	9.45	9.85
	NSOEs	6.69	7.35	8.24	8.59	9.09	8.93	9.28	9.26	9.58	10.13	10.27	10.69
Ln(Total Assets)	All firms	21.08	21.15	21.16	21.24	21.38	21.37	21.45	21.61	21.78	21.83	21.94	22.07
	LSOEs	21.19	21.31	21.36	21.52	21.69	21.73	21.83	22.01	22.23	22.32	22.44	22.56

	<i>NSOEs</i>	20.86	20.86	20.84	20.88	21.02	20.99	21.08	21.26	21.44	21.54	21.66	21.80
Sales Growth	All firms	0.14	0.18	0.03	0.11	0.19	0.08	0.04	0.23	0.18	0.08	0.12	0.06
	<i>LSOEs</i>	0.14	0.19	0.09	0.11	0.20	0.08	0.05	0.22	0.17	0.06	0.08	0.02
	<i>NSOEs</i>	0.15	0.15	-0.05	0.11	0.17	0.07	0.02	0.24	0.19	0.09	0.14	0.08
RoA	All firms	0.01	0.00	-0.01	0.01	0.05	0.02	0.03	0.05	0.04	0.04	0.04	0.03
	<i>LSOEs</i>	0.02	0.02	0.01	0.02	0.04	0.02	0.02	0.04	0.04	0.03	0.03	0.02
	<i>NSOEs</i>	-0.02	-0.02	-0.04	-0.01	0.06	0.03	0.04	0.05	0.05	0.04	0.04	0.04
Leverage	All firms	0.26	0.26	0.26	0.26	0.23	0.22	0.21	0.20	0.18	0.16	0.16	0.15
	<i>LSOEs</i>	0.24	0.25	0.25	0.24	0.23	0.23	0.22	0.21	0.20	0.19	0.19	0.18
	<i>NSOEs</i>	0.31	0.29	0.29	0.28	0.23	0.22	0.20	0.18	0.16	0.15	0.15	0.14
Current Ratio	All firms	1.48	1.41	1.39	1.38	1.40	1.53	1.61	1.85	2.30	2.35	2.18	2.08
	<i>LSOEs</i>	1.51	1.41	1.39	1.31	1.30	1.31	1.38	1.44	1.53	1.53	1.48	1.52
	<i>NSOEs</i>	1.42	1.41	1.39	1.46	1.52	1.76	1.84	2.23	2.87	2.84	2.58	2.38
Receivables Inventories	All firms	0.30	0.31	0.31	0.30	0.25	0.27	0.26	0.27	0.28	0.28	0.27	0.28
	<i>LSOEs</i>	0.28	0.29	0.29	0.27	0.23	0.24	0.23	0.24	0.24	0.25	0.24	0.24
	<i>NSOEs</i>	0.33	0.35	0.34	0.34	0.28	0.30	0.29	0.29	0.30	0.29	0.29	0.29
Asset Turnover	All firms	0.56	0.62	0.65	0.67	0.71	0.73	0.65	0.69	0.70	0.66	0.65	0.62
	<i>LSOEs</i>	0.58	0.66	0.70	0.72	0.76	0.74	0.67	0.70	0.72	0.68	0.67	0.62
	<i>NSOEs</i>	0.50	0.54	0.57	0.62	0.66	0.71	0.64	0.68	0.68	0.65	0.65	0.62
Equity Issuance	All firms	0.16	0.23	0.15	0.34	0.32	0.37	0.25	0.32	0.37	0.30	0.29	0.35
	<i>LSOEs</i>	0.15	0.23	0.13	0.27	0.27	0.31	0.22	0.25	0.27	0.23	0.21	0.22
	<i>NSOEs</i>	0.17	0.22	0.18	0.42	0.39	0.43	0.29	0.39	0.44	0.35	0.34	0.42
Loss Last Year	All firms	0.13	0.13	0.13	0.20	0.11	0.07	0.17	0.12	0.07	0.08	0.09	0.10
	<i>LSOEs</i>	0.11	0.10	0.10	0.15	0.08	0.06	0.16	0.12	0.06	0.09	0.11	0.11
	<i>NSOEs</i>	0.17	0.18	0.16	0.28	0.15	0.08	0.17	0.12	0.07	0.07	0.08	0.09

Audit Tenure	All firms	0.00	0.88	1.59	1.98	2.24	2.40	2.52	3.14	3.21	2.90	2.86	3.47
	<i>LSOEs</i>	0.00	0.90	1.61	2.05	2.34	2.56	2.64	3.35	3.60	3.40	3.29	3.90
	<i>NSOEs</i>	0.00	0.85	1.56	1.88	2.12	2.21	2.41	2.94	2.92	2.60	2.61	3.24

Variables are defined in Table 1. All continuous variables are winsorized at the top and bottom 1%.

TABLE 5																				
CORRELATION COEFFICIENTS																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1 Big 10 Auditor	1.00																			
2 International Big 4	0.28	1.00																		
3 Domestic Big 6	0.91	-0.14	1.00																	
4 Ln(Audit Fee)	0.32	0.36	0.18	1.00																
5 Modified Auditor Opinion	-0.06	-0.03	-0.05	-0.11	1.00															
6 Post Document 56	0.35	0.00	0.36	0.33	-0.08	1.00														
7 Post SSSR	0.27	0.02	0.27	0.28	-0.12	0.55	1.00													
8 LSOE	-0.09	0.06	-0.12	0.04	-0.05	-0.19	-0.14	1.00												
9 MDI	0.28	0.07	0.25	0.28	-0.08	0.33	0.33	-0.20	1.00											
10 Ln(Total Assets)	0.21	0.24	0.11	0.70	-0.25	0.26	0.23	0.22	0.12	1.00										
11 Sales Growth	-0.02	0.00	-0.02	0.04	-0.18	0.02	0.02	0.00	-0.02	0.13	1.00									
12 RoA	0.08	0.05	0.06	0.13	-0.41	0.13	0.17	-0.03	0.11	0.19	0.32	1.00								
13 Leverage	-0.12	-0.03	-0.11	-0.02	0.22	-0.23	-0.20	0.09	-0.17	0.08	-0.05	-0.39	1.00							
14 Current Ratio	0.08	-0.05	0.10	-0.09	-0.12	0.18	0.11	-0.20	0.12	-0.13	-0.02	0.20	-0.42	1.00						
15 Receivables & Inventories	-0.02	-0.06	0.00	-0.01	-0.02	-0.03	-0.07	-0.13	0.08	0.01	0.03	-0.09	0.07	-0.01	1.00					
16 Asset Turnover	0.01	-0.01	0.01	0.15	-0.09	0.01	0.05	0.04	0.11	0.08	0.16	0.14	-0.09	-0.10	0.04	1.00				
17 Equity Issuance	0.04	0.00	0.05	0.10	-0.11	0.07	0.12	-0.14	0.09	0.13	0.17	0.18	-0.08	0.11	-0.01	0.03	1.00			
19 Loss Last Year	-0.06	-0.04	-0.05	-0.11	0.32	-0.07	-0.07	-0.02	-0.09	-0.22	-0.08	-0.29	0.18	-0.13	0.00	-0.08	-0.14	1.00		
20 Audit Tenure	0.11	0.09	0.07	0.21	-0.06	0.28	0.32	0.01	0.21	0.17	-0.04	0.05	-0.04	-0.05	-0.05	0.04	-0.03	-0.04	1.00	

Variables are defined in Table 1. All continuous variables are winsorized at the top and bottom 1%. Bold numbers indicate significance at 5% level.

TABLE 6			
ANALYSIS OF MODIFIED AUDIT OPINION PRE/POST SSSR AND DOCUMENT 56 (LOGIT MODEL: STANDARD UNQUALIFIED AUDIT OPINION AS BASE CASE)			
Variables	Model 1	Model 2	Model 3
<i>LSOE</i>	-0.452*** (-2.970)	-0.438*** (-2.827)	-0.586*** (-3.078)
<i>Post SSSR</i>		-0.332** (-2.123)	-0.437** (-2.176)
<i>Post SSSR . LSOE</i>			0.225 (0.799)
<i>Post Document 56</i>		0.510*** (4.069)	0.492*** (2.962)
<i>Post Document 56 . LSOE</i>			0.057 (0.229)
<i>MDI</i>	0.035 (0.822)	0.023 (0.499)	0.022 (0.490)
<i>International Big 4</i>	0.009 (0.017)	0.019 (0.038)	0.017 (0.035)
<i>International Big 4 . LSOE</i>	1.255* (1.689)	1.217* (1.683)	1.192* (1.656)
<i>Domestic Big 6</i>	-0.010 (-0.056)	-0.110 (-0.613)	-0.072 (-0.391)
<i>Domestic Big 6 . LSOE</i>	0.531** (2.117)	0.573** (2.262)	0.475* (1.677)
<i>Log Total Assets</i>	-0.791*** (-9.250)	-0.810*** (-9.393)	-0.814*** (-9.428)
<i>Sales Growth</i>	-0.441*** (-3.547)	-0.468*** (-3.729)	-0.469*** (-3.731)
<i>RoA</i>	-6.748*** (-9.558)	-6.740*** (-9.614)	-6.732*** (-9.563)
<i>Leverage</i>	1.955*** (4.105)	2.056*** (4.211)	2.047*** (4.205)
<i>Current Ratio</i>	-0.339** (-2.446)	-0.345** (-2.474)	-0.343** (-2.471)
<i>(Receivables plus Inventories) to Assets</i>	-0.924** (-2.157)	-0.961** (-2.200)	-0.954** (-2.189)
<i>Asset turnover</i>	-0.138 (-0.631)	-0.126 (-0.583)	-0.127 (-0.587)
<i>Equity Issuance</i>	-0.351*** (-2.829)	-0.303** (-2.448)	-0.296** (-2.397)
<i>Loss Last Year</i>	1.191*** (12.600)	1.187*** (12.446)	1.187*** (12.482)
<i>Audit Tenure</i>	-0.038 (-1.346)	-0.044 (-1.559)	-0.045 (-1.594)

<i>Constant</i>	14.404***	14.893***	15.060***
	(8.226)	(8.422)	(8.523)
Pseudo R ²	0.354	0.357	0.358
Industry Dummies	Yes		
Region Dummies	Yes		
Observations	13549		

Variables are defined in Table 1. *, ** and *** denote 10%, 5% and 1% significance levels, respectively.

TABLE 7						
ANALYSIS OF MODIFIED AUDIT OPINION PRE/POST SSSR AND DOCUMENT 56 (MULTI-LOGIT MODEL: STANDARD UNQUALIFIED AUDIT OPINION AS BASE CASE)						
	Model 1		Model 2		Model 3	
<i>Variables</i>	Unqualified with emphasis of matter	Modified opinion	Unqualified with emphasis of matter	Modified opinion	Unqualified with emphasis of matter	Modified opinion
<i>LSOE</i>	-0.277 (-1.585)	-0.802*** (-3.707)	-0.236 (-1.332)	-0.833*** (-3.825)	-0.409* (-1.821)	-0.835*** (-3.347)
<i>Post SSSR</i>			-0.113 (-0.644)	-0.755*** (-3.126)	-0.242 (-1.100)	-0.738** (-2.438)
<i>Post SSSR . LSOE</i>					0.267 (0.857)	-0.095 (-0.209)
<i>Post Document 56</i>			0.528*** (3.775)	0.429* (1.920)	0.517*** (2.776)	0.397 (1.391)
<i>Post Document 56 . LSOE</i>					0.036 (0.132)	0.098 (0.217)
<i>MDI</i>	0.030 (0.618)	0.039 (0.692)	-0.003 (-0.067)	0.076 (1.222)	-0.004 (-0.089)	0.077 (1.235)
<i>International Big 4</i>	-1.124 (-1.081)	0.586 (1.026)	-1.109 (-1.051)	0.580 (1.076)	-1.108 (-1.055)	0.572 (1.059)
<i>International Big 4 . LSOE</i>	2.398* (1.860)	0.621 (0.832)	2.354* (1.831)	0.637 (0.875)	2.337* (1.834)	0.639 (0.859)

<i>Domestic Big 6</i>	0.070	-0.145	-0.058	-0.163	-0.018	-0.162
	(0.335)	(-0.615)	(-0.278)	(-0.684)	(-0.085)	(-0.673)
<i>Domestic Big 6 . LSOE</i>	0.590**	0.243	0.598**	0.359	0.499	0.372
	(2.037)	(0.620)	(2.049)	(0.910)	(1.577)	(0.768)
<i>Log Total Assets</i>	-0.884***	-0.579***	-0.907***	-0.582***	-0.913***	-0.579***
	(-9.067)	(-4.624)	(-9.257)	(-4.567)	(-9.276)	(-4.584)
<i>Sales Growth</i>	-0.296**	-0.748***	-0.329***	-0.770***	-0.330***	-0.773***
	(-2.338)	(-3.846)	(-2.591)	(-3.916)	(-2.593)	(-3.929)
<i>RoA</i>	-5.921***	-8.184***	-5.940***	-8.106***	-5.925***	-8.134***
	(-8.079)	(-10.221)	(-8.135)	(-10.135)	(-8.077)	(-10.145)
<i>Leverage</i>	1.866***	2.147***	2.062***	2.038***	2.051***	2.041***
	(3.565)	(3.767)	(3.830)	(3.449)	(3.830)	(3.444)
<i>Current Ratio</i>	-0.322**	-0.383**	-0.323**	-0.393**	-0.322**	-0.393**
	(-2.092)	(-2.246)	(-2.105)	(-2.279)	(-2.101)	(-2.285)
<i>(Receivables plus Inventories) to Assets</i>	-1.513***	0.150	-1.426***	-0.092	-1.420***	-0.092
	(-3.002)	(0.276)	(-2.813)	(-0.163)	(-2.804)	(-0.163)
<i>Asset turnover</i>	-0.178	-0.020	-0.174	0.005	-0.177	0.008
	(-0.793)	(-0.057)	(-0.790)	(0.015)	(-0.803)	(0.022)
<i>Equity Issuance</i>	-0.318**	-0.427*	-0.295**	-0.320	-0.286*	-0.326
	(-2.153)	(-1.900)	(-1.981)	(-1.470)	(-1.930)	(-1.493)
<i>Loss Last Year</i>	1.176***	1.194***	1.165***	1.209***	1.164***	1.208***
	(10.827)	(8.630)	(10.683)	(8.567)	(10.742)	(8.552)
<i>Audit Tenure</i>	-0.030	-0.052	-0.047	-0.035	-0.048	-0.035
	(-1.054)	(-1.079)	(-1.586)	(-0.748)	(-1.610)	(-0.752)
<i>Constant</i>	15.879***	8.858***	16.397***	9.058***	16.614***	8.990***
	(8.064)	(3.350)	(8.314)	(3.341)	(8.369)	(3.369)

Pseudo R-squared	0.319	0.323	0.323
Industry Dummies	Yes		
Region Dummies	Yes		
Observations	13549		

Variables are defined in Table 1. *, ** and *** denote 10%, 5% and 1% significance levels, respectively.

