

AN INVESTIGATION INTO THE
DETERMINANTS OF AUDITOR SELECTION AND AUDIT FEES
IN CHINA

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ABSTRACT

This thesis has two interrelated objectives. First, it examines the demand-side determinants of auditor choice of listed Chinese companies. Unlike most previous studies just based on agency theory or signalling theory, I consider an institutional perspective on auditor selection and audit fee determinants. The traditional theories focus on the nature of companies and the companies' inherent motivations to safeguard reliable accounting information. However, the theory in relation to institutions argues that external institutional factors such as legal system and government intervention impose legal and political costs on companies and auditors, which in turn affect the demand for, and supply of, auditing services. The second objective is to study the determinants of audit fees. I pay particular attention to the impact of auditor selection bias on audit pricing, which has been largely neglected in most prior studies.

This study adopts a multi-strategy research design including an exploratory qualitative interview study and a quantitative cross-sectional study. The latter is based on a sample of 933 listed Chinese companies and estimates two-stage empirical models: a multinomial logit model (MNL) for auditor selection in the first stage and weighted least squares (WLS) regression models for audit fee determinants in the second stage.

The results show that the Chinese listed companies' internal motivations to select high quality auditors are not strong, but the institutional factors impose legal and political costs on companies, which in turn motivate those with a large size or a high level of state ownership to hire high quality auditors. In addition, this work documents evidence of the existence of selectivity bias in audit fees in China. Controlling for the selection bias, company size and the number of subsidiaries are significant fee determinants for all Chinese auditors while company net cash flow and auditor tenure have a differential influence on audit fees charged by Big Four firms, large and small local firms. The study also provides evidence that all Chinese auditors do not have their audit fees sensitive to company risks, and Big Four firms do not have a fee premium relating to large local firms. Listed companies select auditors between Big Four firms and large local firms who can minimise their audit fees, controlling for other fee determinants and selectivity bias.

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ABBREVIATIONS

AICPA: American Institute of Certified Public Accountants

CACPA: China Association of Certified Public Auditors

CAR: Commission on Auditors Responsibilities

CICPA: Chinese Institute of Certified Public Accountants

CR₁: the percentage of common stock owned by the largest single shareholder

CSRC: China Security Regulatory Commission

DMF: Dubbin and McFadden's (1984) method

EMA: efficient market assumptions

GCS: group company system

H_x: squaring the share of each of the biggest x shareholders, and then adding up those squares, The Herfindahl Index

IIA: independence of irrelevant alternatives

IPO: initial public offering

MAO: modified audit opinion

MES: modern enterprise system

MNL: multinomial logit model

MOF: Ministry of Finance

NAS: non-auditing service

NCF: net cash flow

OLS: ordinary least squares

PBC: People's Bank of China

PSLRs: Private Securities Litigation Rules

ROA: return of total assets

SEC: Securities and Exchange Commission

SHSE: Shanghai Stock Exchange

SOE: state-owned enterprises

SPC: Chinese Supreme People's Court

SZSE: Shenzhen Stock Exchange

VIF: variance inflation factor

WLS: weighted least squares

CHAPTER 1

INTRODUCTION

1.1. Research background

At the beginning of the twenty-first century, some very high profile companies, like Enron and WorldCom in the US, Vivendi in Europe and HIH, One Tel, Ansett and Harris Scarfe in Australia, collapsed. In 2003, one of the Big Five accounting firms, Arthur Andersen, who were the auditors of the collapsed high profile company, Enron, ceased to exist because of its involvement in fraudulent auditing activities. The failure of such high profile companies and auditor raises great concern about the quality of financial reporting and the role of independent auditing.

Looking into these accounting scandals, we can see that the famous accounting firm, Arthur Andersen, turned a blind eye to artificially enhanced earnings and was reluctant to jeopardise client fees. Indeed, finding clever loopholes in accounting rules and regulations seems to become the benchmark for excellence. The fear of ruining independence and breaking the rules is not greater than the fear of failing to satisfy clients and losing them. Company motivation to manipulate financial reports is a direct inducement to auditors compromising their quality, which needs to be elaborated. Therefore, after the accounting scandals, a great body of research about audit quality has focused on the demand side: what factors influence company

motivations for high audit quality, such as corporate governance, the legal environment, and government intervention.

The question of audit quality is also highly relevant in China. Before Andersen's collapse, China had several serious accounting scandals as well, involving large listed companies such as Qiongminyuan (1998), Dongfang Guolu (1999), and Yinguangxia (2001), and the largest Chinese local accounting firm, Zhongtianqin (2000)¹. These scandals made the regulators lose confidence in local auditors' audit quality and prefer Big Five auditors. In January 2001, the Chinese regulators, the China Security Regulatory Commission (CSRC) and the Ministry of Finance (MOF), issued licenses to foreign accounting firms to audit Chinese listed financial companies and required that listed financial companies should be separately audited by local auditors and Big Five auditors. In December 2001, the CSRC published Notice 16 and required that IPO (initial public offering) companies and companies issuing additional shares must have an extra audit by one of Big Five auditors.

These regulations in favour of foreign auditors had created a great amount of criticism in China. Must Big Five accounting firms provide high quality audits? The answer was soon disclosed through the Andersen collapse. After Andersen were discovered to have been deeply involved in the Enron scandal in the US in 2002, the above mentioned disputable Chinese regulations have been abolished. Enlightened by the

¹ Zhongtianqin was the largest local accounting firm in China. In 2000, it was suspended by the CSRC because of its fraud in auditing the listed company, Yinguangxia. In 2001, the firm was dismissed by the CSRC.

Andersen's scandal, people realize that 'Big Five' firms are not a guarantee of audit quality. If listed companies do not demand high quality audits, even Big Five firms would compromise their quality. People's criticism and researchers' focus turn from auditor side to company side. They are keen to know company motivations to demand auditing services and what factors influence the motivations, and whether companies' choice of auditors is interrelated with their audit fees.

1.2. Research motivation and objectives

The recent serious accounting and auditing scandals not only have created a trust and confidence crisis in the auditing industry; they have also highlighted hidden company demand motivation behind auditors' failure. Such demand-side motivations pose challenges to auditing studies. First is the need to consider company demand as an essential factor in studying auditor choices and auditors' behaviour. Secondly, traditional theories, such as agency theory and signalling theory, are insufficient to explain companies' motivations to demand audit quality and their auditor choices. La Porta *et al.* (1998, 2000a and 2000b) discussed the influence of legal environment on investor protection. Recent works by authors such as Choi and Wang (2003) and Francis *et al.* (2003) studied its influence on the auditing markets and found that a weak legal environment imposes legal costs on auditors and companies and influences auditor selection. They conducted comparative studies on auditor selection in many countries, but not including China. As an emerging market, China has its own particular institutional setting. It is important to analyse theoretically its institutional

setting when investigating Chinese companies' demands for audit services. The results will make a contribution in terms of theory and policy-making.

Another challenge is that prior studies on audit fees neglected the fact that auditors are not randomly assigned to companies, and we only observe the fees companies have paid to their chosen auditors since the fees are required to publish, but cannot observe the fees they would have paid to alternative auditors. Therefore, most previous audit fee studies neglected auditor selectivity and produced bias. Some recent works on audit fees (Ireland and Lennox, 2002; Chaney *et al.*, 2004 and 2005) began to take into account selectivity bias in audit fees by using Heckman's (1979) two-stage selection model based on binary probit/logit regression for binary auditor choices (Big Four/non-Big Four or large/small firms). They provided evidence of selectivity bias in audit fees in the UK and US markets. Joint studies on audit selection and audit fee determinants have not been conducted in China yet. Also, multiple categorical auditor choices have not been considered into the two-stage models in the literature.

This study is motivated by the new challenges in auditing studies. The above discussion regarding the accounting scandals has shown that demand-side influence is great in the relationship between companies and auditors. Auditor choices are actually heavily affected by the selection of companies. Therefore, this thesis intends to study Chinese listed companies' demand motivations for auditing services through an examination of their auditor choices, which are disclosed in annual financial reports.

This thesis applies traditional theories and an institutional perspective (i.e. legal environment and political influence) to study listed companies' demand motivations to select auditors in the Chinese auditing market. Traditional theories focus on the nature of companies and explain the inherent motivation of firms to demand reliable accounting information based on the efficient capital market assumption or the efficient managerial labour market assumption. However, the efficient market assumption (the EMA) is not the case in the real world, particularly like China, because the two markets are operating under strong governmental intervention and a weak legal system that protects property rights. These external institutional factors have modified the role of auditing and exert a great influence on the auditing markets. According to the theory in relation to institutional factors, China's institutional characteristics are not analysed as a particular puzzle but theoretically as a case with a weak legal environment and strong government control compared with other markets. This work aims to document evidence of the influence of such institutional factors on auditor selection based on a sample of Chinese listed companies. In this sense, the results of this work are significant not only for China but also for other countries having a weak legal environment and strong government control.

This thesis attempts to separate non-Big Four large local firms from Big Four firms and small local firms. Auditor choices in previous studies are normally distinguished into two groups by auditor size or brand name. Non-Big Four large firms have not

been paid much attention to as alternative auditor choices in previous literature. However, in China before the auditing market was completely opened to Big Four firms, large local firms were the top firms and developed their own competitive advantage. It is interesting to study differences in companies' demand motivations to select Big Four firms, large local firms and small local firms, and to investigate their pricing determinants after the Big Four firms entered into the Chinese market.

Considering the great influence of demand side in auditor selection, I examine auditor selection and audit fee determinants jointly in the Chinese context by taking into account selection bias in audit fees. Audit fees, which are usually considered as the values of audit services, may actually be determined differently across auditors. If a company had chosen an alternative auditor, audit fees might have been charged differently. Therefore, auditor choices and audit fees can be interrelated. The prior audit fee studies do not pay much attention to pricing differences among auditors and self-selection effect in audit fees. A joint study in this thesis aims to enhance our understanding of the demand for, and supply of, audit quality in China, and recognise their interrelationship. The results will have theory and policy implications for future study and policy-making.

1.3. Target market

This study targets the domestic auditing market for the Chinese listed companies. These public companies in China are the group who have first adopted Modern

Enterprise System (MES)² and implemented a corporate governance system similar to those adopted in western corporations. Their behaviours are thus more comparable with companies in other auditing markets. Moreover, the revival of the Chinese auditing profession is motivated by the establishment of the Chinese stock market. Auditors and their listed companies attract the most attention from regulators and the public. In addition, access to reliable data is very important for empirical studies. Financial data and other information about listed companies and their auditors are available in their published financial reports. For these reasons, this thesis focuses on the Chinese listed companies' auditor choices and determinants of their audit fees for annual domestic auditing reports.

1.4. Research methods

This thesis adopts multiple research strategies: a qualitative method (i.e. semi-structured interviews) and a quantitative method (i.e. a cross-sectional data analysis). In the qualitative study, the interviews help the subsequent quantitative study by facilitating a formulation of hypotheses, empirical analysis and discussion of results. The semi-structured interviews collect explorative data on auditor selection and audit fee determinants from twenty interviewees, ten CFOs and ten senior partners from different Chinese listed companies and Chinese accounting firms

² MES has been introduced to state-owned enterprises (SOEs) in order to alleviate the conflict of interests between the government, the Party and management since 1993. It is an attempt by the Chinese government to clarify property rights relations in SOEs, providing a clearer definition of rights and responsibilities between the state and the management. It has been characterised with reconstruction and restructuring of SOEs into corporations similar to their Western counterparts and introduction of the new management mechanism or so called 'scientific enterprise management' into SOEs (Forrester and Porter, 1999).

respectively.

The cross-sectional quantitative study adopts a two-stage selection models developed by Bourguignon *et al.* (2004) to examine auditor selection and audit fee jointly. The advanced econometric models are derived from Heckman's (1979) two-stage selection models, but differ from Heckman's models in that the first stage selection equation is not a binary probit model but a Multinomial logit (MNL) model, because there are three alternative auditor choices in this study (Big Four auditors, large local auditors and small local auditors) and the second-stage fee equations are weighted least squares (WLS) regression models. The sample for the quantitative study is selected by using a cut-off sampling method. It includes 933 Chinese listed companies and all secondary data are collected from their financial statements in 2002 and 2003.

1.5. Main findings

The interview study is exploratory in this work. The results reveal some factors affecting auditor selection and audit fees that are difficult to include in a quantitative study, such as the Guanxi network (interpersonal relationships), internal control systems, and manager ethics. The interview results also indicate a weak demand of listed companies for high quality auditing and the differences among the three types of auditors, Big Four firms, large local firms and small local firms. Therefore, I choose the MNL model to examine auditor selection in China, and establish four hypotheses for companies' demand motivations derived from traditional theories and

from an institutional perspective in relation to the legal environment and government influence, i.e. agency cost hypothesis, signalling hypothesis, political cost hypothesis and substitution hypothesis. I use advanced techniques to test the validity and good-fitness of the MNL model and interpret the results. The results reject the agency cost and signalling hypotheses and support the political cost and substitution hypotheses on company demand motivations to select auditors. The results thus indicate weak internal motivation of Chinese listed companies to demand high quality auditing, and a positive impact of political force on companies' choice of Big Four firms. In China, the weak legal environment for investor protection and strong government intervention mitigate companies' internal demand; as a result, most listed companies avoid high quality auditors. However, such institutions also make a few companies, who are subject to government's scrutiny, demand high quality auditors to reduce their political and legal costs. The MNL model produces good predictions on Chinese listed companies' auditor choices, but its estimated results are sensitive to the definition of large local firms.

The results of auditor selection are brought into the second-stage audit fee study. Correction terms for self-selection bias are calculated from the estimation of the MNL model and inserted into the second-stage audit fee equations. Other test and control variables are derived from interview results and prior literature. Chapter seven is the stratified study of observable audit fees paid by Big Four auditors, large local auditors and small local auditors respectively, as a function of listed company size, complexity,

industry, risk, net cash flow, auditor tenure and correction terms for selectivity. The results indicate the significant influence of selectivity on audit fees and different pricing determinants among auditors. The results suggest that Big Four firms' and large local firms' clients, on average, select their auditors so that Chinese listed companies can minimise their audit fees. The results and support the argument of Chaney *et al.* (2005) that auditors structure their business in a manner appropriate for specific client segments.

1.6. Thesis layout

The thesis comprises eight chapters. Chapter one introduces research background, motivations, objectives and thesis structure. Chapter two undertakes a theoretical review that consists of the traditional theories and institutional perspective on auditor selection and audit fee determinants, and discusses the notions of auditing product differentiation relative to the theories. The chapter also reviews Simunic's (1980) model for audit fee determinants, and summarises previous findings relating to auditor selection and audit fee determinants.

Chapter three theoretically analyses China's institutional setting with respect to government control and legal environment. It splits the auditing market into demand and supply sides, and discusses the influence of institutional factors on both sides. It also describes auditing market concentration and segmentation in China in order to provide a full picture of the Chinese auditing market.

Chapter four introduces the research design and explains the research methods in this study. The chapter also specifies the design for interviews, such as interview questions, structure, and sample selection.

Chapter five, a qualitative analysis of the interviews, summarises interview results according to company demand preferences for auditor choices, auditor differentiations, and also audit fee determinants. Chapters six and seven are quantitative analyses of auditor selection and audit fee determinants respectively.

Chapter eight summarises findings from qualitative study and quantitative study and draws conclusions. It also looks retrospectively at the whole thesis and points out significant theoretical, empirical and methodological contribution made by this work, and implications for policy-making. Finally, this chapter discusses the limitations of this thesis and the scope for future study.

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

This chapter explores theories relevant for understanding companies' auditor selection and audit fee determinants. These theories provide the foundation for this study's attempts to analyse China's institutional setting, and guide the methodology design, formulation of hypotheses, and discussion of results. This chapter organises the literature review according to the theories related to auditing demand: traditional theories (i.e. agency theory and signalling theory) and an institutional perspective. The traditional theories are classic theories in auditing literature while the theory in institutional perspective has emerged in recent auditing studies. The latter theory focuses on the impact of institutional factors, such as legal environment and government intervention, on the demand and supply of auditing. This work pays particular attention to the effect of institutional factors on auditor choice and audit fees in China's institutional setting.

After reviewing relevant theories, I summarise major findings in previous studies focusing on auditor selection and audit fee determinants. These findings present evidence of the theories in different auditing markets and thus they are important references for this study in the Chinese context. This chapter is grouped into two parts:

theories and findings. Each part presents literature on auditor selection and audit fee determinants separately.

2.2. Relevant theories

Agency theory and signalling theory focus on the nature of companies and information asymmetry existing among different stakeholders of firms. It explains an inherent motivation of the company to demand and safeguard reliable accounting information. Agency theory and signalling theory, explain the existence of auditing as a monitoring mechanism to solve the moral hazard problem and add credibility to accounting information.

However, these theories, which argue that auditing is inherently created by some intrinsic characteristics of the company, are imperfect because they ignore the fact that the nature of the companies, the 'nexus of contracts', depends on the legal rules of the jurisdictions in a country and the market mechanism is established on a set of regulations made by the authority. Recent research points to the institutions, which is characterised as the political process as a competition among self-interested individuals for wealth transfers and explains the influence of the legal environment on investor protection and the quality of accounting across countries. Some researchers argue that legal environment and government influence can affect auditors' natures by modifying their monitoring role in contracts through providing them with additional roles: 1) increasing their clients' market values, 2) serving as a substitution for legal

protection of outside investors, 3) sharing risks of litigation with companies, 4) avoiding the government's attention, and 5) transferring wealth from their companies.

The arrangement from an institutional perspective is a significant complement to the traditional theories. Considering internal factors and external factors on auditing is significant for studying a specific auditing market, particularly the Chinese auditing market which has a particular legal system and market economy setting. The following sections specify the two types of theories.

2.2.1. Traditional theories: agency theory and signalling theory

The traditional theories are rooted in the 'property rights' literature that emphasises the rights established by contracts (Coase, 1937 and 1960; Alchian and Demsetz, 1972; Jensen and Meckling, 1976; and Fama and Jensen, 1983a and 1983b). Contracts include formal contracts, for example, debt contracts, ownership contracts, and informal contracts, such as unwritten working arrangements between managers. Although the law regards the corporation as a separate legal entity, which is able to act as an individual, under the property rights or contracting view, the company actually has no separate existence; it is a 'nexus of contracts' and not an individual (Watts and Zimmerman, 1986). As a result, the company does not act as an individual. Instead, the company is made up of individuals who have contracted with the legal entity for certain property rights. It is these individuals who act in their own self-interest and each strives to maximise their utility (Smith, 1776; Berle and Means, 1932; Simon, 1959; and Williamson, 1964). They recognise that their own welfare

relies on the company's performance in competition with others, and also that conflicts of interest will arise and it is necessary to write contracts that specify each individual's specific rights in the company's outputs under various contingencies in order to reduce the conflicts. Under the property rights approach, the company is a team made up of such self-interested individuals.

However, dealing with different self-interested individuals is usually costly because there is an information asymmetry problem that causes uncertainty concerning the performance of contract obligations. The accounting information normally is produced and controlled at a lower cost by managers within the company for internal management and control purposes (Ng, 1978), while other parties, such as owners and creditors, are not involved in the preparation of information. Ng (1978) employed information economics analysis of financial reporting and found that although the owner can exert some indirect influence over the manager, it is still the decision of the manager, based on his private interest, which determines what and how financial information will be disclosed. Information asymmetry is an important feature of the financial reporting process. It makes it possible for managers to manipulate information in favour of their own interests. Information asymmetry and property rights concept is the core of traditional theories. Derived from the basic concepts, agency theory and signaling theory are developed to explain the demand for auditing services.

2.2.1.1. Agency theory and agency cost

Jensen and Meckling (1976) modelled the contract between shareholders of a company and a manager and defined an agency relationship as ‘a contract under which one or more (principals) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent’. Agency theory posits an inherent moral hazard problem in owner-manager relations that gives rise to agency costs under the assumption of the EMA (Jensen and Meckling, 1976). With competition and rational expectations (as it is under the EMA), managers have the incentive to take value-reducing actions in their self-interest (opportunistic action).

Agency cost leads to demand for monitoring activities to provide assurance on the agent’s performance in accordance with a contract. In a broad sense, the principals are not only owners, but also creditors who have a loan contract with the company. Jensen and Meckling (1976) define two kinds of monitoring activities according to the motivations of different parties: bonding activities that are the expenditure of resources by managers, and monitoring activities that involve the expenditure of resources by outside shareholders or creditors to assure that managers limit their activities. Auditing practice is assumed to be efficient bonding and monitoring activity because audited annual reports are means of reducing information asymmetry and mitigating agency costs (e.g. DeFond, 1992; Francis and Wilson, 1988; and Palmrose, 1984). Also, as agency costs increase, there is a demand for higher credibility on

audited accounting information, either voluntarily undertaken by managers as a bonding mechanism or externally imposed as a monitoring mechanism by shareholders, creditors, or potential investors (Watts and Zimmerman, 1986).

However, Dopuch and Simunic (1982) point out that linking auditing with reduced agency costs relies on the fact that auditing has survived in a competitive setting and is presumably, therefore, cost-effective. That is a limitation of agency theory because its rational expectations are based on the assumption of an efficient market. But the EMA is not often reliable in reality.

2.2.1.2. Signalling theory and the managerial labour market

Signalling theory was developed by Spence (1973) to explain managerial behaviour in labour markets. It has been used to explain the motivation of managers to disclose accounting information (Watts and Zimmerman, 1986; and Fama, 1980). The theory suggests that information on managers' opportunistic value-reducing behaviour eventually becomes known and affects their reputation. If there is an efficient labour market, the managers' future compensation will be reduced due to their damaged reputation. As a result, shareholders and creditors are protected against the value-reducing actions of professional managers by the efficient managerial labour market (Watts and Zimmerman, 1986). If managers are unable to convince the market that they will consume no more than the average perquisites, they will bear the cost in a lower pecuniary compensation.

Also, signalling is a reaction to informational asymmetry in markets; in this case, managers of listed companies have information that investors do not (Watson *et al.*, 2002). Asymmetries can be reduced if the party with more secure information signals to others. Therefore, managers of higher quality companies will wish to distinguish themselves from those of lower quality companies through higher quality auditing in order to achieve higher personal reputation and better compensation in the labour market. To signal quality successfully, the signal must be credible. Signalling theory also has a basic assumption that there is an efficient managerial labour market. It is assumed that credibility is achieved, only when the true quality of the company is verifiable by the high quality of auditing. In the efficient market, if listed companies falsely intend to signal that they are of high quality when in fact they are of low quality, once the truth has been revealed by auditors; they will lose their credibility in the market. Therefore, under this assumption, companies of lower quality do not have the incentive to search for higher quality auditing.

Therefore, signalling theory is also established on an assumption of an efficient managerial labour market, otherwise, managers' motivation for demanding auditing services will be modified. The latent EMA for the capital market and managerial labour market reflects the limitation of traditional theories, which do not consider institutional factors that could challenge the reliability of the EMA in reality.

2.2.2. The theory in relation to institutional factors that influence the auditing market

From the discussion of agency theory and signalling theory, it can be seen that the theories that explain demand for independent audit as monitoring activities are based on two assumptions: that there is an efficient capital market and an efficient managerial labour market. However, the market mechanism operates under intervention of the government and a legal system that protects property rights, which can enforce contracts, and modify the market's function and efficiency. Recent studies exploring institutional factors have emphasised the influence of the national institutional environment on investor protection and the auditing market and have found comparable differences in auditing practices across countries (Francis *et al.*, 2003; and Choi and Wong, 2003). It is worth complementing the traditional theories with the theory that argues the influence of institutional factors on an auditing market when it comes to studying the Chinese auditing market since the government exerts significant influence in the market and the legal environment is different from that of developed countries.

2.2.2.1. The role of government in institutions arrangement

The theory explaining the government's role in the auditing market is derived from macroeconomics. Coase, Ronald H. won a Nobel Prize in 1991 primarily because of his work on 'transactions cost' (Coase, 1988). His theory states that the initial distribution of property rights including liability can affect the allocation of resources.