APPENDIX A						
AVERAGE MDI SCORE FOR EACH PROVINCE THROUGHOUT THE STUDY PERIOD 2003 TO 2014						
Province	MDI	CMI	GDI	LEI	FMI	PMI
Anhui	8.87	9.68	8.98	7.96	9.43	8.31
Beijing	11.40	8.43	8.62	17.15	11.96	10.84
Chongqing	8.71	9.07	8.64	8.43	9.27	8.15
Fujian	10.07	11.47	9.42	9.31	10.63	9.51
Gansu	4.53	2.82	5.6	5.17	5.09	3.97
Guangdong	12.17	11.19	9.58	15.75	12.73	11.61
Guangxi Zhuang	6.87	7.6	8.22	4.79	7.43	6.31
Guizhou	4.99	4.65	6.1	4.22	5.55	4.43
Hainan	7.06	8.02	6.87	6.3	7.62	6.50
Hebei	7.93	10.41	8.07	5.3	8.49	7.37
Heilongjiang	6.24	5.6	7.41	5.71	6.80	5.68
Henan	8.53	11.01	8.32	6.26	9.09	7.97
Hubei	8.27	9.11	8.48	7.23	8.83	7.71
Hunan	7.72	8.46	7.47	7.23	8.28	7.16
Inner-Mongolia	6.28	7.34	6.2	5.3	6.84	5.72
Jiangsu	16.00	12.96	9.87	25.16	16.56	15.44
Jiangxi	7.72	9.08	7.76	6.32	8.28	7.16
Jilin	7.18	8.33	7.37	5.84	7.74	6.62
Liaoning	9.28	11.19	7.81	8.84	9.84	8.72
Ningxia Hui	6.22	8.45	6.19	4.01	6.78	5.66
Qinghai	3.94	4.22	4.39	3.21	4.50	3.38
Shaanxi	5.42	4.45	6.34	5.48	5.98	4.86
Shandong	9.89	12.15	8.71	8.8	10.45	9.33
Shanghai	13.05	8.61	9.62	20.91	13.61	12.49
Shanxi	5.25	3.58	6.7	5.47	5.81	4.69
Sichuan	8.11	8.22	8.17	7.95	8.67	7.55
Tianjin	9.68	8.5	8.95	11.6	10.24	9.12
Tibet	3.62	3.11	4.35	3.4	4.18	3.06
Xinjiang Uygur	4.72	4.1	5.28	4.79	5.28	4.16
Yunnan	6.22	6.03	7.31	5.31	6.78	5.66
Zhejiang	15.41	12.53	9.49	24.2	15.97	14.85
Average	8.11	8.08	7.62	8.63	8.67	7.55

Market Extracted from the National Economic Research Institute (NERI) periodic reports on Index of Marketisation of China's provinces 2003 to 2014. Market Development Index (MDI) overall score as well as Credit Market Index (CMI), Government Decentralisation Index (GDI), Legal Environment Index (LEI), Factor Market Index (FMI) and Product market Index (PMI).

APPENDIX B							
SUMMARY STATISTICS							
Variable	Mean	S.D.	Min.	25%	Median	75%	Max.
Modified Auditor Opinion	0.07	-	-	-	-	-	-
Big 10 Auditor %	0.35	-	-	-	-	-	-
International Big 4 %	0.04	-	-	-	-	-	-
Domestic Big 6 %	0.31	-	-	-	-	-	-
LSOE %	0.48	-	-	-	-	-	-
MDI	9.03	2.41	2.60	7.33	9.02	11.14	13.33
Ln(Total Assets)	21.59	1.16	18.27	20.82	21.52	22.27	25.26
Sales Growth	0.12	0.40	-2.15	-0.03	0.11	0.25	2.84
RoA	0.03	0.09	-0.97	0.01	0.03	0.06	0.36
Leverage	0.20	0.16	0.00	0.07	0.19	0.31	1.34
Current Ratio	1.84	1.97	0.08	0.90	1.30	2.00	21.12
Receivables & Inventories	0.28	0.18	0.00	0.14	0.25	0.38	0.85
Asset Turnover	0.66	0.48	0.02	0.34	0.55	0.83	3.06
Equity Issuance	0.30	-	-	-	-	-	-
Loss Last Year	0.11	-	-	-	-	-	-
Audit Tenure	3.46	2.50	1.00	2.00	3.00	5.00	12.00

Data covers the period from 2003 to 2014 including 13,549 firm-year observations. Variables are defined in Table 1. All continuous variables are winsorized at the top and bottom 1%.

APPENDIX C

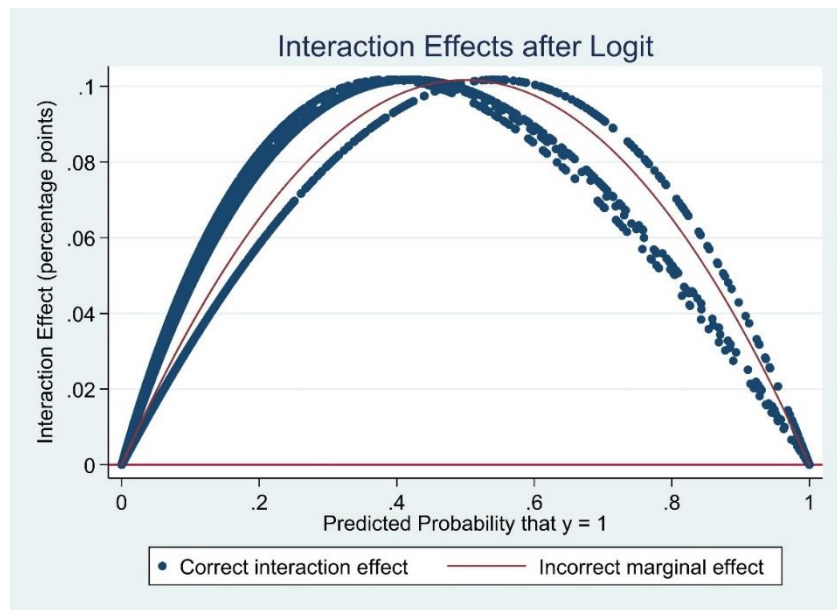
INTERACTION EFFECTS ANALYSIS

This section investigates the interaction effects in the estimation models used in the analysis following Ai and Norton (2003) and Norton *et al.* (2004). To do so, I use STATA command ‘*inteff*’ that was developed by Norton *et al.* (2004). This command considers the nonlinear nature of the logit regression and derives the standard errors for the interaction effect by applying the Delta method proposed by Ai and Norton (2003). In particular, this command allows the interaction effects to vary for each observation based on the predicted probability that the dependent variable equals one. Hence, I present the results of the magnitude and the significance of the interaction effects in graphs for each of the interaction terms that were used in the analysis.

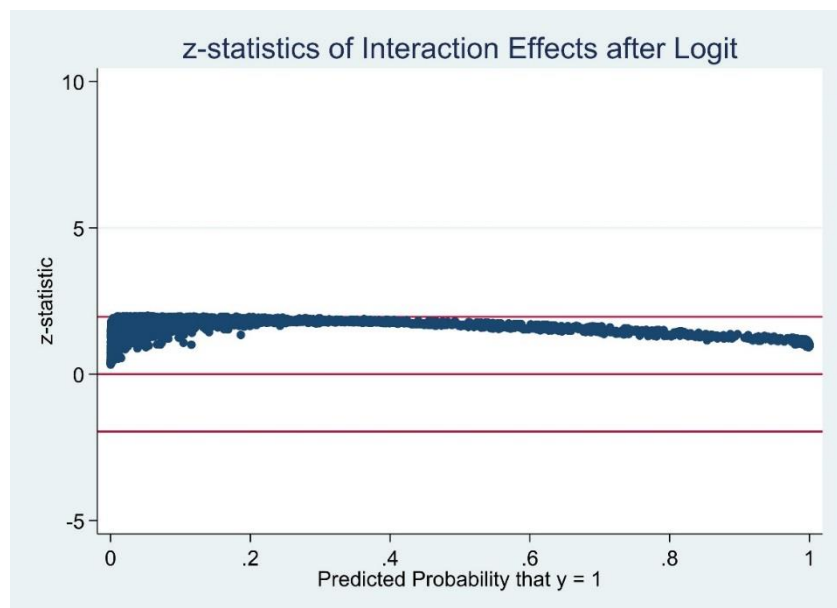
- a. The interaction effect of LSOE . SSSR (MAO relative to Standard Unqualified Auditor Opinion).

Graph 1 shows that the interaction effect for ‘LSOE . SSSR’ is positive. Nonetheless, the interaction effect is only slightly significant when the propensity to issue an MAO is relatively low. This implies that the SSSR increases the probability that LSOEs will receive an MAO when the predicted probability for MAOs is small.

Graph 1 (a): Interaction effect magnitude of 'LSOE . SSSR'



Graph 1 (b): Interaction effect significance of 'LSOE . SSSR'

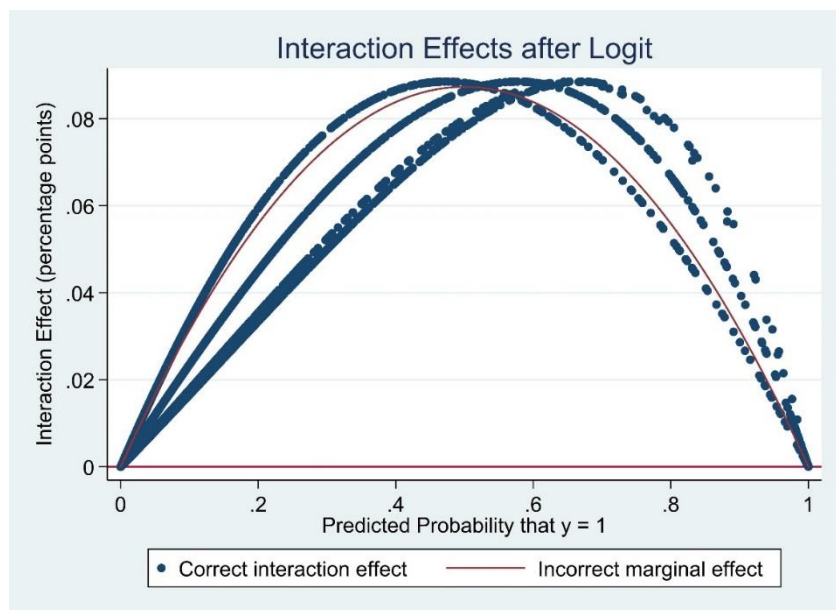


- b. The interaction effect of LSOE . Document 56 (MAO relative to Standard Unqualified Auditor Opinion).

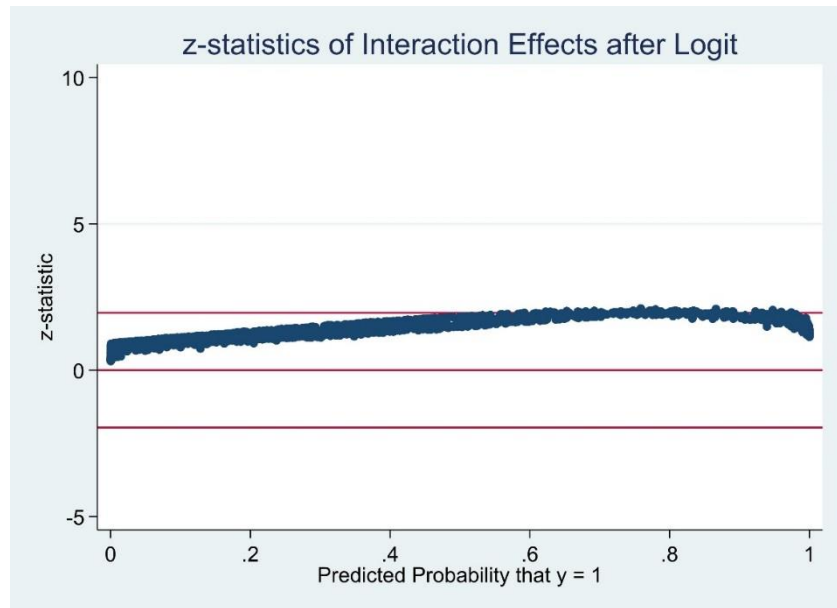
Graph 2, similarly, shows that the interaction effect for ‘LSOE . Document 56 is positive. However, the interaction effect becomes slightly significant when the propensity to issue an MAO is relatively high. Hence, Document 56 announcement increased the probability that LSOEs will receive an MAO in the cases when the predicted probability for MAOs is already very high.

The use of graphs to present interaction effects, both the magnitude and the significance level, produce more accurate estimates compared with testing the coefficient of the interaction term (Ai and Norton, 2003; Norton *et al.*, 2004). Therefore, the estimates in this section accompanied by the results presented early in this chapter provide an important comparison and investigation of the main interaction terms used in this chapter.

Graph 2 (a): Interaction effect magnitude of ‘LSOE . Document 56’



Graph 2 (b): Interaction effect significance of 'LSOE . Document 56'



5. AUDITOR CHOICE, OWNERSHIP STRUCTURE AND AUDIT QUALITY: EVIDENCE FROM CHINA

Abstract

This study examines audit quality in China over the period 2003 to 2014. It uses audit fees as a surrogate for audit quality. In particular, I study two main structural reforms in China and how they affect audit quality. The first of these is the privatisation of Local State-owned Enterprises (LSOEs) through the Split-share Structure Reform (SSSR) and the second is the development of the domestic accounting industry through “Document 56”. I also study how government influence over firms affects audit quality, as well as the moderating effect of auditor choice on this relationship. I finally study how audit quality differs across China's different regions based on the level of market development. Using a sample of 1,826 Chinese listed firms during the period from 2003 to 2014, the main results show that LSOEs are charged lower audit fees compared with NSOEs. The results also show that big audit firms, both domestic Big 6 and international Big 4, charge higher audit fees compared with non-Big-10 audit firms. I observe a drop in audit quality subsequent to the SSSR, followed by a slight improvement after the announcement of Document 56. The results provide no evidence that market development improves audit quality in China. This paper casts light on political economy literature and provides some evidence for policy-makers to evaluate how market deregulation (i.e., the SSSR)

and other structural reforms (i.e., Document 56) affect audit quality in the country.

5.1. INTRODUCTION

This study examines how ownership structure and market development affect audit quality in China over the period 2003 to 2014. Despite the body of research that investigates government ownership and audit quality in China in the past few decades (e.g., Liu and Subramaniam 2013; Chen *et al.*, 2011; Chen, 2010; Wang *et al.* 2008; DeFond *et al.*, 2000), the link between China's structural reforms and how they, in turn, affect audit quality is still not adequately investigated. This paper, hence, investigates two major reforms in China during the last decade and how they improve audit quality in the country. The first reform is the SSSR in the period 2005 to 2009.⁶⁰ The SSSR triggered the final stage of privatisation, during which LSOEs were allowed to sell the remainder of their shareholdings actively in the financial markets upon the achievement of a consensus on a reform implementation plan with the major private investors of the firm.

The second major reform is the government policy "Document 56" that aims to develop the Chinese domestic audit market where the government, in steps to develop the accounting industry to produce firms that can compete with the international Big 4 audit firms, introduced a national policy - "A Number of Opinions on Accelerating the Development of Certified Public Accountants" - in 2009 through the State Council (Gillis 2014, 242). Hence, this paper studies

⁶⁰ The SSSR is the third wave of privatisation in China after the development of SOEs in the 1970s and launching Shanghai and Shenzhen stock exchanges in the early 1990s.

how these two major reforms help affect audit quality in China, which gives the study its importance.

In addition, this paper considers the differences between China's different regions.⁶¹ In China, where the legal enforcement and the application of courts are weak, the state still dominates the economy, even when it gives up direct control (Wong, 2016), resulting in different levels of legal enforcement and government intervention across China's 31 provinces. By studying these fundamental and crucial events and considering the differences across regions, this study follows a specific theoretical construct, as discussed below, based on political economy, to study audit quality in China. By doing so, I try to reduce the problem of the weak theoretical structure that is a feature of previous empirical studies on audit quality according to DeFond and Zhang's (2014) audit quality research survey.

From the agency theory point of view, I conjecture that audit quality is affected by these two major reforms (i.e., the SSSR and Document 56).⁶² Moreover, the impact of government ownership over audit quality might change before, during, and after these reforms. This paper is motivated by two streams of literature.

⁶¹ I split China into six different regions: Metropolis, Northeast, Coast, Central, Northwest and Southwest following Sun and Graham's (2013) classification which is based on per capita GDP data at provincial level from 1949 to 2011. Data on per capita GDP are from China Compendium of Statistics (NBS 2010) and China Statistical Yearbook 2012 (NBS 2013).

⁶² Jensen and Meckling (1976) raise a potential conflict between the principals (owners) of a project and the agents (management) that are supposed to act in the benefit of the project. As a monitoring tool the principal can appoint external auditors. In the case of China, auditors might also collude with agents (government) as a result of a weak legal environment. The structural reforms in the financial and audit markets, however, might help reduce government influence and enhance audit quality and independence.

First, how the state influences the Chinese financial market (Wang *et al.*, 2008; Chen, 2010; Piotroski *et al.*, 2015; Wong, 2016) and, second, the research on audit quality in China (DeFond *et al.*, 2000; Chen *et al.*, 2001; Chi *et al.*, 2013; Bandyopadhyay *et al.*, 2014). Audit research provides a number of proxies to characterise higher quality audit. Among these different proxies mentioned in previous literature, this paper uses an input-based measure “total audit fees” as a surrogate for audit quality, in response to the findings of DeFond and Zhang’s (2014) survey of empirical audit quality research.⁶³ They suggest that future research should use different proxies in different categories in order to establish a more accurate foundation for proxying ‘high quality’ audit. Hence, this paper follows their underlying definition of a high quality audit as: “greater assurance that the financial statements faithfully reflect the firm’s underlying economics, conditioned on its financial reporting system and innate characteristics” (DeFond and Zhang, 2014, 276).

Furthermore, this paper focuses on the supply side of the high quality audit, in order to study whether the audit profession has improved in China over the study period. Liu and Subramaniam (2013) also follow the supply side of the audit to understand audit behaviour. The rationalisation behind this is that, as the Chinese market is dominated by the state, it is worth investigating audit firms' perceptions and how government ownership may affect their audit risk assessment. As I am more concerned with the dynamics in the Chinese market (i.e., the SSSR and Document 56) and their impact on audit quality, it is suitable to study the supply

⁶³ An output-based measure of audit quality “the propensity to issue a modified audit opinion (MAO)” was used and discussed in Chapter 4 on auditor independence in China.

side of the high quality audit.⁶⁴ Hence, this paper will discuss and apply some empirical audit quality models in the context of China to better understand how the characteristics of the Chinese market and its reforms affect audit quality in China.

I use the audit fees charged for audit services as my measure for audit quality. The pricing of audit services is widely used in literature as a proxy for high quality audit, assuming that the higher the fee charged by the audit firm, the more time and effort the audit firm will take and, hence, the higher the quality of the audit. Simunic (1980) introduces four factors that affect audit pricing: 1) monopoly pricing; 2) production economies; 3) the increase in auditor's share of losses; and 4) the increase in loss exposure. In developed nations like the UK and the US, many scholars build on the Simunic (1980) model and investigate different aspects with regard to the determinants of audit fees (Chan *et al.*, 1993; Seetharaman *et al.*, 2002; McMeeking *et al.*, 2007), leading to well-developed models that can explain up to 83% of the variance in total audit fees (Low *et al.*, 1990; Hassan and Naser, 2013). Other research focuses on the macroeconomic factors that might, also, affect audit pricing (Taylor and Simon 1999).

In China, unlike in more developed nations like the UK and US, the audit market is dispersed between international, large and small domestic audit firms, rather than being dominated by the international Big 4 audit firms (Wang *et al.*, 2008; Lu and Fu, 2014). Also, Gillis (2014, 253) reports that the government plays a

⁶⁴ Following Liu and Subramaniam (2013) studying the supply side of audit quality, allows to examine how audit firms perceive government ownership and how does it affect their pricing behaviour.

major role in both the financial and the audit markets in China, either directly as the ultimate controlling shareholder of the firm or indirectly through its political connections. Hence, a body of literature in China investigates how government ownership and the institutional environment (e.g., regional market development and legal enforcement environment) affect audit quality as proxied for by the pricing of audit services (Wang *et al.*, 2008; Hu *et al.*, 2012; Liu and Subramaniam 2013).

However, these studies either cover one of the major restructuring reforms e.g., the SSSR in the study of Liu and Subramaniam (2013), or none of them e.g., Wang *et al.* (2008). Moreover, none of these studies, which include the SSSR in their study period, explicitly factors in the declining number of LSOEs due to the SSSR, or the implications of this decline for their findings. Furthermore, these studies fail to agree on one classification for high quality audit firms in China.⁶⁵ Trying to overcome this issue, I incorporate Gillis's (2014, 242) observation that the Chinese Institute of Certified Public Accountants (CICPA) started several significant reforms that are intended to improve the efficiency and competitiveness of domestic audit firms against the Big 4 international audit firms (i.e., Document 56). Hence, I distinguish between three types of audit firms in China (i.e., the international Big 4, domestic Big 6 and other non-Big-10 audit firms) instead of two.

⁶⁵ Many papers have used Big 10 (including the international Big 4) audit firms to reflect high quality audit, while others use the international Big 4 audit firms to signal higher quality (Lin and Liu 2009; Li and Luo 2011; Chi et al. 2013; Leung and Cheng 2014)

In this study, I focus on the structural changes and reforms in the Chinese financial and audit markets and their impact on the pricing of audit services and, hence, audit quality. Initially, I investigate the government influence over audit quality in China. In order to do so, I study audit quality from a supply point of view, where, following Liu and Subramaniam (2013) this allows the examination of how audit firms perceive government ownership and how it affects their pricing behaviour. I conjecture that audit quality for auditors of LSOEs is lower compared to auditors of NSOEs. Hence the audit fees charged to LSOE clients will be lower than that for NSOEs after controlling for the other determinants of audit fees. This is due to the fact that the state has a lower demand for high quality audit and lower risk compared with NSOEs (Wang *et al.*, 2008).

Nevertheless, I investigate whether audit quality has improved as a result of the SSSR (that represents the third and final wave of privatisation in China) and Document 56 (which sets a five-year policy to develop the accounting industry in the country). I also investigate the moderating effect of auditor choice on the previous relationships⁶⁶ and the impact of market development on audit quality in the different regions of China.

To test my conjectures, I run quantitative regression models (i.e., OLS, first difference, and GMM estimation models) that are to explain how audit quality, from the supply point of view, was developed in China throughout the study

⁶⁶ I distinguish between three types of auditors in correspondence to the findings in Chapter 3. These are international Big 4, domestic Big 6 and non-Big-10 audit firms.

period.⁶⁷ These models also include firm characteristics that previous related literature introduced as determinants of audit fees.⁶⁸ With data available on 1,826 public firms listed on the Shanghai and Shenzhen stock exchanges, for the period from 2003 to 2014, the empirical results support previous literature that, overall, LSOEs are charged less compared to NSOEs. I do not find a similar behaviour if a big audit firm is appointed (i.e., either domestic Big 6 or international Big 4), however. This implies that although the state dominates the Chinese market, big audit firms assess litigation risk regardless of government influence. The results also support the argument that big audit firms, both domestic and international, charge higher audit fees. Presumably, this is a result of higher quality audit services, as seen through their counter-balancing effect on government influence when I use interaction terms between big audit firms and ownership structure.

The investigation of the two major reforms in the Chinese financial and audit markets (i.e., the SSSR and Document 56) shows that firms that complete the SSSR are being charged lower audit fees compared to firms that do not complete the SSSR. However, after the announcement of Document 56, there is a slight improvement in overall audit quality in China.

This chapter, therefore, extends the previous literature on audit quality in several ways. First, I study how government influence over audit firms affects the

⁶⁷ The models use the pricing of audit services as a proxy for audit quality.