This implies two fundamental efficiency roles that the government can target and fulfil (Gillman, 1999):

- (1) lowering the level of transactions costs, such as through the establishment of a system of socio-economic contract law or a set of social norms under which economic exchange may take place more easily; and
- (2) redistributing property rights in line with social norms.

The institutions unavoidably take on the characteristic that it is formed, generally, as a result of social and political forces that determine a set of transactions costs which, in turn, shape economic forces. In this sense, institutional factors can play a significant role in the auditing market, which will be discussed in the next session.

2.2.2.2. Government influence in the auditing market

Modern independent auditing was boosted by the 1933 and 1934 *Securities Acts* in the US. Their rationale is that corporate disclosure prevents the capital market from ‘overestimating’ securities as it seriously did prior to the 1929 stock market crash. The imposition of legal liability by the Acts increases pressure on auditors to fulfill their role, which is to monitor managers’ disclosure of information that is to be used by investors in their investment decision-making. Actually, according to Coase’s theory, the boom in the auditing industry driven by legal and political forces indicates that the government protects the public interest by imposing laws and administration. The exogenous legal and political forces are expected to help the market decrease

information asymmetry, lower transaction costs in capital exchange and protect public investors. Therefore, in order to achieve the efficiency in the capital market, the government emphasises the independence and competence of auditors by means of setting a series of laws and regulations and carrying out administration.

To secure an average level of auditing quality, besides legal regulations the government makes use of administrative tools by licensing auditors to restrict entry into the audit profession and increasing existing auditors' wealth. The potential protection provided to the public by occupational licensing, in general, is described by Akerlof (1970) and Leland (1979). They employed the information asymmetry concept in their analysis. In an environment without licensing, an individual professional is assumed to know considerably more about his own ability than the typical consumer who does not possess professional knowledge about the services. Indeed, even after auditing services are executed, a consumer may be unable to assess the quality. Thus, auditors with higher quality may not receive fees commensurate with the services they render, and will be driven out from the market by the non-discriminating price. As a result, all auditors will command the same fee that reflects the average quality level of services. Therefore, licensing restrictions, which help customers to distinguish audit quality, have the potential to induce and maintain a more desirable level of quality.

The imposition of legal liability and government administrative intervention

engenders extra legal costs and political costs to auditors and companies. Some high quality auditors may resign due to a client's high risk. Shu (2000) reported a positive relation between auditor resignations and clients' litigation risk using US datasets. She also found a company more likely to hire a small auditor when its litigation risk increases. Choi and Wong (2003) found the legal cost effect not only on auditor selection but also on audit fee determinants. Auditors may charge a higher risk premium to their risky clients. Belkaoui and Karpik (1989) provided evidence that companies employ a number of devices (including discretionary disclosures and auditor selection) to avoid the attention of external parties such as government regulators, suppliers, and unions. Deegan and Gordon (1996) indicated that companies that are politically more visible to the market increase the credibility of disclosed information as a means of mitigating potential political costs. In this sense, the involvement of the legal and political forces broadens the nature of the auditing by increasing the demand for auditing to meet legal or administration requirements. At the same time, legal liabilities in the form of penalties and economic loss play a crucial role in providing efficiency-improving incentives to companies and the auditing profession.

2.2.2.3. The different impact of legal systems on the auditing market

According to the above arguments, the imposition of legal liability has a potential impact on both the demand and supply side of the auditing market. However, legal systems differ across countries and exert different impacts on the auditing market. La

Porta *et al.* (1998) examines the implication of laws on economic activities in terms of laws governing investor protection, the quality of enforcement of these laws, and ownership concentration among countries whose legal rules originate in the common-law tradition and those whose laws originate in the civil-law tradition. Based on their findings, Choi and Wong (2003) discussed how national legal environments could influence an individual company's auditor choices and audit fees by exploring three different hypotheses: the legal cost hypothesis, the complementary effect hypothesis, and the substitution effect hypothesis.

The legal cost hypothesis

Many studies have reported the legal cost effect imposed on 'good' auditors in strong legal environments where auditors' legal liabilities are generally high (Simunic and Stein, 1996; Shu, 2000). Auditors may turn down risky clients in order to reduce potential litigation costs. Francis *et al.* (2003) expanded the study of the legal cost effect across countries through examining Big Four (previously Big Five) auditors' conservatism around the world. Their results disclosed that the Big Four auditors were less conservative in their treatment of large (influential) clients in countries whose legal systems provided weaker protection of investors than in countries with stronger investor protection where auditor litigation and the loss of reputation were more likely. Leuz *et al.* (2003) also reported evidence of greater earnings management (lower audit quality provided by Big Four auditors) in countries with weak investor protection, despite the fact that Big Four auditors still had dominant market shares relative to

non-Big Four auditors in countries with weak legal environments. These results suggest the role of auditing in the production of credible accounting is conditioned by the legal regime of a country with respect to investor protection (Francis *et al.*, 2003).

Consistent with supply-side findings, Clarkson and Simunic (1994) and Choi and Wong (2003) provided demand-side evidence that risky companies in strong legal environments were also less likely than risky companies in weak legal environments to hire Big Four auditors because legal litigation had a significant effect on audit fees that could drive some companies away. Many prior studies provided evidence of a significant positive relationship between audit fees and company risk (Simunic, 1980; Choi *et al.*, 2004). The effect of legal cost is reflected in the audit fees, which in turn can affect clients' auditor selection decisions. Specifically, high legal liability can increase audit fees, which makes selecting high quality auditors prohibitively expensive. De and Sen (2002) found that an increase in legal liability increases auditors' efforts and hence the fee; leading to increased marginal cost for the client company, and finally a reduction in the overall demand for high quality audits. The inverse relationship of audit fee and demand has been argued in price theoretical analysis (e.g. Benston, 1985). Therefore, in this sense, the legal cost hypothesis emphasises an association between the legal system and litigation risks for both auditors and companies, which directly changes their behaviours in the market.

The complementary effect hypothesis and the substitution effect hypothesis

Choi and Wong (2003) proposed two opposing hypotheses of how the legal environment in a country affects individual companies' motivation to choose high quality external auditors, namely the complementary effect hypothesis and the substitution effect hypothesis. The two hypotheses are based on differences in arguments concerning the role of auditing. The complementary effect hypothesis suggests that external auditing plays a potentially important role in corporate governance, which is a complementary device for strengthening the legal protection of outside investors. La Porta *et al.* (1997 and 1998) documented that, in strong legal environments, the legal protection of outside investors significantly attenuated the agency conflict between corporate insiders and outside investors. Outside investors rely heavily on external auditors' monitoring activities (Ball *et al.*, 2000). As a result, there is a strong demand for high quality external auditing that assures the credibility of financial information. By contrast, companies in weak legal environments are less apt than companies in strong legal environments to select Big Four auditors (Choi and Wong, 2003). The complementary effect hypothesis focuses on the influence of the legal environment on companies as a whole without considering company-level differences. In this sense, the complementary effect hypothesis explains that the general demand of companies for high quality auditing is weaker in weak legal environments than in strong legal environments. DeFond *et al.* (1999) provide such evidence in China, where the legal protection of outside investors is weak, that listed companies "flight from quality", which suggests that the demand for high quality

auditors is low there.

By contrast, the substitution effect hypothesis takes into account company-level factors and argues that for some companies, a high quality external auditor serves as a substitution for legal protection to mitigate agency conflicts between corporate insiders and outside investors in a weak legal environment. Therefore, holding other factors constant, those companies in a weak legal environment have greater demand for Big Four auditors than those in a strong legal environment. A number of recent studies have argued that the role of the company-level substitution mechanism is to enhance the company's reputation in order to protect outside shareholders or improve the company's corporate governance in a weak legal environment. Gomes (2000) argued that companies in weak legal environments had much stronger incentives than those in strong legal environments to develop a reputation for protecting minority shareholders in order to raise external capital. Lang *et al.* (2003 and 2002) found that cross-listing³ can have a more positive impact on the valuation of high quality auditors for companies from markets with poorer investor protection than from countries with stronger investor protection. Dyck and Zingales (2002) and Klapper and Love (2002) indicated that company-level corporate governance provisions can increase individual company market valuation more in countries with weak legal environments than in those with strong legal environments.

³ Cross-listing in this context means that a company is listed in different stock markets at the same time.

The complementary effect hypothesis and the substitution effect hypothesis focus on different influences of the legal environments on auditing demand, but they can be reconciled in one market. The former concentrates on the country-level effect while the latter focuses on the company-level effect. In weak legal environments, high quality auditors may serve as a substitution for the legal protection of outsider investors only for a small number of companies since a large number of companies will not demand high quality auditors. In fact, the high quality auditor market share may well be smaller in weak legal environments consistent with the complementary effect hypothesis. Both the complementary effect and substitution effect can exist in one market.

2.2.2.4. Limitations of the theory in relation to institutional factors

The above arguments about political and legal factors basically assume that the government's objective is to maximise social welfare and obtain general equilibrium. However, in reality, the government's policies are often affected by the lobbying behaviour of other parties. Watts and Zimmerman (1978) had their study of the lobbying behaviour of companies as the beginnings of a theory that can explain the determination of accounting standards. Similar studies (Haring, 1979; McKee *et al.*, 1984; Watts and Zimmerman, 1986) also analysed the characteristics of respondents lobbying on specific accounting issues. In many Western countries, auditors play a role in lobbying and communicating with regulators in order to change laws, particularly with regard to the principle of liabilities or accounting standards in favour

of some influential companies or industries (Watts and Zimmerman, 1983; Power, 1998). Similarly, Cooper and Sherer (1984) developed the Political Economy of Accounting (PEA) framework that studies the outcome of accounting regulation to reflect the power relations and predominant interests in the society. The theories relating to the government discuss the 'political' aspects of accounting and auditing practices, which are in favour of the interest represented by the government.

In addition, the government not only plays a role as a regulator in market transparency and efficiency, but also, as the owner of enterprises, which has the incentive to increase the value of its owned assets just like other private ownership. Government ownership generates many conflicts in its policy making. Conflicts arising from state ownership will be discussed in detail in the next chapter, focusing on the Chinese institutional setting.

Most early studies have paid more attention to company-level economics drivers, and institutional economics factors, normally addressed as background knowledge, have not been theoretically discussed. In this study, I develop an integrated theory framework including traditional theories (i.e. agency theory and signalling theory) and an institutional perspective. Within this framework, institutional characteristics particular to the Chinese context can be theoretically analysed (see the next chapter) and compared with those of other countries. Thus, this study's results will not only make a unique contribution to the literature on the Chinese market but also provide

useful information for comparison with other countries' institutional characteristics.

2.3. Product differentiation of auditing services

The above section has mainly reviewed theories pertaining to the demand-side aspect, i.e. demand for auditing services. This section explores theories relating to the supply side aspect, i.e. production differentiation of auditing services, measures of auditor types and the influence of institutions. Like other products, auditing services are characterised by product differentiations under the market mechanism, in which various companies have their own demand preferences for auditing services and consequently auditors vary in providing differentiated services to meet the demand. According to agency theory, various agency costs create by contracts lead to different demands for auditing. Signalling theory emphasises the value of differentiated credibility added to financial reports by auditors.

Watts and Zimmerman (1986) and DeAngelo (1981a) defined audit quality in terms of technical competence and independence, two key factors to which add credibility to accounting reports. Auditing quality depends on the auditor's ability to carry out a thorough examination of the accounts and detect possible errors or anomalies (technical competence) and his willingness to provide an objective opinion on them (independence) (DeAngelo, 1981b). The definition provides a useful breakdown for analysis since it identifies two relatively distinct problems and therefore enables the adoption of specific variables to assess each of the two factors. The next sections,

2.3.1 and 2.3.2, review the attributes of audit quality and measures that have been used in the literature, while section 2.3.3 discusses the latter's limitations.

DeAngelo's concept of audit quality, however, does not consider institutional factors, legal environment or government intervention, which can modify the role of auditing. The values of auditing services are broadened beyond professional competence and independence. Section 2.3.4 discusses the perceived new values of auditing services related to institutional factors and the impact of these new functions on audit quality.

2.3.1. Attributes of audit quality

Arrunada (2000) discussed two important attributes of audit quality: professional judgment and the impact of independence on the third party and other clients. Professional judgment is a crucial attribute of auditing quality because it substantially enhances the informational value of auditing for the third party. However, if there is a lack of independence, auditors may decide not to make efforts to discover problems they do not wish to report on. As a result, they may come to light in decisions that reduce effective technical competence. Therefore, the content of audit quality, competence and independence, are interrelated. Auditors have to exercise their professional judgment independently.

However, some auditors' clients in a difficult situation may not desire so much auditor independence as other clients or third parties who do not wish it to be diminished.

Third parties and other clients want their auditors' independence to remain constant; otherwise they will probably fire the auditor because the credibility of their audited information will be impaired. Whether auditors compromise their independence or not to a specific client is an empirical issue that involves comparing the benefits and costs, and estimating the probability of detection of independence impairment. However, auditor independence is intangible and hard to observe. Company managers can assess audit independence only imperfectly by reviewing audit plans and audit scope and by periodically observing the performance of audit firm personnel (Simunic and Stein, 1987). The third party users of financial statements, such as shareholders and creditors, have even less of an opportunity to assess independence (Colbert and Murray, 1999). Indeed, only the audit firm has more knowledge about its capability and independence than outside parties. This information asymmetry allows us only to be able to perceive independence from the outside and it is difficult to know actual independence. Thus, the gap between perceived and actual independence makes it possible for a company to benefit from a perceived high independence that is actually lower. Therefore, there is a need for a measure by which actual audit quality can be recognised. Previous literature has examined several measures for audit quality, such as size, brand name, industry specialization, and so on.

2.3.2. Measures of audit quality

Previous research has suggested a number of specific measures as proxies for unobserved audit quality, based on an assumption argued initially by DeAngelo

(1981a, b). He argued that auditors generally provide a uniform level of quality in their audits (particularly in terms of independence) because providing a different quality of auditing services could make the third party and other clients face a loss in terms of the diminished value of the audit to recipients. Under such an assumption, prior research documented auditor size, brand name, and industry specialisation as measures for audit quality.

Auditor size

DeAngelo (1981b) argued that since larger audit firms had more clients, they had more aggregate client-specific quasi-rents at stake if they lacked independence or provided a low-quality audit. It was assumed that a larger audit firm would lose more if such a breach were to occur. DeAngelo (1981b) regarded these quasi-rents as 'collateral' or a 'bond' on independence and audit quality, and suggested that auditor size could be considered a surrogate for intangible audit quality. However, auditor size is determined in different ways in empirical studies. For example, Francis and Wilson (1988) adopted DeAngelo's metric based on the combined sales of listed companies audited by the audit firm, while DeFond *et al.* (2000) preferred the assets of clients. Others use the number of listed companies audited as a measure. Colbert and Murray (1999) employed a company-level measure of audit quality based on peer reviews from the American Institute of Certified Public Accountants (AICPA) Division for CPA Firms and found that the number of CPAs in the firm was positively associated with audit quality. Generally speaking, the total assets of clients are the most popular

measure for auditor size. In China, the official body, the Chinese Institute of Certified Public Accountants (CICPA), adopts the total assets of clients and the number of CPAs in the firm to rank Chinese accounting firms.

Brand name

In DeAngelo's theory, client-specific quasi-rents come first and differential audit quality is a passive by-product to maintain the rents. In contrast, Klein *et al.* (1978) and Klein and Leffler (1981) employed the brand name (reputation) investment model in which companies were explicitly motivated to develop and maintain brand name reputations for quality in order to secure and protect quasi-rents arising from the brand name. In other words, the brand-name development comes first and it, in turn, leads to quasi-assuring price, which is higher than the minimum-quality price. Therefore, the disincentive on delivering the higher-quality product efficiently shrinks because of the potential loss of brand name (loss of the present value of future quasi-rents).

In most auditing markets, the Big Four firms appear to be brand name producers. There is much evidence in the literature that the Big Four firms have price premiums in different auditing markets. Moizer (1997) reviewed the audit fee literature and reported that the Big Four firms tended to be associated with a higher quality service in most of the countries surveyed. The results pointed to a Big Four firms' audit fee premium (between 16% to 37%) across the countries surveyed. Big Four firm price premiums are consistent with Klein and Leffler's (1981) claim that 'price is an

indicator of quality', which includes a reputation premium.

Industry specialisation

Craswell and Taylor (1991) identified the Big Five specialists in nine of 23 Australian industry groups and revealed that within the Big Five firms there were still quality differentiations because of their industry-specialisation. They thus argued that reputation should be developed from brand name and industry specialisation. They also found evidence that a Big Five fee premium included two separate components of audit pricing: a general brand name premium, representing positive returns to brand name development and maintenance, and an industry-specific premium, representing positive returns to investment in industry specialisation by subsets of Big Five auditing firms, above and beyond general brand name investments. This theory confirms that within top auditing firms' specialisation there is an additional dimension of the quality-differentiated character of Big Five auditing.

The analysis of auditor industry specialisations carried out in the prior studies (DeFond, 1992; Palmrose, 1984 and 1986a; Craswell and Taylor, 1991 and 1995), normally has two steps: first, considering the overall number of companies in an industry (only those industries comprising more than 30 companies); then, examining each auditing firm's industry market share using two measures: 1) the percentage of companies audited, which is an unweighted measure of market share, and 2) the audit firm's share of total industry audit fees, which represents a size-weighted measure of

market share (weighted by audit fees). A 10% market share based on either the number of clients in the industry or the percentage of total audit fees has been a threshold in prior studies. If an auditing firm meets the 10% threshold test, it is then classified as an industry specialist. In the markets studied, the industries of mining, oil, and financial services usually have specialist auditors.

2.3.3. Limitations of the measures (size, brand name, industry specialisation)

Most prior studies on audit quality have examined the surrogates (size, brand-name, and specialisation) individually. However, they are all imperfect measures of audit quality. The measures of auditor size and brand name often overlap because famous audit firms are normally large in size. Industry specialisation has not been found in many markets, particularly in emerging markets, because it takes a relatively long time to cultivate industry specialists. Therefore, in an emerging market like the Chinese auditing market, auditing services may not have achieved industry specialisation as yet. DeFond (1992) suggested that considering the measures as a group may provide more information on quality than considering them individually. Principal components analysis was used to combine the three measures.

However, no matter whether individual surrogates or combined common factors are considered, all are based on the traditional hypothesis that auditing plays a role in providing independent professional judgement to mitigate the agency problem. This assumption has been questioned by a result of recent accounting scandals (e.g. Enron

and Andersen scandal) where large and famous accounting firms collaborated with their client to manipulate financial statements. It is necessary to analyse the value of auditing and differences between auditors carefully. In fact, the above arguments concerning measures for audit quality ignore institutional factors' influence on the auditing market. From an institutional perspective, the legal environment and intervention of the government have a significant impact on the demand for and supply of auditing quality: on the one hand, they add new value to auditing besides its monitoring role, but, on the other hand, they impose extra legal and political costs on auditors. Choi *et al.* (2002) reported that in the US market consultancy services provided by Big Five firms experienced a boom in the late 1990s. Such a kind of non-auditing services actually increased the demand for Big Five auditors; however, they became a fatal factor impairing auditors' independence. The next sections will explain other value of auditing imposed by institutional factors and their influence on audit quality.

2.3.4. The perceived new values of auditing

Taking into account the impact of the legal and political forces, the nature of auditing is broadened by adding new values in sharing legal liability, providing political protection, and jointly offering NASs. These new functions could mitigate a company's motivation for the role of monitoring and also the auditor's motivation to provide high audit quality. Therefore, the theory in relation to institutional factors argues that in a weak legal environment for investor protection, not only the overall

demand for high quality auditing is weaker than that in a strong legal environment, but also the supply of audit quality is relatively lower. Leuz *et al.* (2003) reported evidence of earnings management in countries with weak investor protection, despite the fact that in such countries, Big Four auditors still have dominant market shares relative to non-Big Four auditors. Francis *et al.*'s (2003) finding that in countries with weak legal protection Big Four auditors allow their large and influential clients more discretion with respect to accruals helps to shed light on the results presented in Leuz *et al.*'s (2003) study. Their results point to the low audit quality Big Four auditors provided in a weak legal environment and the existence of other functions of auditing.

2.3.4.1. Sharing litigation liability and the wealth and reputation of auditors

In some legal systems, civil laws uphold the rule of 'deep pocket theory' that some 'deep pocket' is liable to provide a money-related remedy to compensate for harm, no matter his or her complicity (e.g. see Section 11 of *the Securities Act* of 1933 in the US)⁴. Auditors are often targeted as 'deep pockets' to share liabilities of business failure according to the legal regulations. Dye (1993) identified two components of the value of auditing services: an 'informational' component that indicated the value of the auditing in improving resource allocation decisions and a 'liability' component that represented an option value of the claim financial statement users had on their company's auditor in the event of a 'business failure' according to legal liability.

⁴ In the US, since Section 11 of the Securities Act of 1933 mandates several and joint liabilities for the parties involved in the IPO, all defendants of a lawsuit are jointly responsible for the damage payments. In the case that the IPO firm does not have sufficient funds to meet all the damage payments, the plaintiffs can recover the rest from the other parties, including the underwriter and auditors.

Companies with high business risk should pay more attention to the value of liability sharing.

The ability of different auditing firms to share liability varies due to the insurance auditors purchased and the wealth of auditors (Dye, 1993). Lowry and Shu (2002) suggested that more reputable auditors or underwriters were likely to have 'deep pockets' because they were more able to minimise the risk of companies and thus lower the possibility of being sued. The wealth of auditors may be reflected by the size of auditors. Larger audit firms are regarded as having stronger ability to share litigation liability. The 'deep pocket' rule imposes new value to large auditors; however, the value is determined by the characteristics of legal environments. The 'deep pocket' regime is carried out effectively in most common law countries that have a strong legal system to protect investors, while in civil law countries, particularly those having weak legal protection for investors, the effect of 'deep pocket' rules is not strong (La Porta *et al.*, 1997). As a result, the role of auditing in sharing liability may not be much in demand.

2.3.4.2. Political protection and licensing

Watts and Zimmerman (1978 and 1986) pointed out the political cost incentive that a company subject to government investigation may have to reduce the probability and/or the amount of government-imposed wealth transfer. In line with this logic, Deegan and Gordon (1996) and Belkaoui and Karpik (1989) documented the political

cost incentive in adding the value of auditing as political protection. By hiring auditors well recognised by the government, companies having high political sensitivity may be able to avoid political attention and reduce political costs. Traditionally, this hypothesis rests on the assumption that such political scrutiny can be attributed to company size. The size hypothesis assumes that large firms are more sensitive to political control than smaller firms (Watts and Zimmerman, 1986). However, Frank (2004) argued that large firms that operate in less competitive markets were more aware of government control. Recently, researchers have refined the political cost analysis by exploring more measures of political visibility. Deegan and Hallam (1991) and Deegan and Carroll (1993) made reference to the work of Watts and Zimmerman and other related studies (e.g. Hagerman and Zmijewski, 1979) to establish several measures of political visibility: company size, rate of return, market concentration, industry, and media exposure. They found three measures, namely size, market concentration, and the industry to which a company belongs, were related to the incidence of value-added disclosure.

In an environment where the government has a significant influence on the market, the demand for auditing, as a political protection is strong; and thus the government's acceptability of auditors becomes important. Normally, the government plays an important supervisory role in the auditing market in the setting where it dominates the economy. Licensing is its administrative instrument, which is used to maintain the minimum quality of audit. It can be regarded as one basic indicator of the regulator's

acceptability of auditors. In addition, Big Four auditors, whose brand names have acquired an international reputation, may also be well recognised by governments, but such recognition depends on the government's open policy in the auditing market. Some governments may limit Big Four auditors' activities or require them to form joint ventures with local auditors. The next chapter will introduce and explain in detail the Chinese government's policy in the auditing industry

2.3.4.3. Additional services and auditors' expertise

Watts and Zimmerman (1983) argued that accounting and auditing regulations could impose costs on auditors' clients, and then additional services will arise. Audit firms provide their clients with expert knowledge on new accounting rules and on the costs imposed by new standards in consultation with their technical divisions. The additional services are closely related to the audit itself, such as reporting on internal controls or performing statutory audits, as practical matters can only be performed by the auditor, such as advising on the appropriate accounting treatment of a transaction or assisting in the registration of statements, and so on. In respect of management, extant theories about knowledge "spill-over" predict that there are efficiencies in the joint supply of auditing and such additional services to a client by a single supplier (Beck *et al.*, 1988; and Abdel-khalik, 1990). These theories propose that the joint supply of these services produces benefits to the management of corporate clients. These benefits include reduced cost, increased quality, and speedier completion of work. Therefore, to provide a value-added service is an important competitive

advantage for auditors to maintain a good relationship with their clients.

Non-auditing consultancy business began to rapidly develop during the end of the 1990s. It has been argued that NASs have a higher profit margin than audit services by the US Securities and Exchange Commission (SEC) annual report of 2000. For instance, ‘consulting’ practices (e.g. large-scale, big-fee financial information systems design and implementation of information technology projects) have been reported as providing more than a third of the revenues of the Big Five accounting firms (Riesenberg, 2002). However, various groups, including the SEC, the Public Oversight Board (established in 1986), the Commission on Auditors Responsibilities (established in 1978), and the new Public Company Accounting Oversight Board established by *the Sarbanes-Oxley Act* (established in 2002) have asserted that auditor independence can be impaired when NASs are provided. Particularly, high NAS fees could lead to auditors’ compromising their independence to retain clients when they are performing auditing (Reynolds and Francis, 2001; and *The Sarbanes-Oxley Act*, 2002). To date, nine kinds of NASs have been banned in the US⁵.

All the Big Four firms sold their NAS business after the Act in 2002. However, the new regulator (the Public Company Accounting Oversight Board) has never sought to ban NAS generally. It has been argued that a total prohibition on NAS for audit clients

⁵ The banned services include: legal services and expert services unrelated to the audit; financial information systems design and implementation; internal auditing outsourcing; appraisal or valuation services; management functions or human resources; bookkeeping or other services related to the accounting records or financial statements of the audit client; actuarial services; broker or dealer, investment adviser, or investment banking services; and any other service that the new Public Company Accounting Oversight Board does not allow.

would, over time, diminish accounting firms overall technical expertise and undermine audit effectiveness (it is essential, for example, to have skilled tax experts at a firm in order to audit a company's tax provision properly) (Riesenberg, 2002).

Commenting on the US committee report on the bill sponsored by Representative Oxley, which the House passed, the House Financial Services Committee stated:

"[T]he Committee heard testimony that a broader ban on NASs could undermine rather than improve audit quality, since certain such services can improve the auditor's understanding of the audit client's business activities. Likewise, a broader ban could reduce corporate efficiencies and impair auditing firms' ability to attract and retain tax and other non-audit personnel who are essential to the audit process" (H. Rept. No. 107-414, at 17, 2002).

In this sense, the existence of such value-added services is reasonable and it is impossible to completely stop auditors from providing NASs. So the 'spill-over' effect of expert knowledge inevitably adds new value to auditing services and then differentiates auditors in ability to provide these additional services.

In summary, the legal system and government control give a rise to a demand for other functions of auditing services besides monitoring, and consequently, auditors are differentiated in more aspects. Actually, when a company chooses an auditor, it is not facing a simple decision of high or low monitoring quality. Recognition of all functions of audit is important to understand auditor selection and audit fee determinants in an auditing market. Audit fees as a reflection of audit value are influenced by the company's selection of auditors. Therefore, auditor selection and audit fees are not independent from each other. Sections 2.2 and 2.3 summarised related theories on the demand for and the supply of auditing services. The next

section will explicitly review prior studies on auditor selection and audit fee determinants and present their main findings separately.

2.4. Auditor selection studies

Most prior studies on companies' auditor selection or auditor-switching focus on a specific market based on agency theory that predicts that a company with high agency costs will be more likely to select a high audit quality auditor. They differentiate auditors according to audit quality in terms of size, brand name, or specialisation (Chow, 1982; and Wallace, 1986). The typical auditor selection model employs the ordinary least square (OLS) regression equation for a continuous dependent variable of quality measured by the different surrogates, or the probit model for a two-category dependent variable, which is coded as high audit quality and low quality (e.g. Ireland and Lennox, 2002). These studies normally regard the choice of auditor as a function of company-specific factors, such as size, complexity, leverage, corporate governance, ownership concentration.

2.4.1. Company-specific factors affecting auditor choice

Size and complexity

The size and complexity of a company are common control variables in the auditor selection model (e.g. Healy and Lys, 1986; Johnson and Lys, 1986; Palmrose, 1984; Simunic and Stein, 1987; and Ireland and Lennox, 2002). Agency theory argues that a large or complex company incurs high agency costs so that the company prefers to

appoint high quality auditors. Company size, and business and geographical segment diversification, a proxy for complexity, increase clients' opportunities to manage earnings and the difficulties in detecting them by auditors (Habib *et al.*, 1997; Gilson *et al.*, 2001; Palepu, 1985; and Barton, 2001). Combining diverse operations also gives a rise to information asymmetries and also suppresses the activity of information intermediaries. High quality auditors suppose to have competence to audit large and complex companies. On the other hand, Reynolds and Francis (2001) and Chung and Kallapur (2003) argued that large and complex clients required close attention and auditors suffered higher penalties for audit failures in such large and complex clients. Therefore, only high quality auditors who provide high independence are really capable of effectually auditing them.

However, some researchers have raised questions concerning the association between a large and complex company and high audit quality. Watts and Zimmerman (1981) and DeAngelo (1981b) suggest that auditors' incentives to maintain their independence are affected by client importance, and the ratio of quasi-rents specific to the client divided by all other quasi-rents. In other words, they argue that the larger the firm, the higher the total fees earned by the audit firm, the less willing the audit firm will be to disclose a breach for fear of losing the client. Large and complex companies are often important clients for auditors, so the association between a large and complex company and auditor independence may be disputed. Although there are arguments concerning auditors' independence in auditing large and complex

companies, most fee studies find a consistent result that company size and complexity are positively associated with audit fees. There is no empirical evidence that audit fees of large and complex companies are influenced by auditors' impaired independence.

Corporate governance

The demand for audit quality may also differ relative to the strength of corporate governance. A more independent board of directors could prevent earnings manipulation in the first place and hiring an auditor with high quality may also protect the auditor from being fired by managers when he reports a breach (Chung and Kallapur, 2003; Ireland and Lennox, 2002). Hermalin and Weisbach (2003) argued that effective board monitoring was more likely when insiders have less influence on the board. Several proxies for insider influence have been estimated and produced significant results for: 1) separation of CEO and chairman positions (Tsui *et al.*, 2001 and Chung and Kallapur, 2003); 2) the percentage of non-executive directors (e.g. Weisbach, 1988; and Ireland and Lennox, 2002); and 3) the percentage of shares owned by the 5 largest blockholders (Dechow *et al.*, 1996). In addition to the above studies, audit committees are also regarded as an important group since they are responsible for determining audit fees and independence arrangements. Collier and Gregory (1999) found audit committee activity lower in UK companies when the CEO is the chairman. Menon and William (1994) and Beasley and Salterio (2001) reported audit committee independence and activity to be positively associated with the percentage of non-executive directors in American and Canadian companies

respectively.

Managerial ownership

Jensen and Meckling (1976) identified two classes of agency conflicts, owner-manager and owner-creditor. The authors argued that the basic agency problem between owner and manager could be mitigated by making managers owners of the company. Managers then have an incentive to choose a higher-quality audit as a means of increasing their compensation. However, Demsetz (1983) and Fama and Jensen (1983a and 1983b) pointed out that high levels of managerial ownership could lead to management 'entrenchment' because control challenges are difficult to mount by other stockholders. Regarding this argument, Mock *et al.* (1988) found a non-linear relationship between manager ownership and corporate performance. Francis and Wilson (1988) used a dummy variable as a nonlinear variable, coded one if outside the 5 to 20 per cent range and zero if in the 5 to 20 per cent range, but did not find a significant influence on auditor choice. Lennox (2005) measured managerial shares in three ownership regions, i.e. low, intermediate and high. The association between managerial ownership and high quality auditors was found to be significantly negative within low and high regions of management ownership. The association was flatter and slightly positive within intermediate regions, suggesting the existence of an opposite entrenchment effect.

Diffusion of ownership

Another variable affecting the extent of owner-manager conflict is diffusion of ownership (Francis and Wilson, 1988). Alchian and Demsetz (1972) argued that the operative aspect of diffusion was its effect on the probability that management would be removed. Greater diffusion of ownership increases the cost and effort required to obtain proxy transfers necessary to affect management policy and, in particular, to force a change in management. Thus, owner constraints on management actions are inversely proportional to the degree of diffusion. This argument suggests that a higher quality audit can be considered as part of the complex control system that mitigates the relative inability of diffused ownership to directly monitor and control management behaviour. Francis and Wilson (1988) measured diffusion as the percentage of common stock owned by the largest single shareholder. They took 10 per cent as a threshold existing for pre-1982 proxy disclosures and used a dummy variable coded one if the largest individual owner had ten per cent or more of outstanding stock, and zero if the largest individual's holding was less than ten per cent. The predicted sign was positive, which suggested that companies with more diffuse ownership are more likely to use a higher-quality auditor. The degree of diffusion also can be measured by the Herfindahl Index (Mitchell *et al.*, 1995 and Aitken *et al.*, 1997). The Herfindahl Index (H_x) is obtained by squaring the share of each of the biggest x shareholders, and then adding up those squares. The H index reflects the relative diffusion degree among the several biggest shareholders.

Leverage

Agency theory argues that creditors concern possible wealth transfers to shareholders (Smith and Warner, 1979). It has been hypothesised (Palmrose, 1984; and Simunic and Stein, 1987) that the presence of long-term debt contracts created a demand for higher-quality audits. Simunic and Stein (1987) reported a negative association as a result. DeFond and Jiambalvo (1994) found that abnormal accruals were positive for companies about to violate covenants, and Press and Weintrop (1990) indicated that leverage was associated with the probability of violating covenants. They argued that high-leverage (measured as debt-to-equity) companies are more likely to manage earnings, and then to choose lower audit quality.

IPO

Lastly, previous studies suggested that there was a demand for a high quality auditor in the IPO setting to reveal information to investors about company value (Simunic and Stein, 1987; Datar *et al.*, 1991) and to reduce underpricing (Beatty, 1989; Balver *et al.*, 1988; and Hogan, 1997). So IPO companies would like to choose high quality auditors.

2.4.2. The supply effect on auditor choices

The above company-specific factors are all related to demand for high audit quality, or the demand effect on auditor choices. Actually, auditor choices are also affected by supply factors in terms of auditors' preference for their clients and audit fees that they

will charge.

Hogan (1997) contended that as company risk increased, high quality auditors provide marginal benefits beyond those provided by low quality auditors; however, marginal costs may also be greater for high quality auditors. If the fee charged by high quality auditors is sufficiently higher than that charged by low quality auditors, or if auditors report a qualified audit opinion that is not in favour of companies, then the incremental cost of choosing a high quality auditor may outweigh the incremental benefit. Therefore, the supply-side effect implies that auditor choice depends on marginal costs and benefits. In the process of choosing an auditor, a company faces potential rejection from auditors and the constraint of budgeted audit fees. Failure to consider the supply effect in audit selection models can obscure empirical relations or produce results that are inconsistent with theory. Hogan (1997) provided the evidence that the effect of client-specific risk on total costs differs across auditor groups, which suggests pricing differentiations of auditors. Copley *et al.* (1994) adopted a simultaneous equation procedure applicable to jointly determined endogenous variables (auditor type and audit fee), and found audit fees appeared to be positively related to the supply of audit quality (in the audit fee model) and inversely related to the demand for audit quality (in the audit quality model). These findings have implications for this study, which examines the influence of institutions on auditor selection in the Chinese auditing market, and studies the price differentiations of auditors.

2.4.3. Country-specific institutional factors affecting auditor choice

The above arguments concerning auditor selection are mainly based on traditional theories and focus on the internal motivations of companies. However, they neglect an underlying assumption that there is an efficient capital market and a legal system. The theory in relation to institutional factors suggests that legal protection for investors and government intervention can modify the role of auditing and a company's motivation to select an auditor. Inferences concerning the relationship between company-specific factors and auditor choices should take account of country-specific legal and political institutions. The impact of institutions on auditor choices is reflected at two levels: the country-specific level and the company-specific level. At the country-specific level, Choi and Wong (2003) developed the complementary effect hypothesis that proposed that the general demand of companies for high quality auditors is weaker in weak legal environments than in strong legal environment. At the company-specific level, inferences of the relationship between company-specific factors and auditor choices are challenged by the new values of auditing driven by legal and political regimes. According to the other values of auditing, several auditor selection hypotheses have been examined in previous literature.

Deep pocket hypothesis

The deep pocket hypothesis argues that the 'deep pocket' rule in a legal system motivates companies who have great legal exposure to select wealthy and reputable auditors in order to share litigation liability when they are sued. Lowry and Shu (2002)

argued that company size is positively associated with its legal exposure because plaintiffs initiate a lawsuit only if they perceive the recoverable damages to be sufficiently large. However, the costs associated with filing a lawsuit are normally fixed. The benefits of suing larger firms are greater because of their 'deep pockets' while the benefits of suing a small firm may not justify the costs. Alexander (1991) reported that of the seventeen IPOs in the computer industry in 1983, the six largest offerings had all been sued. Besides company size, Lowry and Shu (2002) suggested that the higher uncertainty surrounding younger companies, companies in high-tech industries, or companies listed on the Nasdaq were also likely to increase these companies' legal exposure. The deep pocket hypothesis provides a potential explanation for auditor selection; however, it is based on a strong legal system to protect investors. The 'deep pocket' regime is carried on effectively in common law countries, whereas in civil law countries, the rules of 'deep pocket' and their enforcement are weak (La Porta *et al.*, 1997). The following chapter on China's institutional background will introduce the Chinese legal environment and suggest that the 'deep pocket' motivation for reputable auditors is weak in China.

Substitution hypothesis

The substitution hypothesis is derived from Choi and Wong (2003). It argues that in a weak legal environment for investor protection, high quality auditors can serve as a company-level substitution for the legal environment. Lang *et al.* (2003 and 2002) found that cross-listing companies that are listed in different stock markets at the same

time could have a positive impact on the valuation of auditors for companies from markets with poorer investor protection. High quality auditors can enhance the company's reputation to protect outside shareholders. Dyck and Zingales (2003) and Klapper and Love (2002) indicated that company-level corporate governance provisions could increase individual company market valuation more in countries with weak legal environments than in those with strong legal environments. Therefore, good corporate governance may motivate companies to select high quality auditors in order to take the place of a weak legal system for investor protection and maximum market value. The substitution hypothesis is helpful for exploring specific company selection motivation for Big Four auditors when the general demand for high quality auditors is weak in a weak legal environment.

Political cost hypothesis

As discussed above, Watts and Zimmerman (1986) developed the political cost hypothesis. They argue that wealth transfer from consumers to companies attracts political attention. Large firms that operate in less competitive markets become aware of government control. Therefore, the political cost hypothesis assumes that large firms are more sensitive to political control than smaller firms (Watts and Zimmerman, 1986). In line with the political cost hypothesis, Deegan and Gordon (1996) and Belkaoui and Karpik (1989) confirmed the political cost motivation of companies to select auditors well recognised by government in order to avoid political attention and reduce political costs. It is supposed that company size is positively associated with

choices of well-recognised auditors. Besides company size, Bos and Donker (2002) stated that some companies in important industries, such as the oil industry, the energy sector, or telecommunications, are also subject to government scrutiny. Deegan and Hallam (1991), Deegan and Carroll (1993), and Hagerman and Zmijewski (1979) found company size, market concentration, and industry all related to political visibility.

2.5. The determinants of audit fees

In the audit services market, audit firms charge high fees for their audit efforts. The product is a standard audit report and the quality of audit is difficult to observe. What factors influence the level of fee paid for audit services depends on product characteristics and the quality of audit. Seminal work in this area was conducted by Simunic (1980) in the US market. It used the relatively complicated OLS regression analysis to provide a model of audit fee determinants. In this seminal paper, Simunic (1980) presented a production view of the audit process and hypothesised that certain drivers will be associated with variations in the level of audit fees because these drivers will cause an auditor to perform more (or less) work during the course of the audit. Simunic's template has been replicated or expanded in seventeen non-US countries⁶. Despite markets' specific institutional backgrounds, common, consistent and enduring factors have been found to be significant determinants of audit fees.

⁶ These countries included Anglo-Saxon countries such as the UK (e.g. Taylor *et al.*, 1981; Taffler *et al.*, 1982; Chan *et al.*, 1993; and Pong *et al.*, 1994); Australia (e.g. Francis, 1984; Francis *et al.*, 1986; Craswell *et al.*, 1995 and 1999); Canada (Chung *et al.*, 1988; Anderson and Zeghal, 1994); and New Zealand (Firth *et al.*, 1995); and other countries or regions with specific history and culture such as Pakistan (Simon *et al.*, 1997); Singapore (Low *et al.*, 1990); Malaysia and Hong Kong (e.g. Simon *et al.*, 1992; Lee, 1996; DeFond *et al.*, 2000); Japan (Taylor, 1997); and South Korea (Taylor, 1999).

Subsequent research has demonstrated convincingly that audit fees are associated with measures of client size, client risk, and client complexity. In general, these variables may be perceived as “supply” variables, in that they proxy for attributes of the audit process and the level of effort expended by the auditor.

In recent years, a few studies have explored the supply side and complemented the original limited model. Based on Simunic’s model (1980), some fee studies have added auditor-specific variables to the audit fee regression model, such as auditor type, busy period, NAS fees, auditor’s industry specialization, and auditor location. However, such research has generated mixed results regarding these variables. In the next section, I detail prior studies.

2.5.1. Company-specific factors affecting audit fees

Company size

The size of company is the most dominant factor across the literature, and is always reported as a significant and positive determinant of audit fees, even in different markets. Simunic measured the size with total assets, which is also used by most researchers. But others such as Chan *et al.* (1993), Pong and Whittington (1994), and Ezzamel *et al.* (1996) in the UK, introduced turnover as an appropriate variable of size. They used total asset as a proxy for effort in balance sheet audits and turnover as a proxy for effort in system audits. However, no matter which proxies are chosen, there is no argument as to the centrality of company size in all fee models. Generally,

increases in size are associated with increases in audit fees, but, the relationship between size of company and audit fees is not constant. Francis and Stokes (1986) suggested that there may be economies of scale in auditing, and more total assets may be associated with more risk and more difficulties of audit. They found a non-linear relationship between company size and audit fees. In most of the literature, the natural log of total asset, instead of Simunic's (1980) root square, prevails.

Company complexity

Complexity reflects the nature and diversity of the business of companies. In the case of the same size of company, volume of audit effort will be affected by the company's diversified operation. Most commonly utilised variables are the number of consolidated subsidiaries, the number of industries in which the company operates, and the quality of internal controls. Particular attention in the work of Rose (1999) is also paid to the proportion of subsidiaries in foreign locations to total subsidiaries in the markets of East Asia. Most proxies for complexity of company have been proven to be significant across different markets.

Company risk

Simunic (1980) suggested that risk of company may lead to risk premiums in audit fees. Pratt and Stice (1994) and Walo (1995) provided evidence of the auditor's response to company risk—the risk of loss or injury to an auditor's professional practice due to client relationships—by increasing the investment in the audit and/or

charging fees above the amount required to cover the costs of conducting audits. Therefore, these studies suggested that auditors reacted to company risk that encompasses audit and business risk. Houston *et al.* (1999) argued that audit risks were associated with issuing unqualified audit opinions on clients' financial statements that contained material misstatements. Business risk, on the other hand, is present even when auditors comply with generally accepted auditing standards and render appropriate audit opinions. The primary costs associated with business risk are related to litigation, whether the disclosure leads to auditors being held liable for client stakeholder losses. Other costs are related to sanctions imposed by regulatory bodies, impaired reputation and failure to collect fees. Therefore, audit fees charged to a company with a weak internal control system experiencing financial difficulty, are probably associated with two kinds of risks: the risk of a material misstatement and the risk of financial failure. More particular audit efforts may be required to control high company risk. Rather than size and complexity, a wider range of variables are used in the literature to model risk associated with the company because different markets possess different risk elements. Even if the same variables are used, they represent different levels of risk in different markets. Liquidity, profitability and gearing ratios are extensively adopted and have been found to be significant cross-sectional variables (e.g. Simunic, 1980; Firth, 1985; Simon and Francis, 1988; and Craswell, 1995). The other proxies for risk include qualified opinions (e.g. Lee, 1996) and betas (e.g. Gregory and Collier, 1996).

However, no risk variables have been widely proven to be significant determinants. For example, prior research, such as that of Simunic (1980), Francis and Simon (1988) and Turpen (1990), has found the profitability ratio for business risk to be positively correlated with audit fees in the US market. However, a significant association has not been found using Canada data (Chung and Lindsay, 1988; Anderson and Zeghal, 1994); New Zealand data (Firth, 1985); and UK data (Seetharaman *et al.*, 2002). Craswell *et al.* (1995) found a significantly negative association between profitability risk and audit fees in Australia. The mixed results suggested that auditors might not be as finely calibrated to differences in the risk metrics. The relationship between profitability ratio and fees may be non-linear since a reduction of return of total assets (ROA) when a company has already had a loss may not have the same impact as a reduction when the company is just barely making a profit.

2.5.2. Auditor-specific factors affecting audit fees

Butterworth and Houghton (1995) argued that NAS fees had a significant negative impact on the level of audit fees because large NAS fees increase client importance and reduce audit quality. Craswell *et al.* (1995), Lee (1996) and DeFond *et al.* (2000) tested the association between auditor industry specialisation and audit fees. They found specialist firms charged fee premiums, so argued that industry expertise enhanced audit quality. Chan *et al.* (1993) and Ireland and Lennox (2002) showed that in the UK, London accounting offices charged higher audit fees compared to offices

located outside London. The above supply-side factors have not been widely examined in different markets and significant results are only reported in specific markets. Two other auditor-specific variables are frequently involved in audit fee models: auditor tenure, and auditor choice in terms of large/small auditors or Big Four/Non-Big Four auditors.

2.5.2.1. Auditor tenure

The effect of auditor tenure on audit fees has attracted considerable attention from researchers, because auditors and users of financial statements are interested in the presence of low-balling (pricing initial audits below cost) and abnormal profit (profits in excess of costs and a normal return), which can potentially impair auditor independence. Many empirical studies have examined the relationship between audit fees and auditor tenure, but results have been mixed. Francis and Simon (1987); Turpen (1990); Roberts *et al.* (1990); Pong and Whittington (1994); Ward *et al.* (1994); O'Keefe *et al.* (1994); and Gregory and Collier (1996) all found evidence of price-cutting in the early years of an audit. Therefore, audit fee increases with auditor tenure. Simunic (1980); Francis (1984); Palmrose (1986a); Chung and Lindsay (1988); and Butterworth and Houghton (1995) did not find auditor tenure related to audit fees. Ashton, Elliott and Willingham (1989) and Roberts *et al.* (1990) found a negative relationship between audit fee and auditor tenure.

Simon and Francis (1988) and Walker and Casterella (2000) provided evidence that audit firms may be able to reduce audit hours due to learning and then reduce audit fees in future audits. Some researchers discussed conditions in which incumbent auditors were expected to engage in low-balling. Johnson (2001) argued that in a competitive market, initial audits would be priced below cost if continuing auditors are able to earn abnormal profits. Gigler and Penno (1995) predicted that, in an imperfectly competitive market, continuing auditors would be able to earn abnormal profits, but low-balling on initial audits would not necessarily occur because efficient auditors may be able to earn abnormal profits in all periods, including the initial one. The imperfect competition necessitates auditors having different cost structures and increasing switch costs. Diacon *et al.* (2002) developed a model of asymmetric information to investigate the impact of auditor professional negligence on audit pricing strategies. Their model predicted that hidden information on auditor quality would produce high-balling pricing strategies, as low quality auditors reduced renewal fees to try to prevent their clients from switching audit firms. Therefore, according to the above arguments the effect of auditor tenure on audit fee is influenced not only by the competition in the market but also by different auditors.