⁶⁸ I control for the changes in audit fees due to inflation throughout the study period by adjusting the prices using China's Consumer Price Index (CPI) using 1978 as my base year =100.

pricing of audit fees as a proxy for audit quality. Second, I investigate two major reforms in the Chinese financial and audit markets (i.e., the SSSR and Document 56) that aim to enhance audit quality. Finally, I investigate the role of market development in improving audit quality in China.

The remainder of this paper proceeds as follows. Section 2 introduces related literature and develops the hypotheses. Section 3 discusses the methodology while Section 4 includes the sample and data. The main results are reported in Section 5, and Section 6 concludes the paper.

5.2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Studies on audit quality in developed stock markets, such as the UK and the US, usually use archival data and econometrics to develop models that, in turn, can define high quality audit as a binary outcome of the audit process (DeFond and Zhang, 2014). These models use proxies that, in theory, explain the determinants of the high quality audit. Input-based measures of audit quality include auditor characteristics and audit-client contracting features while output-based measures of audit quality can include material misstatement, auditor opinion and financial reporting quality where audit provides a monitoring tool over managers' actions to limit agency costs. The quality of the audit service depends on the auditor's competence (i.e., discover any breach in the contract) and independence (i.e., report this breach of contract) (Watts and Zimmerman, 1981, 314).

DeAngelo (1981) introduces an argument that the quality of audit services is dependent on the audit firm size (e.g., the number of clients). In her study, she determines whether firms tend to choose a big audit firm in the period before an IPO. She finds a positive market reaction, reflected in share prices as a result. Hence, a higher quality audit is perceived to be provided by the Big 4 audit firms, as well as higher assurance services (i.e., the financial statements are fairly presented), suggesting that big audit firms will not compromise on independence (i.e., report a breach in financial statements that has been uncovered) to maintain that particular client. Meanwhile, a small audit firm's benefits from maintaining an important client (even if a breach is discovered in its financial statements) might outweigh the risks of reputation loss compared to a big audit firm. This dichotomy between big and small audit firms triggered a body of empirical research that either supports or contradicts the audit size and audit quality argument.

Francis and Yu (2009) argue that the Big 4 international audit firms' audit quality is even higher for firms with larger offices. Using a sample of 6,568 US firm-year observations audited by 285 Big 4 audit firms during the period 2003 to 2005, they report that clients of larger Big 4 offices receive more accurate going concern reports. Moreover, they have less aggressive earnings management and, hence, receive higher quality audits compared with clients of smaller Big 4 offices.

Moreover, Kim *et al.* (2003) provide evidence that the international Big 4 (formerly Big 6) audit firms' higher quality audit is limited to the case when the

client incentives are towards income-increasing earnings management. Using a sample of 33,353 US firm-year observations during the period 1984 to 1998, they find that the international Big 4 (formerly Big 6) audit quality is not different from small audit firms or even less when the client has income-decreasing incentives. Khurana and Raman (2004) also investigate the relationship between audit firm size and audit quality and further show that the international Big 4 higher audit quality is motivated by litigation exposure rather than reputation risk.

This study uses audit fees as a surrogate for audit quality in China. Where Aobdia (2018) find a significant association between audit fees and the measures of the audit quality performed by auditors and regulators. Hence, this study explores the effect of the main structural reforms in the Chinese market (i.e., the SSSR and Document 56) on the pricing of audit services as a measure of audit quality.

Simunic (1980) suggests that price competition between audit firms prevails throughout the audit market, this being irrespective of the international Big 4 audit firms (formerly Big 8) being accused of monopolising the audit market. In order to test his theory, he develops a model to estimate audit fees as a product of the quantity of audit services demanded by firms' management (hereafter client) and unit price. Hence, Simunic's (1980) assumption is that the external audit is a subsystem of a client's overall financial reporting system. Furthermore, the external audit is an economic good to the client, and the quantity of audit demanded is a trade-off between the client's benefits (i.e., having the auditors attest that the financial reports are reliable) and costs (i.e., potential legal

liability) (Hu *et al.*, 2012). Moreover, Simunic (1980) assumes that clients and auditors are risk neutral and seek to maximise their expected profits.

In his model, Simunic (1980) introduces four factors that affect audit pricing: 1) monopoly pricing; 2) production economies; 3) the increase in auditor's shares of losses, and, 4) the increase in loss exposure. Hence, variables that control for the differences in these factors may help to develop an estimation model for the determinants of audit fees as follows. First, variables on loss exposure include: a) client size, assumed to increase audit fees in that, the larger the firm size, the bigger the sample size required by the audit firm to achieve the same level of control; b) complexity of client's operations (i.e., diversification and decentralisation of operations) is hypothesised to increase audit fees; c) receivables and inventories assumed to increase a firm's relative audit risk and, as a result, increase its audit fees; and d) client industry, where it affects audit pricing, but there is no clear basis on how each industry affects audit price. Second, variables on the assessed loss-sharing ratio (i.e., in financial distress) include: a) the accounting rate of return with a negative relationship with audit fees; b) the net loss during the current and previous years with a positive relationship; and c) a qualification in auditor opinion in the current year is hypothesised to increase audit price. Third, audit variables include: a) size of the audit firm; and b) audit tenure.

The application of the Simunic (1980) model was well received in both developed and developing markets literature. Chan *et al.* (1993), using 985 UK quoted companies in 1989, find that client size plays a major role in determining

audit fees, both measured as the turnover and total assets of the firm. They further find a “Big 4” premium (formerly Big 8) over other smaller audit firms, though, many recent studies attribute this premium to selection bias using Heckman two-step procedures. Nonetheless, Clatworthy *et al.* (2009), using propensity score and portfolio matching methods, argue that the use of Heckman two-step procedures to confirm that big audit firms’ fee premium vanishes when we control for selection bias might not be valid. They provide evidence that the estimates that Heckman two-step tests provide are highly sensitive to sample selection and model specifications. Chan *et al.* (1993) also find that ownership diversification, number of subsidiaries, and auditor location (London office in their study) increase total audit fees.

In France, Gonthier-Besacier and Schatt (2007), studying the joint audit process effect on audit fees using a sample of 127 non-financial firms in 2003, report that, along with client size and client risk factors, as suggested by Simunic (1980), joint audit process further affects audit fees. In particular, they find that firms with two Big 4 auditors pay lower audit fees compared with comparable firms with one or no Big 4 auditors, after adjusting for firm size. Taylor and Simon (1999) hypothesise that increased litigation pressure, disclosure, and regulations lead to an increase in total audit fees. In their paper they combine observations on 20 countries into a single sample, and develop a model with two sets of variables: 1) micro-economic variables that deal with firm-specific audit fee determinants like in Simunic’s (1980) model; and, 2) macroeconomic variables that describe the political/economic environment for each country (i.e.,

litigation propensity, disclosure, and regulation). They find that litigation pressure, disclosure, and regulations increase audit fees.

In emerging markets, furthermore, Simunic's (1980) model successfully explains up to 83% of the variance in total audit fees. Hassan and Naser (2013) report, using data on 65 listed non-financial companies on the Abu Dhabi Stock Exchange in 2011, a significant effect of client size, client operational complexity and audit report lag on total audit fees. Low *et al.* (1990) also apply the Simunic (1980) audit pricing model on 291 listed firms on the Singapore Stock Exchange in 1986. They report similar findings, with client size being the strongest determinant of audit fees. Similarly, Joshi and Al-Bastaki (2000) apply the model to 38 listed firms on the Bahrain Stock Exchange in 1998, providing similar results.

Different from Anglo-American markets, there are two distinctive features of the Chinese financial market that, in turn, might affect the quality of audit services in the country. First, there is the complicated ownership structure of the Chinese stock market, where the state exerts influence over listed firms (Gillis, 2014, 257). Moreover, there is the weak legal enforcement and application of courts, where the state is dominating the economy, even when it gives up direct control (Wong, 2016). Second, the Chinese audit market is diffused compared to the audit market in more developed markets (i.e., the UK and US), as less than 5% of Chinese listed firms are audited by one of the international Big 4 audit firms, while the remaining market share is split between Chinese Big 6 and small audit firms with 55% and 40% market share respectively. Moreover, a wave of

regulations has affected the Chinese financial and audit markets in the last few decades that aims to limit state control and develop the accounting industry (i.e., the SSSR and Document 56).

Wang *et al.* (2008) estimate an audit fee model using a sample of Chinese listed firms from 2001 to 2003, assuming that audit pricing is a function of demand for high quality audit. They assume that LSOEs have less demand for high quality reputable audit firms and, hence, they will receive an audit fee discount. Their results support their argument. They observe, however, a mediating effect of auditor choice on this audit fee discount. In particular, they find that small auditors charge LSOEs less than NSOE, but do not give such a discount for Central SOEs (CSOE). This result explains the lower demand for high quality audit firms by LSOEs compared with both NSOE and CSOE during their study period.

Hu *et al.* (2012), using more recent Chinese data for 1,428 listed firms in 2008, investigate the impact of the ultimate ownership on audit fees in China. In their study, they also distinguish between three types of ownership (LSOE, CSOE and NSOE) and find that, due to the wave of mergers between audit firms, the shape of the Chinese audit market has changed. They provide evidence that contrasts with Wang *et al.* (2008) where, due to the bargaining power that the CSOE have, and the lower audit risk they face, they pay the least audit fees followed by LSOE and finally NSOE. This demonstrates the argument by Hu *et al.* (2012) that external audit is an economic good to the client, and the quantity of audit demanded is a trade-off between the client's benefits (i.e., having the

auditors attest that the financial reports are reliable) and costs (i.e., potential legal liability) from hiring a high quality audit firm.

Liu and Subramaniam (2013) further support the Hu *et al.* (2012) argument by studying 8,116 Chinese firm-year observations for the period from 2001 to 2008. In their study, they also divide SOEs into Central and Local SOEs to study the ownership effect on audit fees and further investigate how audit firm size affects the audit fee discount charged to these types of SOEs. They follow a trade-off argument between the political benefits, such as preferential access to capital and government bailout in financial distress (Wang *et al.* (2008)), and costs associated with state ownership (i.e., litigation risk). They argue that audit firms' benefits from their CSOE clients outweigh the potential litigation cost, despite the fact that CSOEs are of larger size and more complicated operations. This is because Central SOEs follow stricter regulations and enjoy stronger oversight compared with LSOEs. Nonetheless, they only receive an audit fee discount if a small audit firm that is less concerned about reputation maintenance is assigned, following the argument that small audit firms are less conservative than bigger audit firms, and audit quality is not independent from the audit firm size, as DeAngelo (1981) argues.

In this study, I focus on the structural changes and reforms in the Chinese financial and audit markets and their impact on the pricing of audit services and, hence, audit quality. In particular, I investigate the influence of the state over audit quality in China, and the impact of the SSSR that represents the third and final wave of privatisation in China, and how it affects the influence of the state

over audit fees. Furthermore, I investigate China's effort to develop its domestic accounting industry to compete with the international Big 4 audit firms through the announcement of Document 56, which sets a five-year policy starting from 2009 to create a structure of "10-200-7000" audit firms to provide services to large, medium and small audit firms respectively. In order to do so, I study audit quality from a supply point of view where following Liu and Subramaniam (2013) this will allow us to examine how these reforms affect audit firms' perceptions and behaviour.

The first hypothesis is to examine the conjecture that government influence impairs audit quality. Hence, I classify firms into LSOEs or NSOEs, following Clause 41 of the Guidelines for the Articles of Association of Listed Companies released by the China Securities Regularity Commission (CSRC),⁶⁹ and I predict that audit quality for LSOEs is lower compared to NSOEs. Hence, the audit fees charged to LSOEs will be lower than that for NSOEs after controlling for the other determinants that affect total audit fees charged.

Hypothesis 1. *Ceteris paribus*, auditors of LSOEs exhibit lower audit quality compared to auditors of NSOEs.

⁶⁹ A firm is considered as a LSOE if the state or a state agency meets any of the following criteria: "1) the one with the maximum shareholding in the shareholder list of listed company unless opposite evidence exists; 2) the one who can execute and control superior voting rights than the shareholder with the maximum shareholding of a listed company; 3) the one who holds and controls 30 percent or above of shares and voting rights unless opposite evidence exists; 4) the one who can decide the election of over half of members of board of directors of a listed company by executing voting rights; 5) the one who is under other circumstances as the stipulations of CSRC (CSMAR, China Listed Firm's Shareholders Research Database user guide).

I, then, investigate the role of the assigned auditor in moderating this relationship. Different from previous literature that treats auditor choice as a dichotomy I distinguish between three groups of auditors (i.e., the international Big 4, Chinese Big 6 and other small Chinese audit firms).⁷⁰ The argument is that both the international Big 4 and the domestic Big 6 audit firms produce higher quality audit compared to other small audit firms. The international Big 4 audit firms, however, enjoy more independence and follow stricter procedures regarding risk assessment compared to domestic Big 6 audit firms when they audit an LSOE. Hence, the next hypothesis is to investigate the role of the auditor in moderating state influence over audit quality as follows:

Hypothesis 2a. *Ceteris paribus*, the international Big 4 and domestic Big 6 audit exhibit higher audit quality compared to other small Chinese audit firms.

Hypothesis 2b. *Ceteris paribus*, Big 10 auditor choice moderates LSOE's negative impact on audit quality.