2.5.2.2. The effect of auditor choice on audit fees

In the early literature, the common variable on the supply side in the audit fees model was an exogenous dichotomous variable of Big Four/Non-Big Four firms (e.g. Craswell *et al.*, 1995; Palmrose, 1986; and Simon and Francis, 1988). They argued

that Big Four firms tended to have a premium in their audit prices because of their oligopolist position in the market. In most Anglo-Saxon countries, Big Four firms have very big market shares. It is feasible that a premium in audit fees is due to strong market power. However, some fee premium studies challenge this argument. For example, DeFond *et al.* (2000) investigated the market of Hong Kong based on auditor industry specialisation within the Big 6 and large local firm, KWTF. The final result revealed in the property market was that large local firms as market leaders priced their audit services at a discount relative to all other competitors in the market. Simunic (1980) and Francis and Stokes (1986) pointed out that the auditing market is actually segmented into two: a competitive market segment consisting of 'small' companies serviced by a large number of auditors, and a potentially less competitive segment for 'large' companies dominated by a few large auditors. Francis and Stokes (1986) only found a fee premium charged by Big Four auditors to small companies but not to large companies. Therefore, the fee premium charged by Big Four auditors is expected to be different depending on the market segment in which the auditor is competing. But market segmentation is greatly influenced by companies' demand preference for auditors. So the findings in Francis and Stokes (1986) implied the effect of auditor selectivity on fee premiums.

More recent fee studies (Copley *et al.*, 1995; Ireland and Lennox, 2002; Chaney *et al.*, 2004 and 2005) have noticed the selection bias in audit fees. They argued that the inclusion of auditor choice as an exogenous variable in audit fee regression analysis

could be invalid because companies are not randomly assigned to their auditors. Companies select their incumbent auditors based on company-specific characteristics, country-specific institutions, and other unobservable factors. This will result in selectivity bias in audit fee estimations and impact fee premium estimates. Taking account of the selection bias in audit fees, Ireland and Lennox (2002) found the fee premium charged by large auditors in the UK public company auditing market had been underestimated in previous studies. Moreover, documentary evidence provided by Chaney *et al.* (2004 and 2005) of fee premiums charged by large auditors and Big Four auditors in private company audits in the UK and in public and private company audits in the US showed that those companies choosing large auditors/Big Four auditors generally would have faced higher fees had they chosen small auditors/non-Big Four auditors, given their company-specific characteristics.

Chaney *et al.* (2005) emphasised the importance of controlling for selectivity in audit fee study and suggested that audit markets for listed companies, as well as for private companies were segmented along cost-effective lines. The reason why the companies do not pay fee premiums is because they do not view large auditors/Big Four auditors superior enough to justify a fee premium. Therefore, auditor selection and audit fee determinant are not independent issues. How companies value large auditors/Big Four auditors influence market segmentation and also audit pricing. Failure to account for the endogeneity of auditor choices in audit fee studies can result in biased inferences

about other audit fee determinants.

2.5.3. Country-specific institutions affecting audit fees

Most audit fees studies are undertaken in a specific market and mainly focus on company-specific or auditor-specific factors affecting audit fees. It is difficult to compare results across countries. Although company size and complexity are recognised dominant factors in different countries, no risk variables have been widely proved to be significant determinants. Choi and Wong (2003) indicated that Australia, Canada, New Zealand and the UK had similar general legal environments and auditors there experienced less litigation risk than auditors in the US. They provided evidence that the audit fee was higher for risky companies in strong legal environments than for those in weak legal environments. Their results support the legal cost hypothesis. The effects of legal environments impact not only on how auditors turn away risky clients, but also on how much risk premium they are likely to charge. If taking account of selection bias in audit fees, different institutional factors can also affect audit fee determinants through their influences on the company's selection preference for auditors.

Taylor *et al.* (1999) modelled the macro-economic variables when studying audit fees. Macro-economic variables included litigation propensity, disclosure and regulation in an attempt to capture the varying effects of political and economic factors across the twenty countries. The results showed that environmental characteristics were

important determinants of variation in fees for audit services in the global market. The complement of Taylor *et al.* (1999) provided a comprehensive picture of the determinants of product differentiation and suggested that future work should research towards an integrated framework combining historical, cultural and institutional dimensions of the differences in markets and specific characteristics of auditors and companies. This work pays particular attention to China's institutional setting. The next chapter will analyse background and formulate hypotheses based on traditional theories, i.e. agency theory and signalling theory, and the theory in relation to institutional factors.

2.6. Conclusions

This chapter reviewed previous literature relating to accounting and auditing theories and practices. It argued several auditing theories, including the classic agency theory and signalling theory, and the emerging theory that emphasise influence of institutional factors on auditing market, and theoretically discussed the broad roles of auditing and auditor differentiations in a specific institutional setting, characterised in terms of the legal system of investor protection and government intervention. Current auditor selection and audit fee studies pay more attention to institutional differences across countries and recognise their impact on a company's selection behaviours and an auditor's pricing differentiations. Therefore, in this study, undertaken in the Chinese context, China's institutional setting is theoretically analysed and compared

with other markets. In addition, because recent studies have emphasised the interrelationship between auditor selection and audit fees, and pointed out selectivity bias in audit fee determinants, this thesis intends to jointly estimate auditor selection and audit fee determinants in the China's auditing market by taking into account of selection bias in fees.

CHAPTER 3

CHINA'S INSTITUTIONAL SETTING

3.1. Introduction

Most studies of independent auditing are based on traditional theories, such as agency theory and signalling theory. However, these theories were developed initially in developed countries, such as the US and UK, which has free market economy, a comparatively mature capital market, advanced corporate governance, and a sophisticated legal systems. The validity of such theories and evidence for them depend on assumptions concerning the institutional settings of these countries. When these theories are extended into a non-Anglo-Saxon context, attempts are often made to outline the unique institutional factors of the country under study and discuss their influence on companies' demand for auditing. Therefore, it is necessary to undertake a theoretical analysis of the influence of legal system and government intervention on the behaviour of companies and auditors. Studies from an institutional perspective on auditor selection and audit fee determinants make it possible to compare the results in different auditing markets.

As an emerging market, China has its own institutional setting. Utilising the theory, China's institutional background is not analysed as a particular puzzle but theoretically as a case with a weak legal environment and strong government control

compared with other markets. This chapter is arranged in three parts: 1) a general introduction to the development of independent auditing in China is provided in Sections 3.2 and 3.3; 2) a summary of the legal environment and government intervention in the Chinese market is presented in Section 3.4; 3) the impact of institutions on the demand for independent auditing is discussed in Section 3.5; and 4) the impact of institutions on the supply of independent auditing is explored in Section 3.6, including market concentration and segmentation.

3.2. The revival of auditing services

Until 1979, China had an economic system that was based on state ownership with government management and control of all the country's economic resources. All companies were based on state or collective ownership, operating under a system of specialist supervision and internal accounting control (Xiao *et al.*, 2000). The 'specialist supervision' was provided by the MOF, the state banks, and the taxation departments and their various local authorities (Cooper *et al.*, 2002). The system comprised supervising ministries and their local branches and the establishment of a bureaucratic process to monitor accounts and the internal controls of subordinate organisations. The system, largely borrowed from the Soviet Union, was relatively inflexible compared with auditing and control systems in the West, causing difficulties in understanding and accessing information (Li, 1998). Auditing reports were not made accessible to the public, and auditing processes and purposes were not explained. No one cared about how the numbers were derived because profits were not the main

objective of a department or company. The main issue was that the State or companies could satisfy the budgeted or planned output of production and balance account books. In this sense, at that time, auditing meant a kind of government auditing, a mechanism to provide assurance to the government that records were being kept, and to report the accuracy of performance of state authorities and state-owned companies (Chong, 2000).

Independent auditing services were not developed until the early 1980s⁷. In response to the demand for enhanced economic supervision in the course of wide-ranged economic reforms begun in 1978, the government restored public auditing services. As a matter of fact, it was economic reforms by the Chinese government that generated the demand for independent auditing in China. Therefore, the revival of the auditing industry was greatly influenced by the government from the beginning. Specifically, economic reforms brought about a number of institutional changes as described below.

Firstly, the transfer from the planned economy to the market economy has redefined the role of the Chinese government in the economy. The government has become the indirect controller of the economy instead of the direct actor as before. Its direct involvement in company operations has reduced. It has not been the only body that can obtain and use accounting information for decision-making as a result of the

⁷ In China, independent auditing existed in the early 1950s but had been banned until the early 1980s.

emergence of other kinds of stakeholder. Auditing is not just an administrative responsibility of the government but also reflects a spontaneous demand for monitoring in a market economy. However, the process to realise these changes has been difficult and gradual since 1978 because the indirect influence of the government is still great.

Secondly, the large-scale restructuring of state-owned enterprises has resulted in a diversification of enterprise ownership structure and their operations. Private enterprises, mixed-ownership enterprises and joint ventures have appeared consequent upon adoption of the 'open door' policy to foreign investors. Since the early 1990s, state-owned enterprises (SOEs) have been implementing reform programmes that require the adoption of a modern enterprise system (MES) and group company system (GCS)⁸. As important reforms in the transfer from a planned economy to a market economy, the primary aims of these restructuring programmes are to reduce government interference in the running of large SOEs and to encourage them to behave in a more entrepreneurial fashion. It is expected that large SOEs will become internationally competitive companies structured along the same lines as Western corporations, with Boards of Directors accountable to shareholders rather than being subject to the political authority of the government. Therefore, the old accounting system founded on government ownership and administration is obviously not

⁸ Before 1998, central and local governments had specific sectors to directly control and manage SOEs in industries important, such as the national steel department, mining department and so on. The GCS was introduced to reduce the government direct intervention in order to remove those industry sectors and establish a group company controlled by the state but separated from government bureaucracy.

consistent with the new economy structure. Meanwhile, the appearance of mixed ownership and the implementation of the MES and GCS bring agency problems and stimulate the demand for independent auditing.

Finally, opening up China's economy to foreign investors stimulates the necessity of having a system of accountancy that is more comprehensible to the outside world. China is the large recipient of international investments. In the 1990s, it began to issue shares and bonds in international capital markets. At the same time, its own security markets were established where 'B' shares are traded by non-residents in foreign currency. In December 2001, China became a member of the World Trade Organisation. As the Chinese economy is more open to foreign investors, independent auditing services are playing an increasingly important role in disclosing accounting information in accordance with harmonised accounting standards.

3.3. Accounting reform and the new accounting system

In order to monitor foreign investment, in November 1988, the Chinese Institute of Certified Public Accountants (CICPA) was established, which is a national organisation of CPAs (Ding and Evraert, 2000). Initially, independent auditing was introduced as a statutory requirement for foreign equity joint ventures by *the Law on Chinese Foreign Equity Joint Ventures* (1979). *The Law on Wholly Foreign Owned Enterprises* (1986) and *The Law on Chinese Foreign Contractual Joint Ventures* (1986) require independent auditing of all kinds of structures receiving foreign capital.

In all these cases, audit reports are still mainly addressed to the administrative authorities supervising joint ventures (Bertin and Jaussaud, 2003).

Material accounting reform began under the leadership of the Chinese government in 1992 and 1993, symbolised by the publication of *The Enterprise Basic Accounting Standard*, the amendment of *The Accounting Law* and publication of *The Company Law*. The *Company Law* is the first law to regulate modern companies' systems and is imitative of western regulations. Apart from its contents relating to the constitution and operation of companies, there are dispositions concerning the disclosure of accounting and financial information: construction of an annual report, and verification by a CPA. In 1993, *The Law on Certified Public Accountants* was issued; subsequently, the MOF enacted a number of professional standards, including *Chinese Independent Auditing Standards* after 1995, designed according to International Standards on Auditing promulgated by the International Federation of Accountants (DeFond *et al.*, 2000). However, in the 1990s extensive false reporting and earnings management by companies discredited accounting information and hampered the development of the capital market (Xiao *et al.*, 2004). As a regulatory response to the "accounting information crisis" (Li, 2001), *the Accounting Law* was amended in 1999 to stress the importance of "true and complete" accounting information. In 2000, the State Council issued an *Enterprise Financial Reporting Regulation*, redefining the elements of financial statements in line with the conceptual framework of the IASC and stating responsibilities and liabilities for parties involved in accounting and

auditing activities.

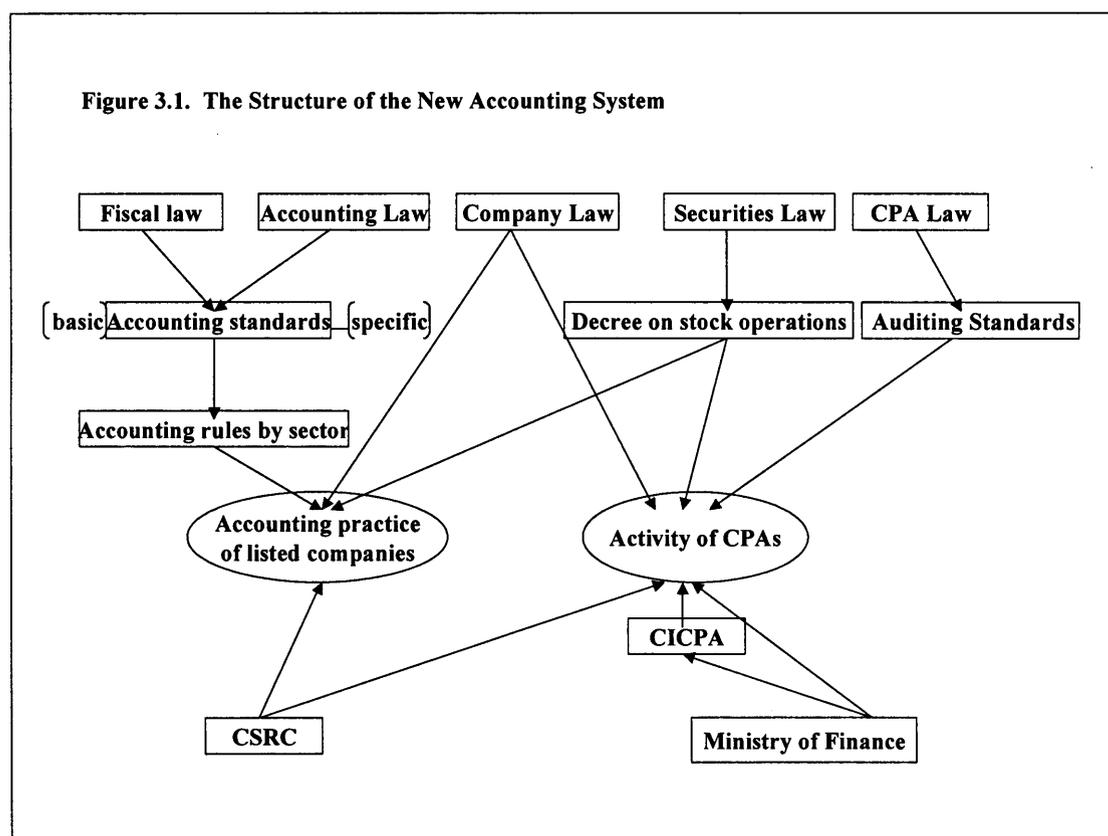
According to requirements of the State Council in standardising regulation of the domestic auditing market, the CICPA merged with the China Association of Certified Public Auditors (CACPA)⁹ in 1995 to form the new CICPA to carry out unitary management over the domestic auditing market. However, the institute has to accept the supervision and guidance of the MOF and the National Audit Office according to the laws (see the Chapter of the CPA, article 4). Thus, actually the CICPA is not an independent but a quasi-government agency. Before 2003, many administrative powers were possessed by the CICPA. But since January 2003, affected by several serious accounting scandals (e.g. the Enron scandal and the Zhongtianqin scandal), and the Sarbanes-Oxley Act, the MOF decided to reduce the CICPA's powers. At present, the MOF approves the formulation, development and implementation of CPA codes, and the registration of auditing firms (*the 24th Decree of the MOF, 2004*)¹⁰.

Another major reform has been applied to the stock operation regulation system. In 1990 and 1991, two stock exchanges were built in Shanghai and Shenzhen respectively. Thereafter, the China Securities Regulatory Commission (the CSRC) (1992) was established with the task of day-to-day monitoring of capital markets and market participants. It is the CSRC and the MOF, which co-published the order that

⁹ The former CICPA was established in November 1988 and was under the supervision and guidance of the MOF. CACPA was founded in September 1992 and was under the supervision and guidance of the National Audit Office. The new CICPA regulates the public accountancy profession across the country and is under the supervision and guidance of the MOF and the National Audit Office.

¹⁰ See http://www.bjcz.gov.cn/tsnr/ksgl/xgwj/t20050427_28519.htm

defines the specific qualifications for CPAs and accounting firms entitled to audit Chinese listed companies. In 1999, *the Securities Law* was introduced, which stresses the obligation of information disclosure for all listed companies. At the end of 2001, there were 1,160 companies listed on the two stock exchanges with a total capitalisation of RMB 43,522 billion (CSRC, 2002). The series of reforms indicate the Chinese government's policy to transfer the Soviet-inspired accounting system to the Anglo-Saxon system in China (Nobes, 1998). Figure 3.1 presents a structure of the current accounting system in China, which has been developed by legal and political forces (Blake and Gao, 1995).



The establishment of the Shanghai and Shenzhen stock exchanges, the promulgation of new accounting and auditing standards, and the development of the accounting

profession have dramatically changed accounting and auditing settings in China. However, building a modern accounting system requires robust organisational and technical capacities as well as strict enforcement of regulatory mechanisms. Institution building also involves time-consuming learning processes and behavioural adjustments by both regulators and market participants. Xiao *et al.* (2004) pointed out that although development of regulation setting has been fast, the capital market is still characterised by weak equity outsiders, strong market speculation, extensive earnings management, deceptive reporting and large-scale market manipulation. Wong (2005) reported that China's stock markets have been in a bear market for more than three and half years and the composite index of the Shanghai Stock Exchange slid from around 2,250 points in mid-2001 to around 1,300 points in December 2004, a plunge of 42%. The following section will specify important institutional weaknesses that have seriously hampered the development of China's capital markets and restricted the supply of and the demand for decision-useful accounting information.

3.4. Government intervention and legal governance in the Chinese stock market

3.4.1. The policy-driven Chinese stock market and the government's role

Although Chinese economic reforms have driven the revival of independent auditing, the reforms carry a heavy political heritage and the audit industry is struggling to survive in this particular capital market. The Chinese stock market has manifested

particular rules of the game that clearly differ from other stock markets in terms of conventional understanding. The political leadership has laid down a course of regulations oriented towards supporting state-owned enterprises and promoting quick market growth at the expense of consistent regulatory standards (Heilmann, 2002).

Heilmann (2002) argued that the Chinese stock market is a *policy-driven* market:

- *'A market in which political calculations, policy missions and administrative interference are more important than the dynamics of market competition for determining price fluctuations.*
- *A segmented market in which certain shares (they are called "state-owned shares" and "legal person shares" in China) are excluded from trading so as to perpetuate state control.*
- *A market that is a battlefield for the most powerful political and economic actors who try to benefit from their control over state assets.'*

It is inevitable that the government as the administrator and owner of state assets has conflicting missions. Table 3.1 shows the specific policy missions of the government.

Table 3.1. Conflicting policy missions in the Chinese stock market

		Policy Missions	Conflict
(1)	General economic policy mission	<ul style="list-style-type: none"> ◆ Preferential capital access for state-owned enterprises. ◆ Increasing the value of state assets. 	with (3)
(2)	Additional economic policy mission (since 1998)	<ul style="list-style-type: none"> ◆ Promoting consumers' and producers' trust in economic growth through higher share prices. 	with (3)
(3)	Official regulatory mission	<ul style="list-style-type: none"> ◆ Establishing a level playing field in the market. ◆ Protecting investors. ◆ Fighting market manipulation. 	with (1) (2) (4)
(4)	Unofficial regulatory mission	<ul style="list-style-type: none"> ◆ Restricting negative information about enterprises and market development. ◆ Preventing the devaluation of state assets. 	with (2) (3)

Source: adapted from Heilmann (2002)

These conflicts cannot be eliminated as long as the government plays a multiple role

and they exist in policy-making and administrative supervision. The conflicting missions seriously ruin competition in the capital market and weaken the demand for “true and fair” accounting information.

3.4.2. Administrative governance: the quota system

To solve SOE problems, preferential access to financial resources and an increase in the value of state assets are given priority in the early stage of reforms (Wong, 2005). The government has encouraged low quality state-owned enterprises to become listed in the stock market with the expectation of introducing modern company system and enhancing SOE competitive advantage at the expense of disturbing the market mechanism. During the initial period of stock market development, the Chinese stock markets relied primarily on a decentralised administrative governance structure built around the quota system (Qian and Xu, 1993; Xu and Zhuang, 1998).

Under the quota system, the central government decided the total budget amount of shares to the public, and allocated to different provinces and/or ministries a stated amount that companies owned by these agents could use for issuing (Pistor and Xu, 2005b). The total amount of capital made available to companies was derived in consultation with the People’s Bank of China (PBC) according to its reduction in lending to state-owned enterprises, which was replaced by options to raise equity funds. Once the amount was set, it was up to the provincial government, in collaboration with the companies’ owners, including ministries, local branches of the

PBC and other state agents with a stake in them, to identify companies for listing and nominate them.

Substituting state credits for equity funds under the quota system could not guarantee that selected companies for listing on the markets by provinces and ministries were the most competitive companies. Indeed, provinces may have hoped to diversify the burden of loss-making companies, and thus may have brought their lemons to the market (Akerlof and Romer, 1993). Regional governments could be pressured to take care of their children and bail out loss-making companies. In addition, regional governors increasingly helped these local low quality companies as a stepping-stone in their political careers (Pistor and Xu, 2005b). The quota system process in selecting listed companies involved so much administrative intervention that the interest of public investors was neglected.

Therefore, in 2000 the Chinese government formally abandoned the quota system. The CSRC began to rely increasingly on listing requirements established in the *Company Law*, its own listing requirements, and information available in financial data that was certified by specially licensed auditors. Because there were still many companies lined up, which had been approved but had not been able to issue shares, the shadow of the quota system remained for some time after it had been officially abandoned. Also some low quality companies had already been listed on the stock markets. The negative effects of the quota system on the stock markets cannot be

eliminated easily.

The government also intends to support the business cycle through the market mechanism by promoting investors confidence in listed companies through soaring share prices so that, in turn, the propensity to invest and to consume can be raised (see Table 3.1). Obviously, there are conflicts between the government's protection of SOEs and the dynamics of the market. Insider trading and market manipulations make up the growth of the national capital market. Under such circumstances, independent auditing that is controlled by the government and also supposed to offer true and fair financial information is frequently faced with a dilemma.

3.4.3. Non-negotiable state ownership and government monopoly in the stock market

Unlike other transitional economies, China has adopted a gradual reform approach. SOEs' corporatisation reform practices laid the foundation for the landmark 'Decision on the Problems of Establishing a Socialist Market Economy,' adopted by 14th Congress of the Communist Party of China in October 1993. Instead of privatising SOEs at the beginning of the transition, Chinese SOE reforms before the mid-1990s concentrated on adopting a new enterprise governance structure that expanded enterprise autonomy and incentives. As a result, most listed companies are still largely state-owned by state asset management agencies or by SOEs themselves, with only one-third of their equity capital sold to private investors. The government is

concerned politically and ideologically about the potential loss of state assets if all shares of a restructured SOE are to be freely traded. Therefore, the government does not allow the trading of state-owned shares in the stock exchanges, and shares can be transferred only after approval from state asset management authorities. Wong (2005) reported that the transfer of state-owned shares to private shareholders was rare in the 1990s, and at the end of the 1990s, more than 90% of the enterprises listed on China's two stock exchanges remained under state control. The dominance of state ownership modifies the agency problem of companies and their motivations for external monitoring, which will be analysed in the next section.

The government also restricts the supply of domestic shares available to foreign investors in order to extract monopoly rents from these investors (Gordon and Varian, 1989; Gordon and Li, 2003). It segments domestic and foreign stock markets and controls access to the shares issued by Chinese listed companies. Therefore, Gordon and Li (2003) argue that the Chinese government has market power in the stock markets, and it cannot only raise share prices but can also lower the interest rate, in order to reduce the cost of capital for financing both government-owned companies and its own budget deficit.

3.4.4. Weak legal protection for investors

The above discussions focus on government intervention in terms of state-ownership and administrative control over the Chinese stock markets. La Porta (1997 and 1998)

also stresses the importance of formal legal protection for investors and, especially in emerging markets and transition economies, effective law enforcement (Johnson *et al.*, 2000; and Pistor *et al.*, 2000) for stock market development.

3.4.4.1. Weak laws on the books

Pistor and Xu (2005b) contended that China had slowly developed a legal framework for its stock markets and had a weak law enforcement record. Over the past 25 years, China had made great efforts to develop a formal legal framework from a very low level. After China launched its economic reforms in the late 1970s, it speeded up efforts to build its legal system. However, unlike central eastern European and most former Soviet Union countries, China did not pay attention to establishing a legal framework for a market economy based on private property rights (Pistor and Xu, 2005a). For example, the *Corporate Law* enacted in 1994, was designed for state-owned enterprises and not newly created companies with different ownership structures (Fang, 1995; Wang, 1994; Pistor and Xu, 2005a). In fact, China has recognised the protection of private property in its constitution only since March 2004¹¹. Therefore, it is not surprising that prior legal regulations related to stock markets favoured state-owned listed companies (Zhu, 2000). Lack of legal attention to private property led to little protection for private investors' interests.

¹¹ On 8 March 2004, the draft amendment to China's Constitution was submitted to the on-going national legislature's annual session for deliberation. The draft amendment suggests "legal private property is not to be encroached upon" and adds, "the state should give compensation" to the current stipulation that "the state has the right to expropriate urban and rural land."

Hence, the CSRC introduced a series of measures aimed at improving corporate governance and legal protection for all shareholders (Wong, 2005). For example, they commenced a series of investigations into irregularities and illegitimate activities in the stock market, including illicit use of bank funds for stock speculation, market manipulation, and earnings falsification by listed companies. The CSRC also required that listed companies must have at least two independent directors on or before 30 June 2002, and that at least one third of board members must be independent directors on or before 30 June 2003. Although the central government has made various changes to bring the law in line with international practice and expectations, the transformation has been a slow and gradual process, and the basic issue, the dominance of state ownership, had not been touched until recently¹². Laws and regulations are often termed "provisional or interim" and changed as soon as they are found unsatisfactory. Notwithstanding all the efforts to change and bring the system in line with international practices, China's legal system is still greatly influenced by the Chinese Communist Party. This gives rise to the possibility of a legal dispute being resolved on political rather than legal grounds. Another remaining problem is the lack of transparency. Many rules and regulations are not published and instead circulated as internal documents, often not being brought to the public's attention. Therefore, although a series of reforms in the legal system have been developed as a result of the economic transition in China in recent years, the extent to which this comprehensive set of rules and regulations is effectively implemented remains in question.

¹² On 29 April 2005, the CSRC launched a pilot reform of non-negotiable shares of Chinese listed companies. This reform changed the non-negotiable shares of a few listed companies to tradable shares and allowed the decrease of the state shares.

3.4.4.2. Weak law enforcement

The development of laws on the books has not improved much actual legal protection for investors in China because of the low quality of law enforcement. La Porta *et al.* (1998) examined legal enforcement across countries. Pistor and Xu (2005a) borrowed La Porta *et al.*'s (1998) study model, and using comparative data on law quality on the books and indicators for the effectiveness of law enforcement, found China performs below the average of other transitional economies. On the widely used LLSV indicators for shareholder rights' protection (La Porta *et al.*, 1998), China scored 3, as compared to the average score of 3.61 for all other transitional economies. Law enforcement quality was also fairly low, only 57 compared with 62.13, the average for all others (see Table 3.2).

Table 3.2. Legal protection for investors in 1998

Country	Formal Law (LLSV)	Regulatory Quality	Rank
Bulgaria	4	39.9	12
China	3	57	9
Croatia	2.5	46.4	10
Czech Republic	4.5	73.2	5
Estonia	3.75	76.5	4
Hungary	3	79.8	2
Latvia	3.5	61.7	8
Lithuania	3.75	67.8	6
Poland	3	77	3
Romania	3	44.3	11
Russia	5.5	26.8	13
Slovakia	2.5	62.8	7
Slovenia	2.5	82.5	1
Ukraine	2.5	12	14
Average	3.61	62.13	-

Source: From Pistor and Xu (2005a).

Pistor and Xu (2005a) collected data on China's track record of enforcement, making a distinction between private and public law enforcement following La Porta *et al.* (2005). Private enforcement refers to civil litigation, whereas public enforcement assesses regulatory enforcement activities taken by the state regulators, which are the CSRC and the stock exchanges in China.

Private enforcement

Pistor and Xu (2005a) argued that private enforcement of investor protection has been virtually absent in China to-date, not due to a lack of demand for it, but because the court system has restricted investor law suits (Chen, 2003). The first private litigation case occurred in 2001 in response to fraud at the Guangxia company, which was exposed by the financial magazine *Caijing* (Magida, 2003). In China, many accounting frauds are first revealed by the press and then the CSRC and stock exchanges become active by suspending trading and launching an investigation. In the Guangxia case, disgruntled investors brought a civil action against Guangxia. However, prior to the trial, all investor lawsuits in China were banned¹³. The Chinese Supreme People's Court (SPC) published a notice stating, "our country's capital markets are undergoing continuous standardisation and development and a number of problems have arisen, including insider trading, cheating, market manipulation and other behaviours." The court admitted that such behaviours "infringe upon investors'

¹³ Supreme People's Court Notice on the Temporary Ban on Acceptance of Securities Related Civil Compensation Cases, September 21st, 2001, No. 406, available online at www.chinalawnet.com/law/law07_12.asp. According to the Chinese legal system, the Chinese Supreme People's Court (SPC) has a right to issue guidelines about judicial practices in the absence of a specific case brought before it.

legal rights,” but pointed out that “under current legislative and judicial limits, (courts) are still not able to accept and hear this type of case” (Pistor and Xu, 2005a).

Investors and lawyers protested against the SPC’s notice and it was even criticised by the CSRC, which had supported investor litigation. In January 2002, the SPC modified the notice and allowed investors to take civil action for misrepresentation of information, but not for insider trading or market manipulation. Lower-level courts are in charge of hearings, but only when the CSRC has investigated a case and found wrongdoing. A lawsuit has to be filed within two years after the CSRC’s ruling. In January 2003, the SPC issued more extensive rules governing investor lawsuits, namely *the Private Securities Litigation Rules* (PSLRs). Since the PSLRs have been issued, many investors have taken action to file suits. Pistor and Xu (2005a) presented a summary of lawsuits in the Chinese press and their current state of resolution (see Table 3.3.). To-date not a single civil law case has resulted in liability imposed by a court, although some cases have been settled out of court through mediation. They argue that civil liability has had very little deterrence effect so far in China; in other words, private enforcement is still at a low level.

Public enforcement

Pistor and Xu (2005a) contend that public law enforcement in the form of fines or other sanctions imposed by a regulator had been equally weak. The major regulatory agency of China’s stock markets is the CSRC and the MOF according to the

Table 3.3. Private enforcement in Chinese courts

Date	Defendant	Litigants	Court	Status
09/2001	Yorkpoin Science and Technology	360 minority investors	Beijing No. 1 Intermediate People's Court, Guangzhou Intermediate People's Court	Pending
06/2002	ST Jiuzhou	3 investors	Xiamen Intermediate People's Court	Rejected on procedural grounds
11/2002	Jiabao Industrial	1 investor	Shanghai No. 2 Intermediate People's Court	Investor receives compensation in settlement
11/2002	Hongguang	11 investors	Chengdu Intermediate People's Court	Investors settle with individual underwriter through mediation; cases against company still pending
11/2002	Jiabao Industrial	24 investors	Shanghai No. 2 Intermediate People's Court	Pending
2003	Bohai Group	1 investors	Jinan Intermediate People's Court	Pending
02/2003	Jinzhou Gang	1 investor	Shenyang Intermediate People's Court	Pending
02/2003	ST Tongda	5 investors	Shanghai No. 1 Intermediate People's Court	Pending
03/2003	Shengwan keji	72 investors	Harbin Intermediate People's Court	Pending
03/2003	Sanju Yiyao	3 investors	Shenzhen Intermediate People's Court	Pending
03/2003	ST Tianyi	1 investors	Wuhan Intermediate People's Court	Pending
04/2004	Yinguangxia	Several investors	Yinchuan Intermediate People's Court	Pending

Source: Pistor and Xu (2005a)

Securities Law (1999). The law endows the CSRC with the primary power to regulate markets, and allows it to delegate decisions to the stock exchanges. In fact, the CSRC has enacted extensive rules and regulations for listed companies and intermediaries, such as auditors. Pistor and Xu (2005a) summarised public enforcement activities by the CSRC from 1998 to the end of March 2004, and revealed that the enforcement activities are declining because the total number of companies subject to enforcement proceedings is lower (see Table 3.4.). In 2003, total enforcement procedures were 51, suggesting that only, at most, 1 in 25 company was under regulatory enforcement. The number of sanctions in the form of fines was even smaller, only 22% of all enforcement actions. Based on the figures, actual enforcement by regulators is weak. Therefore, Pistor and Xu (2005a) concluded that Chinese legal governance had played at best a marginal role in the development of China's stock markets.

Table 3.4. Public enforcement by Chinese regulators from 1998 to 2004

Year	Enforcement Actions Taken by Regulatory Agencies	Number of Actual Enforcements	Total Number of Companies Listed on the Two Exchanges
1998	3	3	853
1999	12	9	950
2000	16	7	1,088
2001	71	9	1,160
2002	62	8	1,235
2003	<u>51</u>	<u>11</u>	1,287
Totals	215	47	NA
Av p.a.	35.8	7.8	NA

Source: Pistor and Xu (2005a), Enforcement data made available by the CSRC; number of listed companies from www.csrc.gov.cn/en/statinfo/index.en.

Note: The regulators include the CSRC, the Shanghai and Shenzhen stock markets, and other enforcement agencies.

3.4.5. A need to shift administrative governance towards legal mechanisms

In short, the core function of the stock market in China lies in transferring the money of the broad masses into the hands of a minority of power-holders in the state. The Chinese central government plays a significant role in the stock markets. It built up a decentralised administrative governance structure as the major governance device in the early stages of Chinese stock market development (Pistor and Xu, 2005a). As the political principal, the government's administration is directly affected by its own economic behaviour as the owner of Chinese state-owned enterprises and it thus has a vivid short-term interest in preserving asset value by means of sacrificing long-term market integrity. In contrast to administrative governance, the Chinese legal governance in terms of laws on books and legal enforcement for protecting investors is weak compared with most other transitional markets. Pistor and Xu (2005a) argued that the government intervention device was a substitution for weak legal governance in China. The administrative governance helps China jump-start financial market development, however, this does not mean that it is superior to the legal regime in the long run. In fact, the recent declining bear stock markets illustrate the limits of government intervention. The CSRC reported that more than 90% of all violations by listed companies in the stock exchanges were related to violation of continuous disclosure (He *et al.*, 2002).

The government has therefore now realised a need to shift the administrative governance structure towards legal mechanisms. In recent years, the CSRC has issued

many regulations in order to enhance disclosure requirements for protecting public investors. Bowing to pressure, the Chinese Courts have started to allow investor lawsuits, which means that enforcement capacities have increased, at least in principle. China currently faces a challenge of transforming the governance structure from administrative control to legal force. The following sections will focus on the auditing market, and discuss the effect of Chinese administrative and legal governance on the demand and supply of auditing services during the transition period.

3.5. The demand for auditing services

The above has generally introduced economy reforms as catalysts for the revival of independent auditing. It can be argued that economic reforms represent an external force that has assisted development of the auditing industry. The government has restored the profession to help the market economy to build up a transparent information system. However, transfer from the planned economy to the market economy has also changed enterprises' objectives, organisational structures and behaviours. These changes act as internal stimuli to facilitate growth of independent auditing. According to traditional theories examined in other markets, such as agency theory and signalling theory, companies have their internal motivations to ask for external monitoring. When applying these theories to study the demand for independent auditing in China, we have to consider the Chinese institutional setting, taking into account its past political, economic and social environments, which reflect the difficult and progressive aspects of auditing revival.

3.5.1. State ownership and the agency cost motivation

It is well recognised that the demand for external auditing is driven by the extent of the separation between owners and company management (Chow, 1982; Jensen and Meckling, 1976; Watts and Zimmerman, 1986). After broader enterprise reforms, development of the capital markets and an inflow of foreign investment, independent auditing in China is seen as being able to play a role in alleviating agency problems. However, different from the situation in developed countries, the diversity of ownership has not shaken the domination of state owners, which makes the ‘agency problem’ special in China.

3.5.1.1. Ownership structure in the Chinese stock market

A listed company in China may issue five different types of share on either the Shanghai or Shenzhen Stock Exchanges: state shares, legal person shares, employee shares, tradable domestic common shares for domestic investor only (A shares), and foreign shares (B shares). Cross-listing is prohibited between the two domestic Chinese exchanges. But a listed company can simultaneously issue shares in the Hong Kong (H shares) and other overseas exchanges. Table 3.5 shows the overall ownership structures of the Chinese Stock markets from 2001 to 2003 (data from the CSRC’s official website).

Table 3.5. The overall ownership structure of the Chinese stock market from 2001 to 2003

	<u>2001</u>		<u>2002</u>		<u>2003</u>	
Total shares	5217	100%	5876	100%	6412	100%
<i>Non-negotiable:</i>						
State shares	3121	59.8%	3493	59.4%	3808	59.4%
Legal person shares	245	4.7%	300	5.1%	310	4.8%
Employee shares	24	0.5%	16	0.3%	11	0.2%
Others	14	0.2%	30	0.5%	15	0.2%
Total:	3404	65.2%	3839	65.3%	4144	64.6%
<i>Negotiable:</i>						
A shares	1318	25.3%	1509	25.7%	1715	26.8%
B shares	163	3.1%	168	2.9%	175	2.7%
H shares	332	6.4%	360	6.1%	378	5.9%
Total:	1813	34.8%	2067	34.7%	2268	35.4%

Source: From the CSRC website: <http://www.csrc.gov.cn/cn/statinfo/index>

Non-negotiable shares

State shares designate holdings in listed companies by the central government, local governments, or solely state-owned enterprises. State shares are not tradable on the stock market, but can be transferred to domestic institutions only with approval of the CSRS. *Legal person* shares are held by domestic institutions that are themselves partially owned or controlled by the central or local government (Sun *et al.*, 2002). Legal persons are typically business agencies or local government enterprises that help listed companies to set up by giving permission to operate some business or by allowing public resources to be used for the set-up (Chen, 1998). Like state shares, legal person shares are also not tradable on China's stock markets but are transferable to domestic institutions with approval of the CSRC. *Employee shares* are offered to employees of a listed company, usually at a substantial discount within a limited quantity. Not all companies issue employee shares. Under the legal regulation,

employee shares cannot be sold on the stock market during the first holding period of 6 to 12 months. Once sold, they become tradable shares for domestic investors. On average, a listed company's non-tradable employee shares are less than 1% of the total shares. Table 3.5 indicates that the percentage of non-negotiable shares is around 65% of the total shares.

Negotiable shares

Tradable domestic common shares (A shares) are similar to common shares on western stock markets, except they are only available to Chinese citizens and domestic entities. They are mostly held and traded by individuals. It is required that tradable domestic shares should be no less than 25% of total shares when a listed company makes its initial public offering.

B shares are issued to attract foreign investors. Different from domestic shares, B shares are quoted and traded in US dollars on the Shanghai Stock Exchange or Hong Kong dollars on the Shenzhen Stock Exchange. Before 2001, B shares could only be subscribed for, owned by and traded among individuals or institutions from Hong Kong, Macao and Taiwan, and foreign countries. Since 2001, domestic individuals have been allowed to enter into the B shares market to stimulate the inactive market. However, since China's currency is not convertible on the capital account, domestic investors can only use their small quantity of existing dollars or Hong Kong dollars to trade B shares. The B share market is declining; probably because there are more

stringent requirements that listed companies should meet to issue B shares. In fact, less than 10% of listed companies issue B shares in the two Exchanges.

Table 3.6 presents the number of listed companies issuing B shares in 2001, 2002 and 2003. By the end of 2003, there were only 111 companies issuing B shares, which included 24 companies with B shares only and 87 companies with A and B shares. *H shares* are shares of Chinese mainland enterprises listed on the Hong Kong Stock Exchange and foreign stock exchanges. In 2003, only 29 listed companies were listed in the Hong Kong stock exchange or other overseas markets (see Table 3.6).

Table 3.6. Companies issuing A shares, B shares and H shares

	<u>2001</u>	<u>2002</u>	<u>2003</u>
Companies with A shares only	1023	1085	1146
Companies with B shares only	24	24	24
Companies with both A and B shares	88	87	87
Companies with both A and H shares	<u>22</u>	<u>29</u>	<u>29</u>
Total in the SHSE and the SZSE	1160	1224	1287

Source: From the CSRC website: <http://www.csrc.gov.cn/cn/statinfo/index>

For most listed companies, the top 10 shareholders are normally the state and legal persons. Even if some individual shareholders are in the top-10 list, their holdings are very small compared with those of the state and legal persons. The particular feature of the ownership structure is that the state can be identified as the ultimate controlling shareholder and there is an absence of significant private ownership and the negligible role of financial institutions and institutional investors. Such an ownership structure brings a question: as the major shareholder of a company, can government shareholders monitor the management in the interest of shareholders?

3.5.1.2. Problems relating to the ownership structure

Objective Conflict

Firstly, in the government-domain context, the agency problem may have different bases. One is a conflict between the government's objective of social welfare maximisation and the company's objective of profit maximisation. Bos (1991) presented a model to analyse this type of agency conflict. He mentioned two possible scenarios. In a perfectly competitive environment, the government shareholder will want to see that the company maximises profits because the interests of both the private and public owners will coincide. In such a case, the government remains totally inactive, leaving the role of the principal to the private shareholders. However, this is an ideal hypothesis; in reality, in an alternative scenario of a non-competitive environment, the state shareholder has the incentive to monitor managers and to act as an 'internal regulator' to reach a compromise between the company's objectives and the government's social welfare objectives.

In addition, the pyramidal ownership structure reduces the objective conflict. Listed companies in China are usually headed by a holding company, controlled and partly owned by a state-controlled company. So the company is partly owned by the parent company directly, and indirectly controlled by the major shareholder of the parent company. In a recent study by Liu *et al.* (2003), in the vein of La Porta *et al.* (1999), a survey was conducted of listed companies in China in 2001. Findings revealed the government ultimately controlled 84% of listed companies, 8.5% directly, and 75.6%

indirectly by 'pyramid shareholding schemes'. This pyramidal structure could lead to the ultimate equity holder controlling the company with minor equity. This distortion comes from the separation of income rights and control rights, and the holding company or asset management companies become the policy channel for the government (Watanabe, 2002).

In China's case, a conflict of interest also occurs between the government and other stakeholders. Qiang (2003) provided evidence that controlling shareholders might abuse their rights for the benefit of holding companies and those who control the holding companies, including soft loans from listed companies on a long-term basis; the use of listed companies as guarantors to borrow money from banks; and the sale of assets to listed companies at unfair prices. Similarly, if a listed company experiences a difficulty, for example, if it has to satisfy an earnings requirement for a share placement, it may call on the holding company for help through trading assets with it to create exceptional gains, etc. This is why transactions between related entities are very prevalent in China. Under this circumstance, the major shareholders of listed companies have no strong motivation for high quality external monitoring.

Ambiguous property rights

Though some argue that 'the nature of principal-agent problems may differ little depending on whether ownership is public (state) or private' (Stiglitz, 1994), property rights theory generally suggests that state ownership is inefficient. Theoretically, the

state ownership belongs to everyone and to no one in particular, thus the property rights of state ownership are intrinsically ambiguous. Although listed companies have separated the ownership and management, they still share the traditional principal-agent problems among central government, line ministries, local governments, and managers. The controlling authorities, such as central government, line ministries, and local government, which exercise de facto ownership rights over listed companies, actually do not bear any residual risks over the control and use of state-owned assets. Officials may not have sufficient incentives to preserve and increase the value of state properties. In this sense, state-shareholders lack impersonal representation of their property rights. The directors appointed by the government to represent state shareholders' interests tend to have their personal short-term aims during the period of their tenure and are short of effective economic incentive. Although theoretically state shareholders can contribute to listed companies' performance through active monitoring, the feasibility of this presents practical problems. Lin *et al.* (1998) argued that it would be impossible or prohibitively costly for the state to oversee managers' actions.

Non-negotiable shares (untradable)

As the above has indicated, non-negotiable shares mainly consist of state shares and legal person shares, and legal shares are also partly owned or controlled by the central or local government. Therefore, in this sense, non-negotiable shares can almost be regarded as state-owned shares or state-controlled shares. Their nature decides that

they are not tradable. As a result, non-negotiable shareholders are combined immovably with the listed company no matter what its performance. They cannot freely sell the shares when the company has poor performance. In this sense, they are not pure investors, whose capitals can freely flow around. In addition, these non-tradable shareholders usually have direct access to insider information because of their dominance in ownership and their political influence, so they rely less on publicly available information than individual investors (Chen *et al.*, 2001).

All in all, state ownership modifies the agency problem. The conflict between state owners and managers differs from that between private-owners and managers because of the government's multiple objectives and ambiguous property rights. Based on agency theory, private shareholders demand motivation for independent auditing to monitor managers' activities. However, their voice may be weak due to their small percentage ownership of all shares and dispersed locations. The demand motivation of state shareholders for high quality external monitoring becomes complex and cannot be explained clearly only by agency theory.

3.5.2. The managerial labour market and managers' signalling motivation

In China, the reforms since 1980s have aimed to move from a system under which enterprises obeyed detailed centralised commands to a decentralised system that rewards enterprises for improved productivity. As part of this effort, a new incentive system, the 'profit responsibility system' was introduced that linked rewards to



managers to improvements in company performance. However, this system is insufficient to provide incentives alone. Groves *et al.* (1995) pointed out that the aim of thoroughgoing reform in China should be to establish an efficient managerial labour market that allocates managerial resources responsive to market forces. This mechanism must not just change the incentive environment but must also provide a mechanism for selecting managers who will be responsive to the new incentives. Appropriate supervision and replacement of managers may be as important as the provision of incentives.

However, the dominant role of state ownership in listed Chinese companies has another important implication. The appointment of the chiefs of central SOEs, such as the general manager or president, is still made by the central government and the Central Committee of the Communist Party of China because of the dominance of state shareholders. Many deputy general managers or similar positions are designated in this way. The government can exert control over management appointments and incentives, and thereby over companies' behaviour (Qiang, 2003). According to a survey of corporate practices among companies listed on the Shanghai Stock Exchange conducted in early 2000 by Integrity Management Consulting and the Research Centre of Shanghai Stock Exchange, shareholders at that time appointed 76% of the directors of listed companies. State and state-owned legal person shareholders were the most influential, appointing 69% of all directors (see Table 3.7.). Appointment of managerial positions was ultimately politically determined.