Also, I investigate the effect of Taylor and Simon's (1999) macroeconomic factors on audit pricing (i.e., litigation, disclosure and regulatory environments). The NERI publishes periodic reports that show differences across regions in mainland China. I differentiate between China's 31 different provinces based on

⁷⁰ Guedhami et al. (2009) and Guedhami et al. (2014) compare between the international Big 4 and all other Chinese audit firms. Chen et al. (2011) use the largest eight firms (i.e., the international Big 4 and the 4 largest Chinese firms) and all other Chinese audit firms. Wang et al. (2008) use the largest 10 firms (i.e., the international Big 4 and the 6 largest Chinese firms) and all other Chinese audit firms. And, Yang (2013) and Liu and Subramaniam (2013) use the largest 14 firms (i.e., the international Big 4 and the 10 largest Chinese firms) and all other Chinese audit firms.

market development to investigate how this affects audit quality (as proxied for by the pricing of audit services). Hence, I form the following hypotheses examining the role of market development in enhancing higher quality audit in China.

Hypothesis 3. *Ceteris paribus*, audit quality increases as firms move to regions of higher market development scores.

Finally, I build on previous literature that investigates how structural reforms (i.e., privatisation and changes in regulations) affect audit quality. Guedhami *et al.* (2009), using a cross-country sample, provide empirical evidence that privatisation (i.e., when ownership moves from the state to private investors) enhances higher quality auditor choice. Hence, I conjecture that the SSSR will limit government influence over audit fees.⁷¹ Furthermore, I investigate the effect of the announcement of Document 56, that aims to develop the Chinese domestic accounting profession, on audit fees. I conjecture that it will also enhance auditor quality following the stream of literature that shows a positive impact of regulations and standards changes that aim to improve audit quality (DeFond *et al.* 2000; Chen *et al.* 2001; Chen *et al.* 2010; Chi *et al.* 2013) on audit quality. Hence my last two hypotheses are formed as follows:

⁷¹ The SSSR allows LSOEs to sell their shareholdings in the financial markets. Hence, this should reduce government ownership and, in turn, government influence over audit quality. Wang *et al.* (2008) refer to this situation as the collusion argument of the state with small audit firms.

Hypothesis 4. *Ceteris paribus*, after the SSSR, there is an increase in overall audit quality.

Hypothesis 5. *Ceteris paribus*, after the announcement of Document 56, there is an increase in overall audit quality.

5.3. METHODOLOGY

Table 1 summarises the definition of variables used in this paper. To test the research hypotheses, I build on Simunic's (1980) audit pricing model and its developments (Chan *et al.*, 1993; Taylor and Simon, 1999; Joshi and Al-Bastaki, 2000; Gonthier-Besacier and Schatt, 2007; Wang *et al.*, 2008; Hu *et al.*, 2012; Hassan and Naser, 2013; Liu and Subramaniam, 2013) to better specify the determinants of audit fees. I also include my experimental variables capturing state influence and the structural reforms during the study period (i.e., the SSSR and Document 56).⁷² I assume that a firm's characteristics determine the audit fee charged. Hence my experimental variables will test the impact of the state influence over audit fees, as well as the impact of the structural reforms in the Chinese market during the study period (i.e., the SSSR and Document 56) on the

⁷² I use LSOE as a proxy for government influence over firms. The firm is set to be an LSOE if the state at its local level is any of the following. i) the one with the maximum shareholding in the shareholder list of listed company unless opposite evidence exists. ii) the one who can execute and control superior voting rights than the shareholder with the maximum shareholding of a listed company. iii) the one who holds and controls 30 percent or above of shares and voting rights unless opposite evidence exists. iv) the one who can decide the election of over half of members of board of directors of a listed company by executing voting rights. v) the one who is under other circumstances as the stipulations of CSRC. (CSMAR, China Listed Firm's Shareholders Research Database user guide).

pricing of audit services. As a result, I first run the following estimation model⁷³ as a benchmark.

$$\begin{aligned}
& \ln(\text{Total Audit Fees}) \\
&= b_0 + b_1 \text{Local SOE}_{it} + b_2 \text{International Big 4}_{it} + b_3 \text{Domestic Big 6} \\
&+ b_4 \text{MDI}_{it} + \sum_{k=5}^n \beta_k \text{Control}_{it}
\end{aligned} \tag{1}$$

I then rerun the estimation model to include the moderating impact of the auditor choice on the state influence over audit quality as in Equation 2.

$$\begin{aligned}
& \ln(\text{Total Audit Fees}) \\
&= b_0 + b_1 \text{Local SOE}_{it} + b_2 \text{International Big 4}_{it} \\
&+ b_3 \text{Local SOE} \cdot \text{International Big 4}_{it} + b_4 \text{Domestic Big 6} \\
&+ b_5 \text{Local SOE} \cdot \text{Domestic Big 6}_{it} + b_6 \text{MDI}_{it} \\
&+ \sum_{k=8}^n \beta_k \text{Control}_{it}
\end{aligned} \tag{2}$$

Finally, I incorporate the impact of the SSSR and Document 56 to test the hypotheses as follows.

⁷³ The use of different versions of audit fees (i.e., total audit fees or audit fees to total assets) does not affect the main findings of the study.

$\ln(\text{Total Audit Fees})$

$$\begin{aligned}
&= b_0 + b_1 \text{Local SOE}_{it} + b_2 \text{International Big 4}_{it} \\
&+ b_3 \text{Local SOE} \cdot \text{International Big 4}_{it} + b_4 \text{Domestic Big 6} \\
&+ b_6 \text{Local SOE} \cdot \text{Domestic Big 6}_{it} + b_7 \text{MDI}_{it} + \beta_8 \text{Post SSSR} \\
&+ \beta_9 \text{Post Document 56} + \sum_{k=10}^n \beta_k \text{Control}_{it} \quad (3)
\end{aligned}$$

Simunic's (1980) audit pricing model is based on a cross-sectional ordinary least squares (OLS) linear regression equation. I, however, follow Cahan *et al.*, (2011), Eshleman and Lawson, (2017) and Ghosh and Lustgarten (2006) and run a pooled OLS regression model on all firm-year observations combined to obtain a bigger sample size and test for the impact of the structural reforms over the study period (i.e., before and after each of the SSSR and Document 56) using the aggregated sample.

[TABLE 1]

I include industry and region dummies to allow for different intercepts based on the region in which the firm is located and its industry. I finally consider the dynamic behaviour of audit fees, where Kacer *et al.* (2018) report that audit fees are persistent over time. Hence, I use different estimation methods that take this into consideration (i.e., GMM). In the GMM estimation model, as illustrated later in this chapter, I use an adjustment of the Arellano-Bond estimator and use the last year's audit fee as a determinant of the current year audit fee (using

lagged dependent variable first-differences as suitable instrumental variables (IVs)) after controlling for multicollinearity (Roodman, 2009).^{74, 75}

5.4. DATA AND SAMPLE

The sample comprises of all Chinese listed firms for the period from 2003 to 2014. I start in 2003 where data on ownership structure started to be publicly available through the China Stock Market and Accounting Research (CSMAR) database. Audit firms are classified based on the CICPA Top-100 Accounting Firms, which has published these reports annually since 2003 based on variant audit quality indicators (i.e., total revenue, the number of employed CPAs, internal governance and practice quality). Regional development data is constructed based on the National Economic Research Institute (NERI) periodic reports on Index of Marketisation of China's provinces from 1997 to 2014. Table 2 presents the sample selection process, where data on 1,826 listed firms are used in the analysis.

⁷⁴ GMM estimation models use statistical tools that allow for using the lagged dependent variable as one of the independent variables without causing multicollinearity between independent variables by the use of IVs.

⁷⁵ "A problem with the original Arellano-Bond estimator is that lagged levels are poor instruments for first differences if the variables are close to a random walk" (STATA 15 User manual "help for xtabond2").

I restrict the sample to non-financial firms issuing A-shares only,⁷⁶ and remove observations with missing data. I also exclude observations during the SSSR, hence the sample can be divided into three periods (i.e., before the SSSR, after the SSSR, and after Document 56). This sample allows the conducting of several tests on the determinants of audit fees (i.e., cross-sectional analysis, pooled OLS and dynamic panel data) as illustrated later in this chapter.

[TABLE 2]

Table 3 demonstrates the audit market structure of Chinese listed firms over the study period from 2003 to 2014. In particular, it shows the market share of clients for each audit type, along with information on total assets audited and total audit fees. From the table we can notice that the international Big 4 audit firms maintain an average market share of 4% of clients. Nonetheless, this percentage accounts for an average of 18% and 13% of total assets audited and total audit fees, respectively. Domestic Big 6 audit firms' market share, however, grows from as little as 5% in 2003 to almost 60% of total firms by the end of 2014. This substantial increase is reflected in the reduction of the non-Big-10 audit firms' market share, as well as the growing number of listed firms in China during the study period. Moreover, by 2014, the domestic Big 6 audit firms audit almost 50% of firms' total assets and earn around 50% of total audit fees of all firms.

⁷⁶ In order to keep a sample of firms that is subject to the same regulatory environment. For a similar reason and to keep the samples comparable in the three empirical essays in this thesis, I exclude Central SOEs from my sample.

The remaining non-Big-10 audit firms' market share dropped substantially in all the three indicators of market share as follows. Number of clients dropped from 91% of total firms in 2003 to as little as 4% in 2014. Both total assets audited, and total earnings dropped from an average of 80% in 2003 to around 35% by the end of the study period.

[TABLE 3]

5.5. MAIN RESULTS

Table 4 summarises the variables I use to examine the determinants of audit fees in China as a surrogate for audit quality. The table reports how the averages change⁷⁷ for each variable throughout the sample period. We can see the decrease in the number of SOEs throughout the sample period due to the SSSR, from 68% in 2003 to 35% in 2014. We can also compare the variable means across the sample period and between the two types of ownership (SOEs and NSOEs). All continuous variables are winsorized at the top and bottom 1% to limit extreme values and potential outliers. I also use the Consumer Price Index (CPI) to adjust audit fees to control for changes due to inflation.⁷⁸

[TABLE 4]

⁷⁷ I provide summary statistics for the variables used in the analysis in Appendix A.

⁷⁸ Data on CPI are collected from the National Bureau of Statistics of China for the period from 2003 to 2014 using 1978 prices as the base price to calculate the index and adjust total audit fees to real audit fees.

I also test whether the independent variables have any multicollinearity problems. Table 5 reports the correlation coefficients matrix for the variables I use in the analysis. From the table, and after running Variance Inflation Factor (VIF) tests (not tabulated), there seem to be no collinearity problems.

[TABLE 5]

Table 6 presents the pooled OLS regression results for the estimation of the models. The coefficients of the estimated regressions are accompanied by the associated t-statistics and are reported based on robust standard errors. In the analysis, I control for industry and region fixed effects by adding industry and region dummies. Model 1 shows the results ignoring the SSSR and Document 56. The results show a fee discount given to LSOEs compared with NSOEs. Moreover, I find that big audit firms (i.e., international Big 4 and domestic Big 6) charge higher audit fees.

For the macroeconomic variable introduced by Taylor and Simon (1999), I do not find a significant impact of market development on audit fees.⁷⁹ This indicates that after controlling for the geographic location of the firm, through region dummies, market development does not have an incremental effect of market development on audit fees.

⁷⁹ A more detailed investigation of market development effect on audit fees after the SSSR and Document 56 shows that market development becomes an important determinant of audit fees in the period after the SSSR.

In Model 2, I test if there is any moderating role for Big 10 audit firms on the effect of state influence on audit fees. Nonetheless, the results show no incremental change in audit fees for LSOEs' audit by either the international Big 4 or the domestic Big 6 audit firms compared to other non-Big-10 auditors. Model 3 tests the impact of the structural reforms (i.e., the SSSR and Document 56) on audit fees and, hence, audit quality. The results show a decrease in audit quality in the period after the SSSR. Nonetheless, after the announcement of Document 56, there is a slight improvement in audit quality.⁸⁰

Other control variables prove to be good determinants of audit fees as follows. Audit tenure increases audit fees, suggesting that the audit period does not impair audit quality. Firms with MAOs and loss-making firms are charged higher audit fees the following year. Client size is an important determinant of audit fees while firm profitability and liquidity, measured by RoA and Current Ratio, slightly reduce audit fees. Firms with a higher leverage ratio have lower audit fees, but the results are only slightly significant. Finally, receivables plus inventories to total assets variable does not seem to reflect the complexity of operations as it does not affect audit fees.⁸¹

⁸⁰ I test the interaction effect of the SSSR and Document 56 with government ownership and auditor type variables (not tabulated). The results show no significant difference between SOEs and NSOEs, with a slight increase in audit fees charged by the international Big 4 audit firms after the SSSR.

⁸¹ Simunic (1980) suggests the ratio of foreign assets to total assets as a measure of operations complexity, which is predicted to increase audit fees. Because of the limited availability of data, I use the ratio of income attributed to subsidiaries as a proxy of firm's operational complexity and find a positive but not significant effect.