Table 3.7. Ownership and control in Chinese listed companies in 2000

Shareholder Type	Ownership	Control (Board seats)
State	56%	21%
Legal person	6%	48%
Employees	3%	3%
Common A shares and other	35%	4%
Total	100%	76%

Source: Survey by Integrity Management Consulting and the Research Centre of the Shanghai Stock Exchange (2000). From the CSRC's website: <http://www.csrc.gov.cn/cn/statinfo/index>

Chinese managers' main avenue of compensation is their salary, which is still low (Chang and Wong, 2004). The average stock-based shareholdings of managers in listed companies are very small as well.¹⁴ In a rent-seeking society like China, salary and shares are not substantial on-the-job perks. Better housing, use of cars, entertainment, restaurant meals, travel, diversion of assets, and business opportunities bring more benefits to Chinese managers (Qian, 1995 and 1996). To acquire these benefits, managers must keep their jobs. Chang and Wong (2004) and Groves *et al.* (1995) indicated that managers in China are held accountable for poor performance. Managers must achieve a level of performance acceptable to their assessors to maintain their on-the-job perks. Boycko *et al.* (1996) also argue that Chinese managers' incentives are better aligned with company performance than are politicians' incentives and managers are more concerned than politicians with profits, though they are greatly influenced by the politicians.

In sum, the managerial labour market in China has not been efficient in terms of

¹⁴ At the end of 1999, the average percentage of managerial shares was only 0.006.

managerial resource evaluation and allocation, and thus managers hardly have a strong self-incentive to signal themselves from lower quality competitors and improve their reputation in the labour market. But listed company managers worry that poor performance may cause their dismissal and the loss of their on-job-perks.

3.5.3. The legal system and litigation motivation

Prior theoretical research (Dye, 1993; De and Sen, 2002) suggested that the demand for high audit quality was possibly related to the depth of auditors' pockets. It is hypothesised that auditors with more wealth at risk from litigation have greater incentive to issue conservative reports. However, despite their conservatism, large auditors are more prone to litigation (Lennox, 1999). Companies will demand that large auditors who have more wealth share liability in the event of business failure. Thus, previous research indicates that legal liability has a dual impact on audit services, on both the supply and demand side.

However, in the context of China, the bankruptcy of listed companies has rarely happened because of government protection for state-owned assets. The government is often involved in arranging recapitalisation or debt restructuring for listed companies in a bankruptcy crisis. Section 3.4 above has shown that the Chinese legal system has weak protection for public investors in terms of law on books and legal enforcement. So far, not a single civil law case has resulted in liability imposed by a court (see Table 3.3). Therefore, listed companies face little litigation risk in the

domestic stock markets. As a result, listed companies only listed in the domestic market are generally not motivated to seek auditors in order to share litigation risk with them. But cross-listing companies may face a different legal environment when they are listed in overseas stock exchanges. The poor legal environment in China may motivate shareholders of cross-listing companies to seek high quality auditors as a substitution for the legal protection for investors.

3.5.4. Profitability target imposed by the regulation and earnings management motivation

In the Chinese stock market, companies have strong incentives to engage in earnings management (Chen *et al.*, 2001; and DeFond *et al.*, 2000). This is related to the ownership structure of companies, the function of the stock market and related regulations made by regulators. As indicated above, many state-owned companies come to be listed in the domestic stock exchanges with the aim of raising money in the markets. Particularly, unlisted parent companies often rely on the listed subsidiary company as a source of capital. Perhaps a strong incentive for China's listed companies to manage earnings is the fact that they will be under heavy government scrutiny or even subject to delisting if they report three consecutive years of losses (Articles 157, *Company Law*, 1994)¹⁵. Delisting will bring about not only economic losses to the company, but also disgrace to the local government, which often views a

¹⁵ According to Article 157 of Company Law in China, if a listed company sustains losses for three consecutive years, it will be temporarily delisted by the China Securities Regulatory Commission (CSRC) and subject to 'particular transfer' (the stock can only be traded in the stock exchange on Fridays) and other transfer limitations. If it sustains losses for two consecutive years, it will have 'ST' (special treatment) prefixed to its name as a warning.

listed company in its region as a symbol of prestige (Chen *et al.*, 2001). So managers and even local officers are under political pressure to report accounting earnings that meet the CSRC's profitability requirement.

Another means to manipulate earnings is to issue additional offering. Subsequent to initial public offering, the right to issue additional offering is an important financing source for listed companies. The CSRC has set clear line rules for issuance in order to control the allocation of resources. From 1996 to 1998, one of the basic requirements was that companies had to have a minimum of 10% ROE for three consecutive years prior to the additional offering (CSRC Notice No.17, 1996). In 1999, the regulation was modified to requiring an average ROE of at least 10% as well as a minimum of 6% in each of the three years prior to the offering (CSRC Notice No.12, 1999). The profitability targets imposed by the regulations have become the primary task for a listed company, which wants to raise additional capital. Actually, managers are motivated to make opportunistic accounting choices by managerial compensation and promotion (Craswell, 1986; Holthausen and Leftwich, 1983; Wang, 2002; Chen *et al.*, 2001). As has been pointed out in the above section, in China, managers of listed companies have little cash compensation, but a significant portion of perquisites, which are not only position-specific, but also dependent upon company size and listing status. Managers would like to issue more shares and absorb more investments into listed companies in order to enhance their status in these companies, which may be rewarded in the form of larger houses, more expensive cars, and more liberal

expense accounts. For their economic self-interest, managers who have more information than the external users have, have strong incentives to resort to opportunistic accounting methods to obtain favourable earnings and little incentive to demand auditor independence.

Under such a motivation, many listed companies are not likely to adjust their financial statements according to the auditor's opinions in order to present desirable earnings. As a result, a large amount of modified audit opinions (MAOs) have occurred with the increase in auditor independence during the past years (Yang *et al.*, 2001). MAOs in China are very similar to those under US and international regulations, and include three types: qualified, disclaimer, and adverse. However, Chinese auditing standards allow explanatory paragraphs to be used with unqualified opinions when auditors deem this necessary. But there are no detailed guidelines on how to distinguish between a qualified and an unqualified audit opinion with explanatory notes in Chinese Auditing Standards. This causes difficulty in understanding the extent to which the auditor and the company disagree over the disputed accounting treatments. So except for the clean opinion, the other types are collectively referred to as MAOs in most studies. In order to find evidence of earnings management, Chen *et al.* (2001) analysed all MAOs during the period 1995 to 1997 and found MAOs in China more likely to be issued for overstating rather than understating operating profit. Their figures showed that, on average, each MAO involved a write-down of 33.31 million RMB in operating income, which accounted for 294 per cent of the average reported

operating income; the average write-down of net income was 26.35 million RMB, representing 92 per cent of reported net income. These figures reveal the extent to which listed companies had undertaken earnings management.

Obviously, earnings management motivation is potentially in conflict with the demand for auditor independence. Before 2001, the regulations expressly emphasised the need to maintain profitability level, but were silent about the effect of an auditor's opinion. Therefore, to some extent they encouraged listed companies to engage in earnings management at the cost of modified opinions and high quality audits. In order to change a situation where listed companies despised auditors' opinions, in 2001 the CSRC required that trading be suspended for shares of companies whose financial statements were accompanied by qualified opinions due to accounting standards violation (CSRC Notice No.14, 2001).¹⁶ This regulation increased the expected cost of receiving MAOs and emphasised the effect of audit opinion. Therefore, theoretically, listed companies would prefer to avoid modified opinions as they would alert the CSRC to the presence of earnings management, which would result in further investigation or the imposition of costly penalties.

However, the profitability target in the regulations remains unchanged. The incentive to engage in earnings management has not ultimately been shaken. In the new cost-benefit rearrangement, listed companies begin to seek low quality audits for

¹⁶ In 2001, the CSRC No.14 Decree addressed the effect of different types of MAOs in detail and what should be reported and explained to the CSRC when MAOs appeared.

better opinion, which probably maximises the benefit to the listed company. This could explain why many companies have often changed their auditors in recent years. Li and Wu (2003) provided evidence that Chinese listed companies have changed auditors for better audit opinions. In 2002, 95 listed companies changed their auditors regardless of the extraordinary factor of Andersen's collapse. Many companies did not disclose the reasons for auditor change. With respect to audit opinion, the 95, 38 had modified opinions in 2001 and by switching auditors 24 companies had better opinions in 2002, comprising 24.2% of the total number of companies that changed auditors. In the past, listed companies tended to report favorable earnings at the cost of MAOs, whereas now they try to do this by auditor switch (*'Chao You Yu, Jie Xia Jia'*).¹⁷

3.6. The supply of audit services

The above section has discussed the effect of Chinese institutional setting in terms of state ownership, managerial labour market, legal system and regulations on listed companies' demand motivation for independent auditing. Institutional factors have also had an impact on supply in the auditing market. Legal enforcement and government intervention, which impede the effective demand for independent auditing, have also has an effect on the development of the auditor profession. On one hand, the government has a regulatory and supervisory system in place for building a credible auditing profession because they recognise the need of an external auditing

¹⁷ *'Chao You Yu, Jie Xia Jia'* means vicious auditor switching in Chinese. The CSRC has already paid it much attention since 2001. They regard change due to disagreement concerning audit opinion as illegal and set a severe penalty for the company.

profession after the establishment of the stock markets. On the other hand, the government has control over the auditing profession and intends to influence it in favour of its policy mission (see Table 3.1). In this sense, the growth of the auditing profession in China is greatly influenced by the institutions as well as by the market mechanism.

3.6.1. Administrative governance in the auditing profession

3.6.1.1. The qualification for auditors

Licensing is one of the government's basic measures to supervise the profession. To satisfy the need for independent auditors, the government firstly adopted an evaluation system to select qualified CPAs, which focused on the seniority and work experience of candidates (Cooper *et al.*, 2002). The system was implemented by provincial finance bureaus, which showed a great deal of variation in the evaluation criteria. As a result, there were major variations in quality of the qualified CPAs, and many retired government officials and employees in state-owned enterprises joined the auditor profession as part-time CPAs. A unified CPA examination has been introduced to be held annually since 1993, the pass rate for each paper is quite low (from 14% to 26%). According to the latest CICPA statistics, up until 2000, there were about 140,000 CPAs, of which 52 per cent were over 60 years of age, and only 18 per cent held university degrees, and just 60,000 were practicing members working in accounting firms (Tang *et al.*, 1999).

To qualify for auditing listed companies, CPAs have to meet stricter government criteria and take extra examinations, and audit firms have to meet high entry requirements (e.g. the number of CPAs, the annual revenue, the total assets). In 2002, there were only around 1000 CPAs and 71 accounting firms entitled to enter into the stock markets by the MOF and the CSRC, which possess the authority to license and annually check qualifications. The number of qualified CPAs was small compared with the demand for an independent auditing service (DeFond *et al.*, 2000). By contrast, the number of accounting firms was comparatively large and consequently the size of accounting firms is generally small. For example, at the end of 2002 for the 71 accounting firms that qualified for auditing listed companies, the average number CPAs in each firm was 90 and 70 per cent had less than 100 CPAs.¹⁸ Importantly, the average number of qualified CPAs for auditing listed companies in each firm was only 12, and just five accounting firms had more than 20 CPAs who could audit listed companies. Although the government has started to encourage firms to merge in order to enlarge the firm size and enhance audit quality, during a short period the situation has not substantially changed.

3.6.1.2. The affiliation between the government and local audit firms

It is the government that has introduced the policy to expand the auditing industry to satisfy new market economy needs. At the beginning, due to lack of capital and the government's desire to maintain control of the profession, new CPA firms affiliated

¹⁸ See "the top 100 accounting firms in China", summarised by the CICPA:
<http://www.cicpa.org.cn/ReadNews.asp?ID=3121>

themselves with existing institutions and three types of auditing firms emerged: government-affiliated audit firms, university-affiliated audit firms, and joint-venture audit firms with an international CPA firm (DeFond *et al.*, 2000; Yang *et al.*, 2001; and Hao, 1999). Before the end of 1998, all local audit firms were affiliated with government agencies or universities. DeFond *et al.* (2000) reported that 77 firms were affiliated with the government and 17 firms with universities in 1996.

The affiliation with government agencies and other institutions results in affiliated audit firms suffering from a lack of independence and impaired credibility in the public view (Chen *et al.*, 1999). On the one hand, affiliation with founding organisations separates legal responsibilities borne by legal entities from the conduct of audits by audit firms, which weakens auditors' awareness of audit risks and professional prudence (Li, 1999). Governmental control and influence over accounting firms may also shield firms from the threat of litigation and liability. Without the threat, auditors have less incentive to avoid audit failures (Palmrose, 1988; Lys and Watts, 1994). On the other hand, from a macro-view point, government affiliation with audit firms, which take either an industrial or regional form, encourages protectionism (Yang *et al.*, 2001). For example, a government department that possesses administrative authority in some industry may force business entities to be audited by appointed auditors. Regional protection can arise through provincial or local governments exerting authority to assign accounting firms situated in their administrative territory to companies located within the same territory (Liu and Zhang,

1996). Market protectionism provides strong incentives for auditors and accounting firms to conduct auditing with the interests of the affiliated government agents in mind, thus severely impairing their independence. The whole market was segmented by such protectionism, which stopped competition and reduced the level of audit quality. In a CICPA investigation conducted in 1997, 54% of respondents indicated that their business activities were being interfered with or influenced by affiliated government agencies and other institutions (Yang *et al.*, 2001). A survey published in the *China Securities Daily* on 16th May 1995, showed that over 60% of investors had no confidence in audited financial statements (Xiao *et al.*, 2000)

Therefore, to enhance audit firms' independence, the disaffiliation program commenced at the end of 1996. By the end of 1998, nearly all audit firms providing audit services to listed companies had been disaffiliated (Yang *et al.*, 2001). Since disaffiliation, audit firms have autonomy to determine business strategies and product characteristics. They become independent entities. Although protectionism may have been eliminated, the effect of affiliation may still be there. Under the previous protection, local audit firms held a group of clientele in certain industries or regions. The product differentiation of auditing needs a period of time to be recognized by the market.

3.6.1.3. Foreign audit firms

Different from local firms, foreign firms do not have such a close relationship with the

government. They have a good reputation and professional experience in provision of high quality audit services in other auditing markets. However, the government's attitude towards foreign audit firms had always been conservative. Foreign auditors' growth in China has experienced three stages. Before 1992, the government did not allow foreign firms to provide audit services. They were only permitted to establish representative offices in large cities such as Shanghai, Beijing, and Guangzhou, and provide consulting services only to foreign companies. More than 30 representative offices have been established in the major cities since then (Chen, 2001). From 1992, they have been allowed to form joint ventures with Chinese local firms and started to undertake accounting and auditing services. But they initially concentrated on companies that have foreign owners.

With the development of the Chinese stock markets, the revenues of these foreign firms have risen sharply, from 1.54 million yuan in 1992 to more than 600 million yuan in 1998 (Li, 1999). Finally, the government has promoted their cooperation with foreign firms in the auditing of state-owned enterprises after several serious auditing scandals involving local auditors (e.g. Qiongminyuan, 1998; Dongfang Guolu, 1999; Yinguangxia, 2001; and Lantian, 2002). In January 2001, the CSRC and the MOF issued licences to foreign accounting firms to audit Chinese listed finance companies on condition that listed finance companies are audited by local auditors and Big Four auditors at the same time.

In December 2001, the CSRC published Notice 16, which requires IPO companies and companies issuing additional shares to have extra auditing by Big Four auditors. The regulations in favour of Big Four firms have helped their business to boom in China. A few large Chinese listed companies choose Big Four auditors to avoid government scrutiny because they have high profiles in the view of government regulators. In the recent list ranking the top 100 accounting firms¹⁹ in revenue (including auditing services and NASs) and number of CPAs, published by the CICPA, the top 4 places are all occupied by the Big Four firms. The Pricewaterhouse Coopers Zhongtian Accounting Firm was in first place with the highest revenue and most CPAs, 766 million yuan and 391 CPAs, respectively. The average revenue of the top four firms, 409 million yuan, was much higher than that of the remaining top 100 firms, 100 million yuan. Currently, Big Four firms are the major providers of auditing services and strong competitors in the Chinese market

3.6.2. Legal governance on auditors

Problems with current legal system arise from the rules related to the legal liability of auditors in China. Legal liabilities were firstly related to auditors in two cases: Shenzhen Yuanye Corporation (1992) and Beijing Changcheng Corporation (1993). These cases indicate that increasing stress is laid on auditors, whose function, obligation and legal liability require definition, since they have always been regarded as an important part of the social and economic control system. Three types of legal

¹⁹ See the information on the CICPA's official website: <http://www.cicpa.org.cn/ReadNews.asp?ID=3121>

liabilities relating to independent auditors in China have been addressed in *the CPA law* (1993), *the Company Law* (1993), *the Securities Law* (1999) and *the Criminal Law*: administrative liability, civil liability, and criminal liability. There are also other related regulations involving auditor liability, such as *the Interim Regulations against Securities Fraud* (1993), and some *Judicatory Explanations (Provisions) from the Supreme Court of the People's Republic of China* (1996, 1997, 1998 and 2003).

Administrative liabilities refer to disciplinary sanctions for fraud or other irregularities, which directly result in warnings, suspension, fines or revoking of licences by the Finance Bureau above the province level (Articles 20, 21 and 39 of *the CPA Law*). Article 42 of *the CPA Law* states that an audit firm whose breaches of contract and negligence cause damage to the client or related beneficiaries, should provide compensation. Article 229 of *the Criminal Law* (1997) sets terms of imprisonment (5 to 10 years) to auditors who have produced false audit reports and capital verification reports.

Although China's laws and regulations basically regulate the legal liability of auditors, the rules in these different laws overlap and are inconsistent. For example, *the CPA laws* and *the Stock Act* emphasise the causality between legal liability and the audit process, which does not conform to the professional standards (in form), while *the Criminal Law* and *the Company Law* examine legal liability if the audit outcome is inconsistent with the reality (in nature).

Moreover, many critics of civil law rules argue that the current rules on litigation against auditors are vague and impractical, resulting in investors experiencing difficulty in bringing an accusation against auditors. One disputed regulation, *Some Provisions of the Supreme People's Court on Trying Cases of Civil Compensation Arising from False Representation in the Securities Market* (2003), sets additional terms that civil lawsuits against auditors cannot be allowed until the auditor's fault has been established and administratively penalised by the related supervisory authorities (the CSRC and the MOF). Thus, administrative penalty as a necessary condition for civil litigation against auditors means many investors' lawsuits for compensation entail a lengthy process of administrative investigation.

Another obstacle is the underlying principle in civil law in China; one who indicts should provide evidence. For most investors who do not have accounting knowledge and sufficient information about the company, it seems an impossible mission for them to collect all necessary evidence by themselves, which perhaps explains why there have been few successful litigation cases against listed companies and auditors so far in China, despite many accounting scandals. Shareholders' incentive to ask for auditors' civil liability has been extensively reduced in the real world. Moreover, without the threat of costly shareholder litigation, auditors have less incentive to avoid audit failures.

Therefore, the civil and criminal litigation risk is low for Chinese auditors. However,

they face a high risk of administrative penalty. Besides licensing, the CICPA, controlled by the MOF and the CSRC, exercises administrative penalties on auditors, which are the most frequently applied form of auditors' legal liability in practice. In 1998, for instance, the review of audit quality by the CICPA led to 344 auditing firms being closed down, and 1509 firms being penalised (licence suspension, fines, forced reorganisation, and so on); the certificates of 352 CPAs were cancelled, and other penalties given to 2,396 others (Tang *et al.*, 1999). But most penalised audit firms are small and lack the qualifications necessary for auditing listed companies. In the auditing market for listed companies, penalties were not incurred frequently by auditors from 1993 to 2002 (see Table 3.8). Administrative penalty is the main threat for auditors in China.

Table 3.8. Administrative penalties from 1993 to 2002

Year	No. of firms	Types of Administrative Penalty						
		Warning	Fines	Confiscation	Suspension	Dismiss		
			(¥10,000)	(¥10,000)				
1993	1	1	-	-	-	-	-	-
1996	1	1	1	40	-	-	1	-
1997	1	1	-	-	-	-	-	-
1998	7	4	4	150	1	30	3	1
1999	4	4	4	67.8	2	39.8	-	-
2000	5	6	4	162	5	200	-	-
2001	3	2	3	55	3	65	-	-
2002	4	2	1	15	2	45	=	=
Total	26	21	15	489.8	13	379.8	4	1

Notes: a. "-" means no occurrence.

b. An accounting firm may be penalised in the form of a warning, fines, confiscation, suspension, or dismissal at the same time

Although the risk of administrative penalties may motivate auditors to maintain their professional integrity, the administrative measure has its limitations. The scope and

depth of monitoring are restrained by the government's limited resources and high administrative costs. As a result, government monitoring is exercised mostly in extreme cases only and is passive and reactive in nature.

3.6.3. Market segmentation and concentration

According to the Chinese stock market's structure, there are three types of listed company: companies with A shares only, companies with B shares only and companies with A and B/H shares. All listed companies have to hire qualified auditors to issue auditing reports addressing whether published financial statements by the company are consistent with Chinese regulations and accounting standards. However, because the B/H share market involves foreign investors, by law companies issuing B/H shares have to publish an additional auditing report that conforms to international accounting standards besides the domestic auditing report. Thus, the structure of the Chinese stock markets segments the auditing market into two: the domestic auditing report market that includes all listed companies, and the international auditing report market that comprises companies with B shares only and companies with A and B/H shares. In the two segments of the market, Big Four firms and local firms, main suppliers are found to have a different focus on the market (Yin and Zhao, 2003).

3.6.3.1. The domestic auditing report market

In 2002, the number of published domestic auditing reports was 1238. All 71 accounting firms qualified for auditing listed companies had a share of the market,

and among them 32 firms issued more than 16 (the average) reports. The top 10 firms ranked by the number of issued reports occupied 34% of the domestic auditing report market (Table 3.9). In contrast, the last ten firms issued 33 reports, only 3% of the total. Compared with the other markets (New York market, Hong Kong market, or NASDAQ) where Big Four firms normally have more than 75% of the market share (Pong and Tinley, 1997), the Chinese market is much less concentrated. In the top 10 list of accounting firms by the number of issued audit reports, there were only two Big Four firms (the 4th and the 5th). They have had issued 6.78% of domestic auditing reports. Local firms thus dominated the domestic auditing report market in terms of the number of audit reports.

Table 3.9. Domestic auditing market share based on the number of auditing reports in 2002

	Top 10 accounting firms	No. of reports	Proportion of reports
1.	Shu Lun Pan	56	4.52
2.	Shenzhen Pengcheng	48	3.87
3.	Zhejiang Pan-China	46	3.72
4.	PricewaterhouseCoopers Zhongtian	45	3.63
5.	Ernst Young Dahua	39	3.15
6.	Hubei Daxin	35	2.83
7.	Tianjing Wuzhou United	33	2.67
8.	Wulian United	29	2.34
9.	Beijing JingDu	28	2.26
10.	Shenzhen Dahua Tiancheng	28	2.26
11.	Yue Hua	<u>28</u>	<u>2.26</u>
	Top 10 in Total	415	33.52
12.	Last 10 firms	33	3%
13.	Others	790	63%

Source: "Analysis of the Chinese auditing market in 2002", *Shanghai Securities Newspaper*, December 30th, 2003 (All data available from the official websites of the CICPA and CSRC).

However, if we look at market share according to the total assets of all the domestic auditing reports involved, which indicates the size of companies, two more Big Four

firms have entered into the top 10 list, and even KPMG Huazhen is in the first place in the top 10 list for total assets (see Table 3.10).

Table 3.10. Domestic auditing market share based on the total assets of clients in 2002

	Top 10 accounting firms	Total assets (billion RMB)	Proportion of assets
1.	KPMG Huazhen	827.4	19.54
2.	PricewaterhouseCoopers Zhongtian	647.7	15.30
3.	Ernst Yong Dahua	403.5	9.53
4.	Shenzhen Pengcheng	234.0	5.53
5.	Shu Lun Pan	112.0	2.64
6.	Ernst Young Dahua	91.3	2.16
7.	Beijing JingDu	81.9	1.93
8.	Shinewing (Xingyong Zhonghe)	77.8	1.84
9.	Zhejiang Pan-China	77.4	1.83
10.	Shanghai Zhonghua Huyin	<u>70.6</u>	<u>1.67</u>
	Total	2623.6	61.97
	Others	1610.1	38%

Source: "Analysis of the Chinese auditing market in 2002", *Shanghai Securities Newspaper*, December 30th, 2003

In fact, in 2002, although KPMG Huazhen only had 12 listed company clients, it had nearly 20% of total assets audited in the market because among its clients was the largest company, the Sinopec Corp, whose total asset were 368.4 billion yuan. After KPMG Huazhen, the next top 2 places are taken by other two Big Four firms, PricewaterhouseCoopers Zhongtian and Ernst Young Dahua. The top 10 firms covered 62% of total assents and the top 3 firms covered 44%. Obviously, in the terms of client size, the Big Four firms have generally acquired larger companies than local firms, though local firms have more domestic auditing reports. The degree of market concentration is low (34%) according to the quantity of auditing reports, but becomes high (62%) if based on total assets. Market concentration degree indicates

that a few top firms, particularly the Big Four, monopolise the large listed company market, while more local firms share the small company market.

Besides segmentation by size of listed company in the domestic report market, there is regional segmentation by government protectionism. Wang (2002) pointed out that the Chinese economic reform had assigned more autonomy to local governments and they set entry barriers to non-local accounting firms to promote the interests of local audit companies and the local economy. This stopped free competition and slowed down audit services improvement. During 1999-2002, more than 80% of listed companies were audited by local accounting firms (*Shanghai Security Newspaper*, December 30th, 2003). Therefore, the central government issued *the Administrative Approval Act* to prohibit regional barriers in August 2002. Administrative intervention has been eliminated in principle.

3.6.3.2. The international auditing report market

International auditing reports are normally issued by foreign accounting firms because of their brand name and audit quality. Studying the market share in this field reveals the Big Four firms' monopolisation in the international auditing report market, which directly enhances their competitive advantage in the domestic report market. In this market, as well as Big Four firms there are other famous international firms, such as Horwath, BDO, Moore Stephens, and GTI, and also Hong Kong accounting firms, Ho and Ho & Co., Hu Guozhi and so on. In 2002, the number of published international

auditing reports was 113, including the supplementary international auditing reports of listed finance companies. The Big Four firms were among the top 5 firms with 70 reports, the PWC had the most, 44 (see Table 3.11).

Table 3.11. Top 5 accounting firms in the international market based on the number of reports and total assets of reports.

Top 5 accounting firms	No. of reports	Percentage of total reports
1. PWC	44	38.93
2. Horwath	15	13.27
3. Ernst Yong	10	8.85
4. KPMG	8	7.08
5. D&T	<u>8</u>	<u>7.08</u>
Total	85	75.22
Top 5 accounting firms	Total assets (billion RMB)	Percentage of total assets
1. Ernst Yong	484.0	35.15
2. PWC	405.8	29.47
3. KPMG	403.4	29.30
4. Horwath	39.8	2.89
5. D&T	<u>17.3</u>	<u>1.26</u>
Total	1350.3	98.07

Source: "Analysis of the Chinese auditing market in 2002", *Shanghai Securities Newspaper*, 30 December 2003 (All data available from the official websites of the CICPA and the CSRC)

When examining total assets covered in international auditing reports in 2002, the Big Four firms' monopoly is even more striking. Of the total 1,377 billion yuan market assets, Big Four firms had virtually grabbed 98 % (see Table 3.11). Therefore, based on the above analysis, two main characteristics of the Chinese auditing market structure become apparent: deconcentration in the whole market and concentration in market segments. This market structure brings imperfect competition, such as regional and industry protectionism and monopoly in a market segment. At the same time, the market structure identifies the differentiations of auditors who are in different segments.

3.6.4. Audit quality

Given the supply of auditing issues discussed above in terms of institutional factors and market concentration and segmentation, it is readily apparent that audit quality in China requires significant improvement. A number of major financial scandals have been publicised since the revival of the profession in the 1980s. After three well-publicised cases concerning falsification of audit reports and capital verification reports in the early 1990s, Shenzhen Yuanye, Beijing Great Wall, and Hainan Zhongshui, more serious scandals have erupted in recent years, such as Hong Guang, Yin Guangxia, Qiong Minyuan, Lan Tian, and so on (see Table 3.12).

Table 3.12 The major accounting scandals in China from 1992 to 2002

	Year	Main Negligence by Auditor
1. Shenzhen Yuanye	1992	Assets appraised illegally by more than 23 million yuan
2. Beijing Great Wall	1993	Funds raised illegally by 1 billion yuan
3. Hainan Zhongshui	1993	Financial Deception
4. Hong Guang	1998	Making up the annual profit by 157 million yuan; false presentation about investment project
5. Qiongminyuan	1998	Making up the annual profit by 570 million yuan and capital reserve by 600 million yuan.
6. Dongfang Guolu	1999	Making up annual profit by 15 million yuan and illegally issuing additional 54 million shares.
7. Yinguangxia	2001	Making up annual profit by 760 million yuan
8. Lan Tian	2002	Making up intangible assets by 11 million yuan and fabricating bank accounts and debit cash by 27.7 million yuan

Source: All data are summarised from the Chinese press.

The major scandals all involved local accounting firms, including the previous largest local firm, the Zhongtianqin firm, which was finally closed down by the government because of the 'Yinguangxia' scandal. The reason may be related to the fact that Chinese local auditors often regard the audits they provide as services they render to

clients (Chen *et al.*, 2001), which differs from the role of independent ‘economic policy’ role supposed by the regulator and the public. In this regard, in a non-concentrated market they want to satisfy their clients to the maximum limit that is permitted by regulation, or are even willing to risk overriding the rules.

When people were criticising audit quality provided by Chinese local firms and thinking of the high quality provided by the Big Four auditors, in 2002 ‘the Enron’ scandal erupted in the US, resulting in the bankruptcy of the world’s most famous and largest accounting firm, Andersen, because of its fraud in auditing. In China in 2003, KPMG, which produced international auditing reports for ‘Jinzhougang B’, which had illegally made up revenue and cash, and accrued debtors from 1998 to 2002, was sued for negligence. Problems arising from the scandals threatened the credibility of the whole profession, no matter whether a Chinese local firm or foreign firm. This brought into question the mechanism for regulating the auditing market, perceived and actual audit quality. Institutional settings could have negative implications for poor practice in the whole industry.

3.6.4.1. Who provides higher quality audit in China?

Audit quality in China has been paid much recent attention by researchers (Chen *et al.*, 2000 and 2001; DeFond *et al.*, 2000). Chen *et al.* (2001) used a survey instrument to study directly what attributes are perceived as important to audit quality in the Chinese auditing market by various groups of players, local and foreign firms, and

regulators. Results indicated that the attributes perceived as having the most positive effect on audit quality corresponded to a very high degree with those identified in the prior literature, such as auditor's ethics and knowledge, and good communication between auditor and management. But they also found the China-specific factors negative to audit quality included: 1) the client does not maintain a reliable accounting system; 2) the CPA firm gives commissions for recruiting clients; and 3) the accounting firm has been disciplined recently. As regards differences between local firms and foreign they focus mainly on different market segments, local firms appear to differ from Big Four firms in their approach to quality and risk control, and organizational culture. The results suggest that Big Four firms perhaps provide higher audit quality than local firms because of their greater competence and independence.

DeFond *et al.* (2000) employed modified opinions as an indicator of auditor independence in their study of audit quality in China. They also confirmed that Big Four firms have greater independence because they have a high proportion of clients with foreign owners. At the same time, top local accounting firms possibly are relatively more independent and more likely to avoid government severe penalties than small firms are because they issued more modified opinions. However, they found the Chinese-specific 'flight from audit quality' (DeFond *et al.*, 1993) phenomenon accompanied increased independence of large local accounting firms, which lose market share in terms of both clients and assets audited. Listed companies try to avoid auditors that are more likely to issue modified opinions. Though foreign

firms and top local firms have stronger incentives to provide higher audit quality, the weak demand for independent auditing and the large amount of competitors exposes them to the threat of losing clients. Auditors face a dilemma in improving audit quality with pressure from the market and supervision.

Liu and Zhou (2005) used Krishnan's (2003) model and panel data from 1999 to 2001 to examine whether engaging the Big Four auditors improves auditing quality. They provided evidence for correlation between the hiring of Big Four auditors and the quality of reports issued by them (measured by the discrete accruals). They concluded that Big Four auditors' audit quality is not higher than that of large local firms. They attributed the reason to the weak legal system as Big Four auditors are facing few litigation risks in China. Few lawsuits have involved Big Four auditors and public enforcement of law and regulation has been weak in China. Since the general demand for high quality audits is not strong in China, Big Four auditors have an incentive to please existing clients and attract more new clients rather than to issue honest opinions. Obviously, the Big Four auditors' audit quality is not consistent across countries, and is influenced by the institutional background.

3.6.4.2. Audit fees and audit quality

As the audit quality is intangible and unobservable, many studies have tried to find different indicators to represent quality, such as audit opinion (Fan and Wong, 2001; DeFond *et al.*, 2000; and Chen *et al.*, 2001), auditor size (DeAngelo, 1981b);

litigation suitcase (Palmrose, 1986a); and also audit fees (O'Sullivan, 2000). O'Sullivan (2000) found an association between audit fee and audit quality thus low audit fee must cause low quality. Palmrose (1986a) also provided evidence that high quality auditors charge high audit fees. Therefore, to study audit fee determinants is very useful for understanding comprehensive audit quality.

For a long time, audit fee information was not available and was not studied in the Chinese literature because traditionally the Chinese government had controlled all prices in the market and the price did not have much elasticity to fluctuate. The earliest regulation on audit fees, the *No. 9 Decree* issued by the MOF in 1989,

Supervision of Audit Fees Charged by CPA Firm, required:

“Audit fees should be decided within the fee limit set by different government finance bureaus and according to nature of services, risk, complexity, location, working conditions, working hours and expenses; without any major changes the audit fee should be consistent between previous and current auditors.”

The reasons why the government intervenes in audit pricing are historical affiliation and vicious competition in the auditing market. On one hand, the government intends to eliminate monopoly price due to affiliation, while on the other, it tries to prevent a ‘vicious price fight’ under the current situation due to a large number of good and bad accounting firms. Monopoly fee and low-balling are both regarded by the government as impairing audit quality and free competition. But there is no national consistent fee standard. Different regions have different calculation methods and fee limits (see Table 3.13).

Table 3.13. Regulations on audit fees made by different local governments (calculated based on RMB)

Beijing		Shanghai		Shenzhen		Zhuhai	
Basis(TA)	Minimum	Basis(TA)	Minimum	Basis(TA)	Minimum	Basis(RC)	Range
<=10million	2.5‰	<=1million	5000	<=1million	4000	<=2million	4~5,000
10~100m	0.15‰	1~5m	8000	1~5m	6000	2~5m	6~8,000
100m~1b	0.1‰	5~20m	12000	5~10m	8000	5~10m	9~10,000
>1billion	0.02‰	20~50m	18000	10~30m	10000	10~20m	10~19,000
		50~70m	24000	30~50m	15000	20~40m	19~35,000
		70~100m	30000	50~70m	20000	40~60m	35~49,000
		>100m	0.15‰	70~100m	30000	60~80m	49~61,000
				100~200m	50000	80~100m	61~71,000
				200~500m	80000	100~200m	71~111,000
				500m~1b	100000	200~300m	111~141,000
				>1billion	150000	300~500m	141~181,000
						>500m	0.15‰

Source: Wong, Z.L. 2002.

For example, Shenzhen Finance Bureau sets specific minimum audit fee amounts based on total assets, while Shanghai adopts more complex methods that distinguish companies according to ownership structure (e.g. foreign company, state-owned company, private company, and so on). Beijing regulates the minimum percentage of total assets instead of specific amounts, while Zhuhai's guidelines are based on registered capital not total assets to classify fee limits that include the minimum and the maximum. These differences reflect the chaos of fee control and location variance in audit fees in the Chinese auditing market.

Along with recent economic reforms, the government has gradually decreased its control of audit price and improved the pricing model. In December 1999, the National Development and Reform Commission issued *Administration of Fees*

Charged by Agency Industries of Services, and built up fundamental guidance and pricing principles: 1) audit fees are an agreement between buyer and seller under government guidance²⁰; 2) audit fees comprise reasonable profit and tax based on average cost per working hour and fluctuate with changes in demand and supply; 3) audit fees should reflect service complexity and the auditor's reputation and competence. The new pricing policy is therefore that 'the market is a major mechanism; the government is the supervisor.' In other words, audit fees are mainly decided by the demand-supply equilibrium principle of the market and the government does not directly and compulsorily intervene in audit pricing any more. Subsequently, in order to make audit fees transparent for the public and regulators, in 2001 the CSRC amended the disclosure regulation of listed companies and added the new requirement that all listed companies have to disclose their audit fees in their annual financial statements. It also regulated how to disclose audit fees and banned some improper forms of conduct (e.g. commission). The new disclosure requirements provide an opportunity to study fee determinants in the Chinese market and are significant for understanding the particularity of the Chinese context.

3.7. Conclusion

This chapter has described the Chinese institutional setting with respect to governmental control and legal environment, and its influence on Chinese listed companies and independent auditors, the demand and supply sides of auditing markets.

²⁰ The government still reserves the power to supervise the pricing of audit fees.

The characteristics of these institutions challenge agency theory and signalling theory, which explains the inherent demand motivation of companies for independent audits in effectual capital markets, and supports institutional perspective on auditor selection and audit fees in the Chinese context. The chapter has also described auditing market concentration and segmentation in China. It has analysed the market share and concentration of the Chinese auditing market and identified the selection preference of listed companies and auditors' product differentiation. Based on prior literature and China's institutional setting, the next chapter will develop a research design for this thesis and explain how auditor selection and determinants of audit fees will be examined jointly by undertaking an exploratory qualitative study and employing advanced econometric models.

CHAPTER 4

RESEARCH DESIGN AND METHODOLOGY

4.1. Introduction

This thesis studies both auditor selection and determinants of audit fees in the Chinese context by taking account of auditor selection bias in audit fees. The literature review has demonstrated that most prior research ignores the fact that auditors are not randomly assigned to companies, and we observe the fees companies paid to their chosen auditors, but do not know the fees they would have paid to alternative auditors. Therefore, most extant audit fee studies neglect auditor selectivity, which may produce biased results. This study's objective is to examine the demand motivations of Chinese listed companies for auditing services and the influence of companies' selectivity of auditors on auditors' pricing behaviour.

Research needs a logical design or structure to ensure that the evidence obtained answers the research questions as unambiguously as possible (Bryman, 2001). Chapters two and three reviewed prior theories on auditor selection and audit fee determinants, and theoretically analysed China's institutional setting in terms of the legal environment and government intervention. The assumptions underlying agency theory or signalling theory are challenged by China's institutional factors. In order to minimise the chance of drawing incorrect causal inferences from data, a

multi-strategy research design employing both qualitative and quantitative research methods will be applied.

This chapter has three main parts: 1) the first briefly addresses the relationship between the research design and applied theories; 2) the second part explicitly explains the research design of this thesis; and 3) the last part specifically introduces the research methods used, including the research design, models, and sampling.

4.2. The philosophy of auditing research

Research is a process of new knowledge discovery, interpretation and communication. Auditing studies have been heavily affected by the development of financial disciplines. There are two main types of financial research. One is called 'positive' accounting research, and claims to give reliable and empirically sustainable answers to questions that policy-makers regard as important, and focuses on the effect of certain actions on various variables using economics-based empirical evidence (Ryan *et al.*, 2002). The term 'positivism' is the name given to this type of research.

The objectives of this work are to study the determinants of auditor selection and audit fees and the interrelationship between auditor selection and audit fees. The positive research can provide answers to the questions through the predictions of, and explanations for, the consequences of auditor selection and audit fee determinants by using empirical models and reliable large-scale data. Watts and Zimmerman (1986)

argued that most accounting and auditing studies adopted positivism. Positivism prevails because a large majority of active researchers demonstrate a strong commitment to 'objective' research. This means they regard research as a process of constructing precise and economic theories validated by well-designed tests using large and, as far as possible, unbiased samples. Using positivism in this study allows a new development of studies on the selection bias of audit fees and the institutional perspective of auditor selection and audit fee determinants through theory construction and modeling. This is why this work adopts positivism.

However, positivism is designed to merely explain and predict companies' auditor selection behaviour and audit fees determinants; by itself, it provides no prescriptions. It has two elements that need to be specified: an objective and an objective function. The theory user decides the objective and the function that provides the predicted effect of variables on that objective (the objective function). In this sense, the decision on the objectives (i.e. variables) that I examine in the models is subjective, and positivism cannot resolve differences in individual decisions.

In contrast, the other type of research in the financial discipline emphasises 'rational interpretation' rather than 'explanation' or 'prediction' (e.g. Froud *et al.*, 2002). No appeal is made to the use of a statistical method. This is called rationalism. However, Ryan *et al.* (2002) argued that research of either type might be subject to hostile and fundamental non-comprehending criticism because of underlying disputes at the

philosophical level. A piece of research with poor technique may be criticised as being 'weak' or 'misapplied'; however, when a methodological dispute is involved the research is simply labeled as 'nonsensical'. Nevertheless, positivists insist that knowledge about the world can be approached only through perception and cannot be justified by the use of reason alone.

Therefore, this work adopts positive research, but meanwhile considers the problems of positivism concerning the ontological status of theoretical terms. This study applies the idea of 'rational' research to explore the reasons for the application of particular theories and to provide an observational reference for the generation of hypotheses, which can be tested subsequently in positive studies. The exploratory interviews adopted in this study are a process to collect rational evidence to make positive research make more sense. The subsequent empirical estimation is to produce generalizations about auditor selection and audit fee determinants.

4.2.1. Types of theory

The common meaning of theory is an explanation of observed regularities. However, Bryman (2001) posited that the term 'theory' is sometimes used in a manner that implies little more than the background literature, to fact-finding exercises and their importance in providing assumptions on which theory may be based. In many cases, the relevant background literature relating to a topic acts as the equivalent of a theory because it explains the applicability of theory in the particular context. In this research,

China's institutional setting has been discussed in detail to supplement the traditional theories. Such background detail bridges the gulf between the theories and the real world and provides an explanation as to why agency theory and signalling theory are not insufficient to explain issues in the Chinese auditing market since the impact of institutional factors on the economy is neglected.

4.2.2. Deductive and inductive approaches ✓

According to Corbetta (2003), when considering the logic of the research process there are two different approaches to research: deductive study (theory testing) and inductive study (theory building). This thesis applies both approaches.

A theory testing approach begins with a theory, and on the basis of what is known about a particular domain, and the theoretical considerations relating to that domain, the researcher deduces hypotheses that are subjected to empirical scrutiny. The hypothesis is the translation of theory into operational terms. In other words, deductive reasoning is a movement from the general to the particular and then the process of gathering data is driven by the hypothesis to test the worth of the theory. In contrast, theory building (induction) is a process in which the research begins with observations and uses inductive reasoning to derive a theory from these observations (Vaus, 2001). The theory is an attempt to make sense of observations. Merton (1968, p. 147) calls this as *post factum theory* because the theory comes after observations are made.

Although the two different research approaches have opposite logic causality and are often presented as alternative research modes, they can be combined to form one ongoing research process. The deductive approach is usually associated with quantitative research. Bryman (2001) pointed out that although this approach appeared to be linear, in that one step follows another in a clear, logical sequence, there are many instances where this is not the case. For example, the researcher's view of the theory or literature may change as a result of analysing the collected data or the relevance of a set of data for a theory may become irrelevant after the data have been collected. In this sense, deduction entails an element of induction. In fact, the inductive process is likely to entail a little deduction. Once the phase of theoretical reflection on a set of data has been carried out, an attempt will be made to collect further data in order to examine the conditions under which the theory will and will not hold. Such a general strategy is interactive, involving a weaving back and forth between data and theory. Moreover, many supposedly inductive studies, which produce interesting and illuminating findings, may not provide clear theoretical significance. Their outcomes are insightful empirical generalisations but little theory may be produced.

4.3. Quantitative and qualitative research approaches

In the research process, deductive and inductive strategies indicate the role of theory in relation to research. Generally, a deductive strategy is associated with a quantitative research approach, while an inductive strategy of linking data and theory is associated

with a qualitative research approach. Bryman (2001) discussed fundamental differences between quantitative and qualitative research approaches in terms of the role of theory in relation to research, epistemological issues, and ontological considerations (see Table 4.1)

Table 4.1. Fundamental differences between quantitative and qualitative approaches

	Quantitative	Qualitative
Principal orientation to the role of theory	Deductive (theory testing)	Inductive (theory building)
Epistemological orientation	Natural science model, in particular positivism	Interpretivism
Ontological	Objectivism	Constructionism

Source: Bryman (2001)

Bryman (2001), however, argued that the distinctions between the two approaches were not hard-and-fast. Although it is common to describe qualitative research as concerned with the generation rather than the testing of theories, in some studies qualitative research has been employed to examine rather than to build theory. For example, Adler and Adler (1985) used the existing literature as a kind of proxy for theory to guide their studies, and their findings then examined the theory. In this sense, the two research approaches do not entirely contradict each other in the logic of the research design. The two can be combined within an overall research project, allowing the various strengths to be capitalised upon and the weaknesses offset somewhat.

Many researchers emphasise the strengths of the data-collection and data-analysis techniques with which quantitative and qualitative research approaches are each

associated and their compatibility. Multi-strategy research becomes both feasible and desirable, and Bryman (1988 and 1992) systematically describes the different ways in which multi-strategy research has been undertaken in literature. Table 4.2 and Table 4.3 present the classification of approaches to multi-strategy research of Hammersley (1996) and Morgan (1998b), respectively.

Table 4.2. Hammersley’s (1996) classification of approaches to multi-strategy research

Triangulation (H1). *This refers to the use of quantitative research to corroborate qualitative research findings or vice versa.*

Facilitation (H2). *This approach arises when one research strategy is employed in order to aid research using the other research strategy.*

Complementarity (H3). *This approach occurs when two research strategies are employed in order that different aspects of an investigation can be dovetailed.*

Table 4.3. Morgan’s (1998b) classification of approaches to multi-strategy research

Sequence	Preliminary Follow-up	Priority	
		Quantitative	Qualitative
		M1	M2
		M3	rarely

Table 4.2 shows that Hammersley (1996) focuses on the interrelationship between quantitative and qualitative research, while Table 4.3 indicates that Morgan (1998b) concerned the priority decision and sequence decision for the different research approaches. The outcome of combining the two strategies can be planned or unplanned because sometimes the results from the two are not consistent. Conflicting findings cannot be predicted simply in the research design stage. Bryman (1992) also

stressed that multi-strategy research must be appropriate to the research questions or research area with which the project is concerned. There is no point adopting more research approaches simply on the basis that ‘more is better’.

4.4. Research design

All the above fundamental knowledge pertaining to methodology indicates how important it is to design and conduct research in a logical and scientific way. This research adopts a multi-strategy to study the determinants of auditor selection and audit fees in China’s auditing market. Many empirical models have been employed in quantitative studies and provided statistical evidence of auditor selection determinants and audit fees determinants (e.g. Simunic, 1980; DeAngelo, 1981; DeFond, 1998; and Francis *et al.*, 1999). Interviews and case studies are frequently used as qualitative methods to explore the in-depth motivations or reasons for the determination of auditor selection and audit fees (e.g. Beattie and Fearnley, 1998 and 2002).

The reason why this project proposes to combine qualitative and quantitative approaches is that agency theory and signaling theory are derived from studies in an institutional setting with a mature market economy and a good legal system for investor protection, which is not the case in the Chinese context. Moreover, prior studies have not theoretically considered an institutional perspective on auditor selection and determinants of audit fees in China. Therefore, justifying the application of both these theories to the Chinese market forms an important aspect of this research,

and is why the inductive qualitative study is undertaken first in this study.