[TABLE 6]

For additional analysis, I consider the persistence in audit fees over time. In particular, I test the De Villiers *et al.* (2013) argument on the stickiness of audit fees, and that audit fees do not adjust immediately based on the determinants of audit fees in the audit pricing models. In their paper, they assume that the change in audit fees takes from one year and up to four years until it is reflected in actual prices. Hence, I apply a change model, where I regress the actual change in audit fees (i.e., current year audit fee minus last year's audit fee) on my experimental and control variables.⁸² The results are as reported and discussed in Appendix B.

Finally, I employ dynamic panel estimates to test for the persistence of audit fees over time by including last year's audit fee as a determinant of current year audit price. I follow Kacer *et al.* (2018) and run a simple OLS regression estimate of audit fees using last year audit fee as the only explanatory variable of the current audit fee, and then run GMM estimation models to incorporate the other control and experimental variables in the analysis. The results are reported and discussed in Appendix C.

⁸² I also apply a difference model where I regress change in audit fees on the changes in the experimental and control variables. The results (not tabulated) are similar to the change model in Table 7.

5.6. SUMMARY AND CONCLUSIONS

This chapter has explored the structural reforms in the Chinese market that aim to develop the domestic accounting industry in the country (i.e., the SSSR and Document 56). In China, where the government plays a crucial role in the financial and audit markets, I investigate two main factors that can affect audit quality. First, I study how state influence, by differentiating between LSOEs and NSOEs, affects audit quality in China. And, second, I highlight the regional differences in market development across China's 31 provinces. Finally, in correspondence to the findings of Chapter 3 in this thesis, I considered the moderating role of auditor choice in this relationship. In particular, I differentiate between three types of audit firms, international Big 4, domestic Big 6 and other non-Big-10 Chinese audit firms.⁸³

Using a sample of 1,826 Chinese listed firms in the period 2003 to 2014, I used higher audit fee as a surrogate for higher audit quality. The empirical results show that LSOEs receive an audit fee discount regardless of the audit firm type, hence, state influence impairs audit quality. Nonetheless, the results report higher audit fees charged by big audit firms, both domestic Big 6 and international Big 4. This implies a higher quality audit is provided by the Big 10 audit firms compared to other small audit firms. Finally, the investigation of the two major reforms (i.e., the SSSR and Document 56) shows a decrease in audit

⁸³ Ranking is based on the Chinese Institute of Certified Public Accountants CICPA Top-100 Chinese accounting firms for each year for the period 2003 to 2014.

quality after the SSSR, followed by a slight increase in audit fees in the period after the announcement of Document 56.

As for additional analysis, the use of different proxies of audit fees does not affect the findings of this study. It is important to understand the pricing behaviour that audit firms follow, however, and how it affects the way we can model audit pricing.⁸⁴ In this study, I assumed that the pricing of audit services is solely dependent on a firm's characteristics, and any persistence in audit fees will be reflected by the current year firm characteristics. Other research that assumes that audit fees are persistent over time and are a function of the change in either firm characteristics or last year's prices, uses different audit pricing estimation models that can derive different conclusions, as discussed in Appendix B and C.

The findings of this study cast some light on audit quality in China in the following ways. First, it investigates the impact of government influence on audit quality in a period when China experienced structural reforms in its state capitalism. In particular, it investigates two major reforms (i.e., the SSSR and Document 56) that aim to reduce government control and improve audit quality. This chapter also explores the role of market development in improving audit quality. Finally, yet importantly, this chapter provides some initial evaluation of China's experience in deregulating its market. This study can help China's

⁸⁴ The main objective of this study is to investigate how audit quality changes in response to China's recent structural reforms and it uses audit fees as a surrogate of audit quality, following relevant literature. It is not the objective of this study to compare and contrast between the different pricing models of audit services.

practitioners and policy-makers to follow up with the consequences of the SSSR and Document 56. It can also provide some evidence for other countries with similar ownership structures (i.e., other state capitalist economies) to import the Chinese experience into their markets.

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5.8. TABLES AND APPENDICES

TABLE 1	
VARIABLE DEFINITIONS	
Variable	Definition
Auditor Characteristics	
International Big 4	A dummy variable equals to 1 if the auditor is an international Big 4, and 0 otherwise
Domestic Big 6	A dummy variable equals to 1 if the auditor is a domestic Big 6, and 0 otherwise
Big 10 Auditor	A dummy variable equals to 1 if the auditor is a Big 10, and 0 otherwise
Log of Real Audit Fees	Log of audit fees adjusted for inflation through the use of CPI
Audit Fees to Assets	Total audit fees to total assets
MAO Last Year	A dummy variable equals to 1 if the firm received a modified auditor opinion in the previous year, and 0 otherwise
Audit Tenure	The period the client kept the same auditor - data from 2003 onwards
Post Document 56	A dummy variable for the event of the State Council's national policy announcement (Document 56)
Ownership Structure	
LSOE	A dummy variable equals to 1 if the firm is classified as a local state-owned enterprise, and 0 otherwise
Post SSSR	A dummy variable equals to 1 if the firm completed the Split-share Structure Reform, and 0 otherwise
Regional Development	

MDI	Market Development Index
Firm Characteristics	
Ln(Total Assets)	The natural logarithm of total assets
Sales Growth	The natural logarithm of (current sales/previous sales)
RoA	Return on total assets
Leverage	Total debt to total assets
Current Ratio	Current assets to current liabilities
Receivables & Inventories	The sum of receivables and inventories as a proportion of total assets
Asset Turnover	Sales to total assets
Equity Issuance	A dummy variable equals to 1 if the firm issued new shares during the year, and 0 otherwise
Loss last year	A dummy variable equal to 1 if the firm incurred losses in the previous year, and 0 otherwise

TABLE 2												
SAMPLE SELECTION												
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Number of listed firms	1,178	1,209	1,154	1,137	1,188	1,368	1,531	1,743	2,041	2,437	2,485	2,613
<i>Less: firms with B-shares or H-shares</i>	12	11	10	10	16	18	66	145	244	372	394	437
<i>Less: firms in the financial industry</i>	26	25	23	23	26	31	31	35	39	43	37	43
<i>Less: firms without ownership information</i>	6	4	1	1	4	4	6	7	5	12	24	34
<i>Less: CSOEs</i>	185	197	197	204	202	234	256	271	287	298	305	310
<i>Less: firms without financial information</i>	96	121	60	92	132	94	107	163	155	126	86	132
Final sample	853	851	863	807	808	987	1,065	1,122	1,311	1,586	1,639	1,657

Data covers the period from 2003 to 2014 including 13,549 firm-year observations. Financial data and data on ownership structure available publicly at CSMAR database. All continuous variables are winsorized at the top and bottom 1%.

TABLE 3													
AUDIT MARKET SHARE BY AUDIT TYPE – 2003 To 2014													
Auditor Choice	Ownership Type	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
International Big 4	Number of Clients	0.04	0.03	0.04	0.04	0.05	0.04	0.04	0.04	0.05	0.04	0.04	0.04
	<i>Total Assets Audited</i>	0.14	0.14	0.17	0.19	0.21	0.18	0.20	0.19	0.20	0.20	0.19	0.19
	<i>Total Audit fees</i>	0.07	0.06	0.08	0.12	0.18	0.14	0.13	0.13	0.16	0.16	0.15	0.14
Domestic Big 6	Number of Clients	0.05	0.05	0.06	0.09	0.12	0.19	0.29	0.31	0.34	0.50	0.55	0.56
	<i>Total Assets Audited</i>	0.08	0.06	0.09	0.13	0.14	0.23	0.28	0.30	0.31	0.43	0.47	0.48
	<i>Total Audit Fees</i>	0.07	0.06	0.07	0.11	0.13	0.21	0.30	0.31	0.33	0.46	0.50	0.51
Non-Big-10	Number of Clients	0.91	0.91	0.90	0.87	0.83	0.77	0.68	0.65	0.61	0.46	0.41	0.40
	<i>Total Assets Audited</i>	0.78	0.80	0.73	0.68	0.66	0.59	0.53	0.51	0.50	0.37	0.33	0.34
	<i>Total Audit Fees</i>	0.86	0.88	0.84	0.77	0.69	0.65	0.56	0.55	0.50	0.39	0.35	0.35

Data covers the period from 2003 to 2014 including 13,549 firm-year observations. Total assets and total Audit fees percentages are calculated using data in Yuan currency for all firms.

TABLE 4

MEAN VALUE FOR FIRM CHARACTERISTICS BY OWNERSHIP TYPE

Firm Characteristics	Ownership Type	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Big 10 Auditor %	All firms	0.09	0.09	0.10	0.13	0.17	0.23	0.32	0.35	0.39	0.54	0.59	0.60
	<i>LSOEs</i>	0.10	0.09	0.12	0.15	0.17	0.25	0.33	0.36	0.39	0.51	0.56	0.57
	<i>NSOEs</i>	0.07	0.08	0.08	0.10	0.16	0.20	0.32	0.34	0.38	0.56	0.62	0.61
International Big 4 %	All firms	0.04	0.03	0.04	0.04	0.05	0.04	0.04	0.04	0.05	0.04	0.04	0.04
	<i>LSOEs</i>	0.04	0.03	0.04	0.05	0.05	0.05	0.05	0.06	0.07	0.07	0.07	0.07
	<i>NSOEs</i>	0.04	0.04	0.04	0.03	0.05	0.04	0.02	0.02	0.03	0.02	0.03	0.03
Domestic Big 6 %	All firms	0.05	0.05	0.06	0.09	0.12	0.19	0.29	0.31	0.34	0.50	0.55	0.56
	<i>LSOEs</i>	0.06	0.06	0.07	0.10	0.12	0.21	0.28	0.31	0.32	0.44	0.49	0.51
	<i>NSOEs</i>	0.03	0.05	0.04	0.07	0.11	0.17	0.30	0.32	0.36	0.53	0.59	0.58
LSOE %	All firms	0.68	0.65	0.61	0.56	0.54	0.52	0.50	0.47	0.43	0.37	0.36	0.35
MDI	All firms	6.65	7.28	8.03	8.42	8.89	8.66	9.02	9.02	9.30	9.80	9.98	10.39
	<i>LSOEs</i>	6.63	7.25	7.89	8.30	8.73	8.43	8.75	8.75	8.91	9.24	9.45	9.85
	<i>NSOEs</i>	6.69	7.35	8.24	8.59	9.09	8.93	9.28	9.26	9.58	10.13	10.27	10.69
Ln(Total Assets)	All firms	21.08	21.15	21.16	21.24	21.38	21.37	21.45	21.61	21.78	21.83	21.94	22.07
	<i>LSOEs</i>	21.19	21.31	21.36	21.52	21.69	21.73	21.83	22.01	22.23	22.32	22.44	22.56
	<i>NSOEs</i>	20.86	20.86	20.84	20.88	21.02	20.99	21.08	21.26	21.44	21.54	21.66	21.80
Sales Growth	All firms	0.14	0.18	0.03	0.11	0.19	0.08	0.04	0.23	0.18	0.08	0.12	0.06
	<i>LSOEs</i>	0.14	0.19	0.09	0.11	0.20	0.08	0.05	0.22	0.17	0.06	0.08	0.02

	<i>NSOEs</i>	0.15	0.15	-0.05	0.11	0.17	0.07	0.02	0.24	0.19	0.09	0.14	0.08
RoA	All firms	0.01	0.00	-0.01	0.01	0.05	0.02	0.03	0.05	0.04	0.04	0.04	0.03
	<i>LSOEs</i>	0.02	0.02	0.01	0.02	0.04	0.02	0.02	0.04	0.04	0.03	0.03	0.02
	<i>NSOEs</i>	-0.02	-0.02	-0.04	-0.01	0.06	0.03	0.04	0.05	0.05	0.04	0.04	0.04
Leverage	All firms	0.26	0.26	0.26	0.26	0.23	0.22	0.21	0.20	0.18	0.16	0.16	0.15
	<i>LSOEs</i>	0.24	0.25	0.25	0.24	0.23	0.23	0.22	0.21	0.20	0.19	0.19	0.18
	<i>NSOEs</i>	0.31	0.29	0.29	0.28	0.23	0.22	0.20	0.18	0.16	0.15	0.15	0.14
Current Ratio	All firms	1.48	1.41	1.39	1.38	1.40	1.53	1.61	1.85	2.30	2.35	2.18	2.08
	<i>LSOEs</i>	1.51	1.41	1.39	1.31	1.30	1.31	1.38	1.44	1.53	1.53	1.48	1.52
	<i>NSOEs</i>	1.42	1.41	1.39	1.46	1.52	1.76	1.84	2.23	2.87	2.84	2.58	2.38
Receivables & Inventories	All firms	0.30	0.31	0.31	0.30	0.25	0.27	0.26	0.27	0.28	0.28	0.27	0.28
	<i>LSOEs</i>	0.28	0.29	0.29	0.27	0.23	0.24	0.23	0.24	0.24	0.25	0.24	0.24
	<i>NSOEs</i>	0.33	0.35	0.34	0.34	0.28	0.30	0.29	0.29	0.30	0.29	0.29	0.29
Asset Turnover	All firms	0.56	0.62	0.65	0.67	0.71	0.73	0.65	0.69	0.70	0.66	0.65	0.62
	<i>LSOEs</i>	0.58	0.66	0.70	0.72	0.76	0.74	0.67	0.70	0.72	0.68	0.67	0.62
	<i>NSOEs</i>	0.50	0.54	0.57	0.62	0.66	0.71	0.64	0.68	0.68	0.65	0.65	0.62
Equity Issuance	All firms	0.16	0.23	0.15	0.34	0.32	0.37	0.25	0.32	0.37	0.30	0.29	0.35
	<i>LSOEs</i>	0.15	0.23	0.13	0.27	0.27	0.31	0.22	0.25	0.27	0.23	0.21	0.22
	<i>NSOEs</i>	0.17	0.22	0.18	0.42	0.39	0.43	0.29	0.39	0.44	0.35	0.34	0.42
Loss Last Year	All firms	0.13	0.13	0.13	0.20	0.11	0.07	0.17	0.12	0.07	0.08	0.09	0.10
	<i>LSOEs</i>	0.11	0.10	0.10	0.15	0.08	0.06	0.16	0.12	0.06	0.09	0.11	0.11
	<i>NSOEs</i>	0.17	0.18	0.16	0.28	0.15	0.08	0.17	0.12	0.07	0.07	0.08	0.09
Audit Tenure	All firms	1.00	1.88	2.59	2.98	3.24	3.40	3.52	4.14	4.21	3.90	3.86	4.47
	<i>LSOEs</i>	1.00	1.90	2.61	3.05	3.34	3.56	3.64	4.35	4.60	4.40	4.29	4.90
	<i>NSOEs</i>	1.00	1.85	2.56	2.88	3.12	3.21	3.41	3.94	3.92	3.60	3.61	4.24

Ln(Real Audit Fees)	All firms	21.08	21.11	21.10	21.17	21.26	21.20	21.28	21.41	21.53	21.55	21.64	21.74
	<i>LSOEs</i>	21.19	21.27	21.31	21.44	21.57	21.55	21.66	21.81	21.98	22.04	22.14	22.24
	<i>NSOEs</i>	20.86	20.82	20.78	20.81	20.90	20.81	20.92	21.06	21.19	21.26	21.36	21.48
Audit Fees to Assets	All firms	0.36	0.36	0.36	0.37	0.37	0.40	0.40	0.37	0.34	0.33	0.31	0.29
	<i>LSOEs</i>	0.32	0.31	0.30	0.28	0.27	0.28	0.28	0.26	0.24	0.23	0.22	0.20
	<i>NSOEs</i>	0.45	0.45	0.46	0.48	0.50	0.53	0.51	0.47	0.42	0.39	0.36	0.34
CPI	All firms	438.70	455.80	464.00	471.00	493.60	522.70	519.00	536.10	565.00	579.70	594.80	606.70

Variables are defined in Table 1. All continuous variables are winsorized at the top and bottom 1%.

TABLE 5																			
CORRELATION COEFFICIENTS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1 Big 10 Auditor	1.00																		
2 International Big 4	0.28	1.00																	
3 Domestic Big 6	0.91	-0.14	1.00																
4 Ln(Real Audit Fees)	0.32	0.36	0.18	1.00															
5 MAO	-0.06	-0.03	-0.05	-0.11	1.00														
6 Post Document 56	0.35	0.00	0.36	0.33	-0.08	1.00													
7 Post SSSR	0.27	0.02	0.27	0.28	-0.12	0.55	1.00												
8 LSOE	-0.09	0.06	-0.12	0.04	-0.05	-0.19	-0.14	1.00											
9 MDI	0.28	0.07	0.25	0.28	-0.08	0.33	0.33	-0.20	1.00										
10 Ln(Total Assets)	0.21	0.24	0.11	0.70	-0.25	0.26	0.23	0.22	0.12	1.00									
11 Sales Growth	-0.02	0.00	-0.02	0.04	-0.18	0.02	0.02	0.00	-0.02	0.13	1.00								
12 RoA	0.08	0.05	0.06	0.13	-0.41	0.13	0.17	-0.03	0.11	0.19	0.32	1.00							
13 Leverage	-0.12	-0.03	-0.11	-0.02	0.22	-0.23	-0.20	0.09	-0.17	0.08	-0.05	-0.39	1.00						
14 Current Ratio	0.08	-0.05	0.10	-0.09	-0.12	0.18	0.11	-0.20	0.12	-0.13	-0.02	0.20	-0.42	1.00					
15 Receivables & Inventories	-0.02	-0.06	0.00	-0.01	-0.02	-0.03	-0.07	-0.13	0.08	0.01	0.03	-0.09	0.07	-0.01	1.00				
16 Asset Turnover	0.01	-0.01	0.01	0.15	-0.09	0.01	0.05	0.04	0.11	0.08	0.16	0.14	-0.09	-0.10	0.04	1.00			
17 Equity Issuance	0.04	0.00	0.05	0.10	-0.11	0.07	0.12	-0.14	0.09	0.13	0.17	0.18	-0.08	0.11	-0.01	0.03	1.00		
18 Loss Last Year	-0.06	-0.04	-0.05	-0.11	0.32	-0.07	-0.07	-0.02	-0.09	-0.22	-0.08	-0.29	0.18	-0.13	0.00	-0.08	-0.14	1.00	
19 Audit Tenure	0.11	0.09	0.07	0.21	-0.06	0.28	0.32	0.01	0.21	0.17	-0.04	0.05	-0.04	-0.05	-0.05	0.04	-0.03	-0.04	1.00

Variables are defined in Table 1. All continuous variables are winsorized at the top and bottom 1%. Bold numbers indicate significance at 5% level.

TABLE 6			
REGRESSION ANALYSIS OF THE DETERMINANTS OF AUDIT FEES			
OLS PANEL ESTIMATES OF AUDIT FEES			
<i>Dependent Variable: Log of Real Audit Fees</i>	Model 1	Model 2	Model 3
<i>LSOE</i>	-0.100*** (-6.341)	-0.109*** (-6.336)	-0.110*** (-6.298)
<i>International Big 4</i>	0.587*** (13.783)	0.601*** (8.943)	0.600*** (8.924)
<i>International Big 4 . LSOE</i>		-0.019 (-0.227)	-0.018 (-0.222)
<i>Domestic Big 6</i>	0.080*** (5.864)	0.065*** (4.104)	0.063*** (3.906)
<i>Domestic Big 6 . LSOE</i>		0.035 (1.355)	0.038 (1.457)
<i>MDI</i>	0.006 (1.189)	0.006 (1.278)	0.008 (1.428)
<i>Post SSSR</i>			-0.037*** (-3.129)
<i>Post Document 56</i>			0.020* (1.818)
<i>Log Total Assets</i>	0.309*** (38.883)	0.308*** (38.827)	0.308*** (37.997)
<i>Sales Growth</i>	-0.048*** (-5.840)	-0.047*** (-5.797)	-0.048*** (-5.924)
<i>RoA</i>	-0.119** (-2.277)	-0.118** (-2.248)	-0.105** (-2.001)
<i>Leverage</i>	-0.087** (-1.983)	-0.089** (-2.012)	-0.090** (-2.010)
<i>Current Ratio</i>	-0.011*** (-3.771)	-0.011*** (-3.732)	-0.011*** (-3.828)
<i>(Receivables plus Inventories) to Assets</i>	0.005 (0.121)	0.006 (0.129)	0.000 (0.009)
<i>Asset turnover</i>	0.109*** (6.361)	0.108*** (6.345)	0.109*** (6.420)
<i>Equity Issuance</i>	-0.000 (-0.023)	-0.000 (-0.037)	0.002 (0.190)
<i>Loss Last Year</i>	0.050*** (4.400)	0.050*** (4.390)	0.051*** (4.446)
<i>Audit Tenure</i>	0.004* (1.959)	0.004* (1.909)	0.005** (2.041)
<i>MAO Last Year</i>	0.168*** (7.760)	0.167*** (7.717)	0.167*** (7.713)
<i>Constant</i>	6.237***	6.246***	6.255***

	(36.676)	(36.599)	(35.851)
Adjusted R ²	0.568	0.568	0.568
Industry Dummies	Yes		
Region Dummies	Yes		
Observations	13549		

Variables are defined in Table 1. *, ** and *** denote 10%, 5% and 1% significance levels, respectively.

APPENDIX A							
SUMMARY STATISTICS							
Variable	Mean	S.D.	Min.	25%	Median	75%	Max.
Big 10 Auditor %	0.35	-	-	-	-	-	-
International Big 4 %	0.04	-	-	-	-	-	-
Domestic Big 6 %	0.31	-	-	-	-	-	-
LSOE %	0.48	-	-	-	-	-	-
MDI	9.03	2.41	2.60	7.33	9.02	11.14	13.33
Ln(Total Assets)	21.59	1.16	18.27	20.82	21.52	22.27	25.26
Sales Growth	0.12	0.40	-2.15	-0.03	0.11	0.25	2.84
RoA	0.03	0.09	-0.97	0.01	0.03	0.06	0.36
Leverage	0.20	0.16	0.00	0.07	0.19	0.31	1.34
Current Ratio	1.84	1.97	0.08	0.90	1.30	2.00	21.12
Receivables & Inventories	0.28	0.18	0.00	0.14	0.25	0.38	0.85
Asset Turnover	0.66	0.48	0.02	0.34	0.55	0.83	3.06
Equity Issuance	0.30	-	-	-	-	-	-
Loss Last Year	0.11	-	-	-	-	-	-
Audit Tenure	3.46	2.50	1.00	2.00	3.00	5.00	12.00
Ln(Real Audit Fees)	13.06	0.53	11.85	12.71	13.00	13.34	15.15
Audit Fees to Assets	0.35	0.38	0.02	0.14	0.24	0.42	3.23

Data covers the period from 2003 to 2014 including 13,549 firm-year observations. Variables are defined in Table 1. All continuous variables are winsorized at the top and bottom 1%.

APPENDIX B			
REGRESSION ANALYSIS OF THE DETERMINANTS OF AUDIT FEES			
OLS PANEL MODEL ESTIMATES OF CHANGE IN AUDIT FEES			
<i>Dependent Variable: Δ Log of Real Audit Fees</i>	Model 1	Model 2	Model 3
<i>LSOE</i>	-0.017*** (-4.742)	-0.014*** (-3.413)	-0.012*** (-2.897)
<i>International Big 4</i>	0.030** (2.409)	0.037** (2.159)	0.039** (2.255)
<i>International Big 4 . LSOE</i>		-0.012 (-0.530)	-0.014 (-0.589)
<i>Domestic Big 6</i>	0.008** (2.249)	0.012** (2.338)	0.011** (2.153)
<i>Domestic Big 6 . LSOE</i>		-0.007 (-1.050)	-0.010 (-1.344)
<i>MDI</i>	0.003*** (2.644)	0.003*** (2.580)	0.001 (1.256)
<i>Post SSSR</i>			0.025*** (3.977)
<i>Post Document 56</i>			-0.002 (-0.412)
<i>Log Total Assets</i>	0.013*** (6.732)	0.013*** (6.762)	0.012*** (6.336)
<i>Sales Growth</i>	0.070*** (9.000)	0.070*** (8.995)	0.070*** (8.981)
<i>RoA</i>	0.026 (0.705)	0.025 (0.688)	0.016 (0.434)
<i>Leverage</i>	0.003 (0.235)	0.003 (0.253)	0.008 (0.668)
<i>Current Ratio</i>	0.000 (0.136)	0.000 (0.127)	0.000 (0.128)
<i>(Receivables plus Inventories) to Assets</i>	0.009 (0.924)	0.009 (0.920)	0.013 (1.285)
<i>Asset turnover</i>	-0.006* (-1.680)	-0.006* (-1.662)	-0.006* (-1.656)
<i>Equity Issuance</i>	0.050*** (11.607)	0.050*** (11.598)	0.049*** (11.333)
<i>Loss Last Year</i>	0.006 (0.957)	0.007 (0.967)	0.006 (0.891)
<i>Audit Tenure</i>	-0.002*** (-2.843)	-0.002*** (-2.805)	-0.002*** (-3.427)
<i>MAO Last Year</i>	0.012 (1.278)	0.013 (1.314)	0.014 (1.410)
<i>Constant</i>	-0.268***	-0.271***	-0.266***

	(-6.557)	(-6.598)	(-6.459)
Adjusted R ²	0.050	0.050	0.051
Industry Dummies	Yes		
Region Dummies	Yes		
Observations	11133		

Variables are defined in Table 1. *, ** and *** denote 10%, 5% and 1% significance levels, respectively.

The table shows similar results to the OLS Panel estimates in Table 6 for Model 1 and 2. When considering the change in audit fee instead of total audit fees, however, the (positive) impact of MDI on audit quality becomes significant. For Model 3, however, there are significant differences compared with the OLS Panel estimates in Table 6, where I observe an increase in the change in audit fees subsequent to the SSSR. Moreover, I do not see any impact of Document 56 on audit quality.

APPENDIX C			
REGRESSION ANALYSIS OF THE DETERMINANTS			
PANEL A: ANALYSIS DEDUCED FORM OLS PANEL ESTIMATES OF AUDIT FEES			
Dependent Variable: Log of Real Audit Fees	Model 1		
Lagged Log of Real Audit Fees	0.945***		
	(210.855)		
Constant	0.758***		
	(13.002)		
Observations	11,133		
Adjusted R-squared	0.862		
Dependent Variable: Audit Fees to Assets	Model 2		
Lagged Audit Fees to Assets	0.886***		
	(68.416)		
Constant	0.029***		
	(7.070)		
Observations	11,133		
Adjusted R-squared	0.779		
PANEL B: ANALYSIS DEDUCED FORM DYNAMIC PANEL ESTIMATES OF AUDIT FEES - GMM			
Dependent Variable: Log of Real Audit Fees	Model 1	Model 2	Model 3
LSOE	0.079***	0.082***	0.083***
	(3.288)	(3.362)	(3.384)
International Big 4	0.294***	0.399***	0.404***
	(7.548)	(7.311)	(7.445)
International Big 4 . LSOE		-0.183***	-0.192***
		(-2.790)	(-2.931)
Domestic Big 6	0.065***	0.088***	0.084***
	(6.834)	(6.968)	(6.626)
Domestic Big 6 . LSOE		-0.047***	-0.051***
		(-2.849)	(-3.112)
MDI	0.008*	0.008*	0.005
	(1.901)	(1.906)	(1.117)
Post SSSR			0.013*
			(1.875)
Post Document 56			0.010*
			(1.696)
Lagged Log of Real Audit Fees	0.410***	0.408***	0.411***

	(29.687)	(29.534)	(29.746)
<i>Log Total Assets</i>	0.172***	0.172***	0.165***
	(21.515)	(21.506)	(19.506)
<i>Sales Growth</i>	0.009*	0.008	0.007
	(1.665)	(1.516)	(1.418)
<i>RoA</i>	0.047	0.046	0.036
	(1.468)	(1.438)	(1.110)
<i>Leverage</i>	0.081***	0.083***	0.084***
	(2.833)	(2.915)	(2.930)
<i>Current Ratio</i>	-0.005*	-0.005**	-0.005**
	(-1.949)	(-2.045)	(-2.048)
<i>(Receivables plus Inventories) to Assets</i>	-0.153***	-0.151***	-0.137***
	(-4.365)	(-4.328)	(-3.896)
<i>Asset turnover</i>	-0.005	-0.005	-0.010
	(-0.378)	(-0.315)	(-0.671)
<i>Equity Issuance</i>	0.022***	0.022***	0.023***
	(4.544)	(4.618)	(4.685)
<i>Loss Last Year</i>	0.016**	0.016**	0.016**
	(2.354)	(2.328)	(2.353)
<i>Audit Tenure</i>	0.006***	0.006***	0.005***
	(4.152)	(4.295)	(3.334)
<i>MAO Last Year</i>	0.032***	0.033***	0.034***
	(2.612)	(2.661)	(2.756)
Observations	8965		

Variables are defined in Table 1. *, ** and *** denote 10%, 5% and 1% significance levels, respectively.

The results in Panel A show that lagged audit fees explain more than 85% of the variation in current year audit fee.⁸⁵ Hence, the use of OLS estimates will lead to biased estimates, and dynamic estimates should be incorporated.⁸⁶ Therefore, I use the GMM estimation, using an adjustment of the Arellano-Bond estimator that allows for the use of 'lagged dependent variable first-differences' as suitable instrumental variables (Roodman, 2009).⁸⁷ The results of the dynamic GMM estimates, in Panel B, show that lagged audit fee is a very important determinant

⁸⁵ Using audit fee to total assets as a different proxy of audit quality shows a similar result with Adjusted R² of around 78%.

⁸⁶ This is due to the collinearity between lagged audit fees and the other independent variables if I include them in one OLS regression model.

⁸⁷ “A problem with the original Arellano-Bond estimator is that lagged levels are poor instruments for first differences if the variables are close to a random walk” (STATA 15 User manual “help for xtabond2”).

of current year audit fees. Moreover, the results confirm that there is a slight improvement in audit quality after the SSSR and further improvement after the announcement of Document 56.^{88,89}

⁸⁸ In the dynamic GMM estimates, LSOE has a positive impact on audit fees, implying that the results are very sensitive to the audit pricing behaviour I assume (i.e., audit pricing is purely dependent on firm characteristics, changes or the dynamics of the pricing of audit fees).

⁸⁹ As a robustness check, I run the tests again using audit fee to total assets as a proxy for audit quality, and hence, audit quality. I do not find any major differences from the results deduced using $\ln(\text{audit fee})$ except that firm size shows a negative impact on audit fees. This is explained by the economy of scale argument that the larger the firm size the smaller the relative proportion of audit fees to total assets.

6. SUMMARY, CONCLUSIONS AND LIMITATIONS

In this thesis, I investigate three aspects of audit market developments in China. In particular, I provide a background on the institutional setting of China, followed by three empirical chapters examining: i) the determinants of firm audit choice by listed firms in China; ii) the development of auditor independence in China; and iii) how China's recent reforms improve audit quality. Below is a summary of each of the three essays comprising my thesis. Also, I provide a discussion of the limitations of this thesis, along with some suggestions for future work.

In Chapter 3, I investigate audit choice by Chinese firms, distinguishing between three types of audit firms - the international Big 4 audit firms, the domestic Big 6 audit firms, and other small domestic audit firms - with the assumption that the large firms provide a high quality audit.⁹⁰ By doing so, I investigate not only a dichotomous audit choice between *high* and *low* quality audit firms but the audit type preference (i.e., international or domestic) as a consequence of China's recent structural reforms. In the study period, 2003 to 2014, China effected two significant reforms.

⁹⁰ DeAngelo (1981) argues that audit quality is a function of audit firm size (e.g., the number of clients).

The two structural reforms are the Split-share Structure Reform (SSSR) in 2005, and the audit market reform, “Document 56”, in 2009. The SSSR aims to improve the pricing of China’s capital market, empower free market control over listed firms and restructure LSOEs into NSOEs with an ultimate goal of maximising firm value (Joyce, 2008). Document 56 is a policy that sets out a five-year strategy to develop Chinese domestic accounting firms in order to allow competition with international accounting firms (Gillis 2014, 242)

The empirical results of Chapter 3 conclude that, after the SSSR and the announcement of Document 56, higher quality audit choice has increased. A detailed investigation of the results shows that this tendency towards higher quality audit choice is mainly effected through the choice of domestic Big 6 audit firms rather than the international Big 4. I also find that market development further increases the likelihood of hiring a high quality auditor. Overall, the role of the Chinese state in auditor choice remains but, in contrast to prior work, has turned towards the use of domestic Big 6, ‘high quality’, auditors, especially if an LSOE is located in a region with low levels of market development. In regions with high levels of market development, LSOEs behave more like other firms in that region, *ceteris paribus*.

Chapter 4 examines auditor independence in China in the light of China’s recent reforms, highlighting how the SSSR and Document 56 improve the likelihood that audit firms will issue a Modified Auditor Opinion (MAO). The chapter follows literature that uses the propensity that an auditor will issue a qualified

auditor opinion (e.g., to report any material misstatements in the financial statements when they are detected) as a surrogate for auditor independence (Chen *et al.*, 2001). It also builds on the findings of Chapter 3 and distinguishes between international and domestic large audit firms, as well as other non-Big-10 audit firms.

The findings of Chapter 4 suggest that, consistent with previous literature, the auditors of LSOEs exhibit a lack of independence compared with the auditors of NSOEs. Although, I do not find a direct impact of high quality audit firm choice, whether international Big 4 or domestic Big 6, on auditor independence, I find that high quality auditor choice improves auditor independence when the clients are from LSOEs. Despite the decline in MAOs in the period subsequent to the SSSR, I report an increase in auditor independence in the period after the announcement of Document 56. Market development does not seem to affect auditor independence in China in my study period, *ceteris paribus*. Lastly, the results show that the propensity to issue MAOs is mainly driven by the issuance of unqualified auditor opinions with an emphasis of matter paragraph instead of other types of MAOs (i.e., qualified auditor opinion, adverse opinion, or a disclaimer of opinion).⁹¹

⁹¹ In China, an auditor can issue an unqualified auditor opinion with emphasis of matter paragraph to indicate any significant events (i.e., pending lawsuits) that might affect the firm (Chen *et al.*, 2016).

Finally, Chapter 5 explores the pricing of audit services as a surrogate for audit quality in China. Studies on audit quality in developed stock markets, such as the UK and US, mainly use archival data and econometrics to develop models to define high quality (DeFond and Zhang, 2014). These include *input-based* and *output-based* measures of audit quality based on the audit process. Audit fees acts as one of the common *input-based* measures of audit quality in the audit research literature, following the important paper of Simunic (1980) on the pricing of audit services. Following my analyses that suggest that ownership structure and its reforms affect auditor choice and auditor independence, based on the findings of Chapter 3 and 4 respectively, in Chapter 5, I study how these reforms affect overall audit quality (as proxied for by the pricing of audit services) in the country over the same period.

The findings of Chapter 5 can be summarised as follows. Consistent with previous literature, as well as the findings of Chapter 4, state influence impairs audit quality. Nonetheless, big audit firms (i.e., the international Big 4 and domestic Big 6) provide higher quality audit services compared with other small Chinese audit firms. Market development, *ceteris paribus*, does not enhance audit quality over the study period. Finally, similar to the findings in Chapter 4, there is a reduction in audit fees, and hence audit quality, in the period after the SSSR which, however, is followed by an overall improvement in audit quality subsequent to the announcement of Document 56. This suggests that, in the period of the SSSR, the transition period of LSOEs to NSOEs, there was low demand for high quality audit services, or low pressure on audit firms to provide high quality audit due to lack of litigation risk. After the SSSR that aimed to

restructure LSOEs into NSOEs with an ultimate goal of maximising a firm's value (Joyce, 2008), however, the demand for high quality audit increases.

In this thesis, I conduct additional tests, where applicable, and use different estimation methods to ensure that I obtain valid results. Nonetheless, there remain some limitations. Investigating the audit market developments in China in the light of China's recent reforms, as well as China's complicated ownership structure, raises the following challenges. First, it is hard to accurately measure state influence over firms by using government ownership alone. In particular, direct ownership control, through LSOEs, is not the only way that the state can exert influence over firms (Milhaupt and Zheng 2015). The use of different proxies for state influence (i.e., the percentage holdings of the state in a firm, or political connections), can produce a better measure for state influence. It is hard to apply, however, due to the limited availability of data. In this thesis, I also excluded a very important type of Chinese listed firms, Central SOEs, to maintain comparable samples through the three empirical chapters of this thesis, and to restrict the study sample to firms following a similar regulatory environment. It can provide very important insights for future research to examine how the different types of government influence (i.e., Local SOEs and Central SOEs) affect the arguments discussed in this thesis differently.

Another issue that arises from studying the development of the Chinese audit market in this period is the other regulations and reforms in China. It is hard to separate the effects of the SSSR and Document 56 from other events that

happened during the same period. Moreover, if we assume that the time dummies for SSSR and Document 56, actually capture the effects of these reforms, it is challenging to identify which reform contributes the most to this effect. Splitting the sample into subsamples *pre* and *post* each one of these reforms can, perhaps, separate the effect of the reforms studied from other effects. I cannot split the effect in the period after 2009, however, when the two events affect the audit market simultaneously. For this issue, I study the impact of the two reforms combined in the period after 2009 and, mainly, if there is an incremental effect of the announcement of Document 56 over the impact of the SSSR.

Proxies for auditor independence and audit quality are subject to assumptions that the researcher makes while constructing the hypotheses based on theory. The use of western markets estimation models and to apply them to the setting of China should be taken with caution, however. In my analyses, I use models from western capitalist markets and add China-related variables (i.e., LSOEs, SSSR and Document 56) to study their effect on the audit market. Finally, in Chapter 5 it is essential to understand the pricing behaviour that audit firms follow, in order to identify audit fee determinants accurately. For this reason, and following the literature in the context of China, I assume that the pricing of audit services is solely dependent on a firm's characteristics, and any persistence in audit fees will be reflected by the current year firm characteristics. Other research, however, assumes that last year's audit fee determines the price of audit as a function of the change in the firm's characteristics (De Villiers *et al.*, 2013; Kacer *et al.*, 2018). This leads to a different estimation method and, as a

consequence, might lead to different conclusions, as discussed in the Appendix section of Chapter 5.

In summary, this thesis casts some light on the effects of China's market developments in the period 2003 to 2014. It reveals that a dichotomy of *high* and *low* quality audit firms misrepresent the nature of the Chinese institutional environment. In particular, it highlights the need to consider the differences between international and domestic big audit firms. Hence, it provides empirical evidence on the development of China's domestic accounting industry. It also shows that despite the effort of the Chinese government in accelerating the development of NSOEs through the SSSR, state influence over listed firms remains present. Overall, this thesis provides empirical evidence for policy-makers who seek to evaluate China's efforts to develop its domestic accounting industry. Its findings and implications can also be used to develop and transfer the Chinese experience into the other similar transition economies that intend to open their markets to private investors.

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