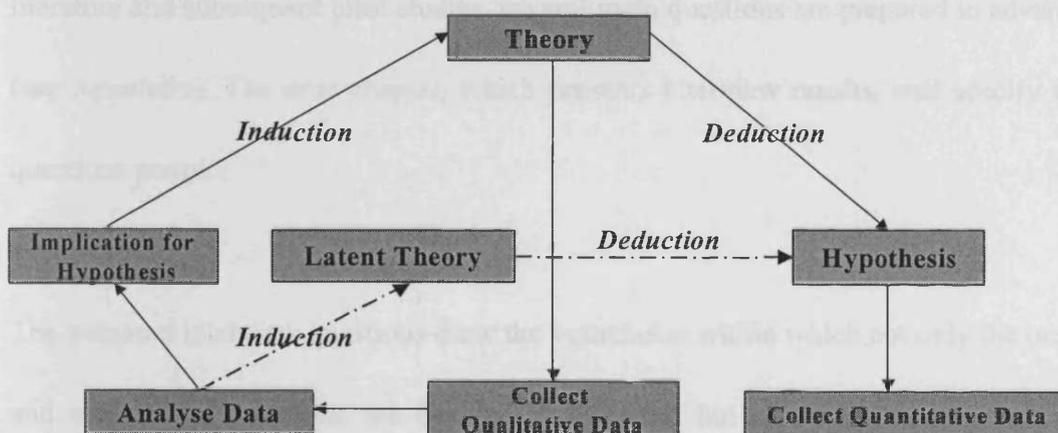
The qualitative method is the interview process, which is conducted first. The quantitative method is an empirical study based on the two-stage MNL logit selection model. The quantitative study that follows interviews is the main focus of this study. The qualitative study is exploratory to aid quantitative study. Specifically, in this study the qualitative research facilitates the quantitative research in the following important ways:

- 1) *Identifying testing variables and control variables.* The interview as a semi-structured and open-ended qualitative method is helpful in constructing hypotheses that can be subsequently tested using quantitative research (for example, in this study, the interviews showed that net cash flow can be an audit fee determinant);
- 2) *Aiding measurement.* The in-depth knowledge of social contexts acquired through interviews can be used to inform the specification of empirical models and measurement of variables;
- 3) *Interpreting empirical findings.* One problem frequently encountered in quantitative research is how to interpret the statistical outcomes into a rational understanding. Interview findings can also provide explanations for omitted factors or components of errors in quantitative models.

The research process, including employment of a multi-strategy, is shown in Figure

4.1, which also illustrates the role of theory in relation to research. First, interviews will be conducted and then hypotheses for the quantitative study will be established with the aid of previous literature and findings derived from interviews. Interview results help to reduce the opportunistic use of theory that has dubious fit and working capacity in the Chinese context (Glaser and Strauss, 1967). Interview findings may also reveal latent theory not realised before. The following sections will detail the design for the two kinds of research methods employed in this project.

Figure 4.1 The logic of the research process in this project



4.5. Qualitative study: semi-structured interview design

Qualitative research methods are designed to elicit the perspective of a target group immersed in a culture or situation under study and provide the opportunity for direct interaction with the people related to the study topic. Qualitative methods include observations, in-depth interviews and focus groups. In order to produce a rich and comprehensive picture of auditor selection and audit fee determinants in China, this thesis adopts the interview method. Compared with observation and focus group

methods, interviews save time and are easier to arrange in practice.

4.5.1. Interview questions

Qualitative semi-structured interviews are used in this research in an attempt to collect data pertaining to interviewees' insight into the world under investigation. Before conducting semi-structured interviews, an 'outline' of the topics to be covered during the interview process, the order in which the various questions are to be dealt with, and the wording of questions must be decided. Therefore, based on previous related literature and subsequent pilot studies, several main questions are prepared in advance (see Appendix). The next chapter, which presents interview results, will specify the questions posed.

The prepared interview questions draw the boundaries within which not only the order and wording of questions are decided in advance, but also which topics will be investigated in greater depth. Semi-structured interviews ensure that all the relevant themes are dealt with and all the necessary information is collected. Interviews also give interviewees ample freedom to express their understanding on the topics, companies' motivations to select auditors and audit fee determinants, and to develop any themes arising during the course of interviews considering important by respondents. Therefore, the semi-structured interview is flexible though it is within a predetermined scheme. However, interviews have limitations. They are time consuming for both the researcher and interviewees. Moreover, interviewees may

become uncooperative if they are not interested in the topic. Also, interviews represent the off-the-top-of-the head thoughts of people who have at most an hour or so to think about their answers, and they are bound to occasionally forget information or make mistakes. These limitations can be alleviated by considering interview questions and potential answers in advance.

4.5.2. Sampling and conducting interviews

Many researchers (Lupton, 1996) use the convenience sampling approach to select interviewees who might otherwise be difficult to contact. Sometimes snowball sampling (Beardsworth and Keil, 1992) is adopted to contact groups of people for whom there is no sampling frame. Probability sampling is an approach by which a random sample is selected according to the size and structure of the population.

In this research, two groups of interviewees are identified to interview: CFOs in Chinese listed companies and partners in Chinese accounting firms. Taking into account location diversity in such a big country as China, interviews were conducted in two places: Beijing and Wuhan, the capital city of China and a large city in the middle of the country, respectively. The purpose of conducting interviews in these two cities is to reduce location bias. Beijing is a relatively more developed city in China, with higher average personal income and more listed companies, which might affect the demand for auditing services and level of auditing fees. As chapter 3 indicated, by the end of 2002 the CSRC and MOF had granted licences to 72 accounting firms to

audit Chinese listed companies. Among them, Beijing had the most, twenty-four qualified firms, four times more than the next region, Shanghai, which had only eight. Accounting firms in Beijing are generally large, enjoy a good relationship with the central government and large state-owned companies (auditees), and have a more established brand name. These characteristics might bias interview findings. Conducting additional interviews in a less developed location and whose economic environment is less open, may provide a more balanced view. Wuhan is located in such an area in the middle of China. In 2002, it had just three accounting firms qualified to provide auditing services to listed companies, and not one of them had become a top-10 firm.

Therefore, bearing the above considerations in mind, twenty interviewees were selected through 'personal contacts' and the use of snowball sampling techniques. In China, a simple random sampling in order to ensure statistical representativeness is not feasible because of difficulty in accessing CFOs and senior partners in accounting firms. Obtaining suitable respondents relies on the researcher's social contacts between listed companies, accounting firms and the government to obtain additional interviewees. Through this sampling process, twenty interviewees are finally selected from the two places. They include ten partners from different accounting firms: seven in Beijing and three in Wuhan; of the seven partners from Beijing, two are from Big Four firms and the remaining from local accounting firms. The other ten interviewees are CFOs from different listed companies, eight in Beijing and two in Wuhan. All

interviews were conducted face to face, except for two, which were conducted by telephone during the period October to November 2003. Without breaching confidentiality, detailed information about the interviewees will be provided in the next chapter, which presents result from the qualitative study.

The qualitative analysis of interview findings precedes those from the quantitative study. As explained above, the qualitative study is intended to help justify applicable theories and specify empirical models for quantitative estimation with two important implications. One is to identify differentiated auditor type, which decides what kind of logit model is to be estimated for auditor selection. The other is to explore the correlation between audit fee and auditor selection, which will indicate the selectivity bias in the single equation of audit fee determination and the need to correct it. The next section will describe the quantitative research design according to applied theories and the findings of interviews.

4.6. Quantitative study: empirical research design

The theoretical propositions examined through interviews are empirically tested utilising specific analytical models, which enable us to predict some companies' selection behaviour and determinants of audit fees. The following sections discuss the quantitative research design.

4.6.1. Cross-sectional design

Cross-sectional multi-regression models are quantitative instruments commonly used to examine auditor selection and audit fee determinants. The cross-sectional design is characterised by three features: no time dimension; reliance on existing differences rather than change following intervention; and groups based on existing differences rather than random allocation (Vaus, 2001). Based on the prior studies on auditor selection and audit fees, cross-sectional models (selection model and fee model) will be used to estimate the relationship between companies' characteristics and auditor choices, and audit fee determinants, respectively. Because Chinese listed companies have disclosed audit fee data publicly only since 2001, there is only three-year's data available for use in this thesis. Moreover, in 2001, audit fee disclosures by companies were incomplete and inconsistent with those required by the new regulations, hence, only two years' data are reliable and it is therefore impossible to have a panel data to conduct a time-series study. Omission of the time dimension may be considered a limitation of the cross-sectional studies in this thesis, and is left for the future study.

4.6.2. Two-stage models for auditor selection and audit fees

Motivated by recent audit fee research (Ireland and Lennox, 2002; and Chaney *et al.*, 2004 and 2005), this thesis studies auditor selection and audit fees jointly in the Chinese context by taking account of potential selectivity bias in audit fee models. The empirical study adopts two-stage MNL selection models (Bourguignon *et al.*, 2004) to examine auditor selection and audit fee jointly. The advanced econometric

models are derived from Heckman's (1979) two-stage selection models, but differ from Heckman's models in that the first stage selection equation is not the binary probit model but the MNL model because there are three alternative auditor choices in this study (Big Four auditors, large local auditors, and small local auditors). The terms for correcting the selectivity bias in the second stage fee equations are calculated according to three different functions. This is the first study of audit fees to apply the multinomial approach to the two-stage selection process. The following sections will explain the empirical models.

4.6.2.1. Selection model: the multinomial logit model

According to previous theories relating to production differentiation of auditing services (such as product differentiation measured by auditor size, brand name, or industry specialisation) and the Chinese auditing market's concentration and segmentation as analysed in the previous chapter on the Chinese institutional setting, I propose three alternative auditor choices: Big Four auditors, large local auditors and small local auditors. Compared with local firms, Big Four firms possess international reputations built up in other markets and are more likely to be perceived as performing high audit quality by the public and government. Local auditors do not have international brand names, and large auditors may provide higher quality audits than small auditors according to DeAngelo's (1981a) theory that auditor size is positively associated with audit quality.

In order to justify the classification of Chinese auditor choices, interviewees were invited to discuss product differentiation among auditors in the Chinese auditing market. Interview findings will be detailed in the next chapter, however, it is worth noting here that the findings support the MNL selection model because most interviewees agreed that product differentiation among Big Four firms, local large firms and local small firms was noticeable. Therefore, in order to identify what companies' characteristics are related to their preferred selection for the three types of auditors, a MNL is most appropriate. Different from binary logit/probit models, the MNL model allows category dependent variables to have more than two values. The MNL model has been used widely in previous literature (Gabriel and Rosenthal, 1989; Hilmer, 2001; Ordovensky, 1995; and Savoca, 1991). In the MNL model, the dependent variable can take more than two categorical values and it allows independent variables to have different effects across different categories. A company's choice of a Big Four firm, large local firm or small local firm is affected both by the company's features and auditor differentiation. The cross-sectional study attempts to measure these differences and identify causal direction.

The Hausman test (Hausman and McFadden, 1984) for independence of irrelevant alternative assumptions (IIA) of the MNL model and the Wald test (Anderson, 1984; Long, 1997) for combining categorical choices will be undertaken before the estimation using the MNL model. The two tests will provide further evidence of the validity of employing the MNL model in this study. Large local accounting firms are

measured by their total revenue from auditing services and NASs (see Table 4.4). According to the list of top 100 Chinese accounting firms announced by the CICPA in 2002, Big Four firms were listed in the top four according to total turnover reported in 2002 (including turnover of member firms). In this study, large local firms are defined as local firms among the top 10 accounting firms, excluding Big Four firms. Their names, rank, turnover and number of CPAs are presented in Table 4.5. Specification of all other independent variables in the MNL models will be addressed after the interview study. Here I focus on the specification of the models.

Table 4.4. Top 10 accounting firms ranked by the CICPA in 2002.

Rank	Name	Total Turnover (10,000 RMB)	The number of	
			Member offices	CPAs (rank)
<i>Big Four firms:</i>				
1	PWC Zhongtian	766,313	5	391(1)
2	KPMG Huazhen	334,386	2	176(10)
3	D&T Huayong	291,520	6	105(33)
4	Ernst Young Huaming	246,320	1	146(16)
<i>Large local firms:</i>				
5	Shu Lun Pan	100,888	4	223(4)
6	Yue Hua	83,421	7	321(2)
7	China Rightson	70,814	0	165(11)
8	Beijing JingDu	64,977	3	160(13)
9	Shinewing	64,643	1	191(8)
10	China Audit	63,242	7	238(3)

Source: From the CICPA's official website ²¹

Consider N individuals $i=\{1,2,\dots,N\}$ and a dependent variable Y_{ij}^* which can take on any of j unordered values. Here j has three alternative values, 0, 1, or 2, denoting choice of small local firm, large local firm, or Big Four firm. Call $P(Y_{ij}^* = j) = P_{ij}$, which is the probability of $Y_{ij}^* = j$, for $j=\{0,1,2\}$. To ensure that each of these

²¹ See <http://www.cicpa.org.cn/ReadNews.asp?ID=3121>; <http://www.cicpa.org.cn/news/2004top100.htm>

probabilities is positive, the MNL model uses the exponential function $P_{ij} = \exp(\beta_j X_i)$ and rescales P_{ij} by dividing each by the sum of all the P_{ij} . X_i is a set of vectors that are supposedly associated with the probability of auditor choice (Long, 1997). In the MNL model, one value of the dependent variable is designated as the reference category (or comparison category) by setting the parameters, β_j , to zero. We can have an infinite number of parameters generating an identical set of probabilities. The probability of membership in other categories is compared to the probability of membership in the reference category. It does not matter which category is set to reference, the result of the estimation will be the same (Long, 1997). In this study, if the logit of β_0 ($Y_{ij}^*=0$) is set to comparison group, then the remaining logit coefficients, β_1 and β_2 will represent the change relative to the $Y_{ij}^*=0$ category. So the probability statement for the MNL model is:

$$P(Y_{ij}^* = j) = P_{ij} = \frac{\exp(\beta_j X_i)}{1 + \sum_{j=2}^j \exp(\beta_j X_j)} \quad (1.1)$$

Since β_0 is set to zero as the reference group, the probability that $Y_{ij}^*=j$, for

$j=\{0,1,2\}$ is:

$$P(Y_{ij}^* = 1) = P_{i1} = \frac{\exp(\beta_1 X_i)}{1 + \exp(\beta_1 X_i) + \exp(\beta_2 X_i)}$$

$$P(Y_{ij}^* = 2) = P_{i2} = \frac{\exp(\beta_2 X_i)}{1 + \exp(\beta_1 X_i) + \exp(\beta_2 X_i)}$$

$$P(Y_{ij}^* = 0) = P_{i0} = \frac{1}{1 + \exp(\beta_1 X_i) + \exp(\beta_2 X_i)} \quad (\text{Comparison category})$$

MNL models are multi-equation models. The choice of variables with j categories will generate $j-1$ equations. Each of these $j-1$ equations is a binary logistic regression

comparing a group with the reference category. The MNL models simultaneously estimates the $j-1$ logits through the multi-equations. The models will yield estimates for all β_j s, and the coefficients represent the impact of a particular β on the ‘probability’ of outcome j relative to the comparison category.

In this study, the MNL model have advantages over binary models in prior studies, in that the binary logit/probit models only permit two alternative choices for the dependent variable (Big Four firms vs. non-Big Four firms, or large firms vs. small firms). The binary models neglect some existing differences among auditors and possibly produce unreliable results, particularly since this dataset supports the IIA assumption and the results of the Wald test do not support combining the categorical choices.

4.6.2.2. Audit fee model: selection bias correction based on the MNL model

In most previous studies (see chapter 2), the determinants of audit fee and auditor selection have been modelled separately by one-stage multiple regression models. Normally, fee determination studies include among the explanatory variables a dummy for audit firm type (large firms or Big four firms), which is regarded as an exogenous variable. Many empirical studies of fee premiums charged by Big Four firms or large audit firms have been documented in the literature. However, when audit type is utilised as an exogenous variable in the fee model, it is assumed that companies are randomly assigned to audit firms. This assumption is not reliable.

Titman and Trueman (1986) and Datar *et al.* (1991) produced signalling models in which companies with good performance in profitability preferred more reputable auditors. Some other empirical studies relating to auditor selection or auditor switching (Francis and Wilson, 1988; Johnson and Lys, 1990; and DeFond, 1992) indicated that auditor choice was not a random decision and was motivated by different companies' characteristics. Therefore, it is better to treat auditor type as an endogenous variable. Moreover, some previous researchers argued that the fee premium of Big Four firms or large firms had an impact on company selection behaviour. Beattie and Fearnley (1998) found that 'grudger' companies²² were cost-minimisers and were likely to choose auditors who charge low audit fees. The constraint of audit fees on auditor selection is also supported by some CFOs in listed companies in my interviews. Therefore, the interrelationship between audit fees and auditor selection suggests that it is necessary to consider fee constraint in company selection behaviour and auditor choice in models of the determinants of audit fees.

However, because a single regression model cannot solve the problem, Heckman (1979) and Green (1983) developed two-stage selection models in their studies examining women's wages through correcting self-selection bias for women who have chosen not to work. A consistent two-stage estimator enables analysts to utilize simple regression methods to estimate a behavioural function by least squares methods. Then selection bias in the estimator of interest can be corrected through

²² Beattie and Fearnley (1998) define "grudger" companies as those who: 1) see little value in audits; 2) resent audits; 3) are unhelpful to the auditors; and 4) possibly bullies.

adding the inverse of Mill's ratios calculated by the selection estimator, which is a monotone decreasing function of the probability that an observation is selected in the sample (Heckman, 1979). Heckman's two-stage model is a seminal estimator for self-selection bias. However, under the assumption of normal distributions, it is restricted for computational tractability to simple bivariate selection choices (Bourguignon *et al.*, 2004). When selection is over a large number of exclusive choices, the MNL specification is attractive in applied work, due to its simplicity, at the cost of parametric and testable the IIA assumptions. Lee (1983) and Dubbin and McFadden (1984) used different approaches to extend Heckman's model to the case where selectivity is modelled as a MNL. Dahl (2002) defended a semi-parametric approach, whose variants also depend on the stronger collinearity arbitrage.

Recently, Bourguignon *et al.* (2004) conducted a set of Monte-Carlo experiments to assess the aforementioned methods in the literature for selectivity bias correction based on the MNL, to clarify their advantages and shortcomings. The set of Monte-Carlo experiments emphasised the potential drawbacks of the various methods when hypotheses are violated or when high multicollinearity is present. Lee's method is adapted to very small samples. Although Dubbin and MacFadden's (DMF) method is preferred to Lee's and Dahl's methods with only one probability, the performance of the DMF approach depends on the normalisation constraint it imposes (see also Schmertmann, 1994). Therefore, Bourguignon *et al.* (2004) used an alternative version of the DMF method to relax the normalisation assumption. The Monte-Carlo

simulations proposed in Bourguignon *et al.*'s (2004) paper suggested that selection bias correction based on the MNL provides fairly good correction for the outcome equation. In recent years, their advanced models have been discussed and applied in many studies (Terza, 1998; Dagsvik, 2000; Hilmer, 2001; Barrios, 2004). It is necessary for this thesis to control auditor selection bias in audit fees when companies do not randomly select their auditors. The following paragraphs are devoted to constructing the models using the modified DMF method by Bourguignon *et al.* (2004) for this study²³.

The basic idea of the two-stage model is that the outcome variable, Y_{ij} , is only observed if certain criterion, defined with respect to a variable, Y_{ij}^* , are met. In this study, the outcome variable, Y_{ij} , is audit fee and the selection variable, Y_{ij}^* , is auditor choice, Big Four firm, large local firm, or small local firm. The common form of the selection model has two stages. In the first stage, a multiple category variable, Y_{ij}^* , the auditor choice, determines whether or not Y_{ij} , audit fee for the selected auditor, is observed. Note here that the auditor selection model is the MNL model with some matrices of the independent variables X_i , which can differ from the independent variables, Z_i , in the audit fee model. Consider the following model:

(I) Selection Equation

$$Y_{ij}^* = \beta_j X_i + \eta_j \quad , \quad (2.1)$$

²³ Bourguignon *et al.* (2001) programmed the method as a Stata command: its description and the 'ado' file is available at <http://www.crest.fr/pageperso/lmi/gurgand/selmlog.htm> and it can be installed from Stata using the command "net from <http://www.crest.fr/pageperso/lmil/gurgand>".

$j = 0, 1, 2$ (0=small local firm, 1=large local firm, 2=Big Four firm)

The maximum likelihood estimates of the β_j 's can be easily obtained through the above MNL model (1.1):

$$P(Y_{ij}^* = j) = P_{ij} = \frac{\exp(\beta_j X_i)}{1 + \sum_{j=2}^j \exp(\beta_j X_j)}$$

(II) Outcome Equation

$$Y_{ij} = \alpha_j Z_i + \mu_j \quad (2.2)$$

$j = 0, 1, 2$ (Y_{i0} =observed audit fees charged by small local firms,

Y_{i1} = observed audit fees charged by large local firms,

Y_{i2} = observed audit fees charged by Big Four firms)

The selectivity of auditor suggests that the disturbance term μ_j in the fee equation and (η_j) 's in the selection model are not independent, which may introduce some correlation between the explanatory variables and the disturbance terms in the outcome equation (2.2). Because of this lack of independence, least squares estimates of the α_j will not be consistent. To obtain consistent estimates based on usual parametric assumptions, Bourguignon *et al.* (2004) modified the DMF (1984) method and proposed correction approaches to formulate a model with given marginal distributions. In order to demonstrate the method without loss of generality, I concentrate on the consistent estimation of α_2 indicating that the observed audit fee charged by Big Four firms belongs to category $j=2$. Defining the following standard normal variables:

$$\eta_j^* = J(\eta_j) = \Phi^{-1}(G(\eta_j)), \quad j = 0, 1, 2 \quad (2.3)$$

In the MNL model, the (η_j) 's are assumed to be independent and identically Gumbel distributed²⁴. Φ is the standard normal cumulative function. For every j , assume that the expected values of μ_2 and η_j^* are linearly associated. This holds in particular under the classical assumption that μ_2 is normal and μ_2 and η_j^* are bi-variate normal (Bourguignon *et al.*, 2004). If ρ_j is the correlation between μ_2 and η_j^* , μ_2 can be written as the linear combination of the (η_j^*) 's:

$$\mu_2 = \sigma_2 \sum_j \rho_j \eta_j^* + \omega_2 \quad (2.4)$$

Note here that this expression depends on the fact that (η_j^*) 's are independent from one another. Deviation from this can indicate model misspecification, in particular regarding the IIA hypothesis²⁵, which is the basic assumption of the MNL model. In order to estimate model (2.2) through the least squares method for $j=2$, it is necessary to know the expectation of μ_2 conditional on the fact that category $j=2$ is observed. Then, extending Heckman's (1979) and Lee's (1983) original approach, Bourguignon *et al.* (2004) use the preceding relationships and the independence of the residual term ω_2 from the (η_j^*) 's in the equation (2.4), and give expected value of the error term, (η_j^*) 's, conditional on category $j=2$ being chosen (see Bourguignon *et al.*, 2004, Appendix 1):

$$E(\eta_2^* | Y_2^* > \max_{j \neq 2} (Y_j^*)) = \int J(\eta_2) g(\eta_2 + \log P_2) d\eta_2$$

P_2 is the probability that category j will be chosen and is given by the MNL model

²⁴ The Gumbel distribution is a special case of the Generalised Extreme Value distribution. The Gumbel distribution takes its name from Emil J. Gumbel. An attractive feature of the Gumbel distribution is that the parameter equations provide an estimate of the value with the greatest observed frequency. For a brief introduction of its function and properties, please see <http://www.brighton-webs.co.uk/distributions/gumbel.asp>.

²⁵ The IIA, the independence of irrelevant alternatives, assumes that the relative probability of two existing category outcomes is unaffected by the addition of a third outcome.

(1.1). g is the function of the density of the disturbance terms of the latent models conditional on outcome $j=2$ being observed. Changing the variable $\nu = \eta_2 + \log P_2$.

Then:

$$E(\eta_2^* | Y_2^* > \max_{j \neq 2} (Y_j^*)) = \int J(\nu - \log P_2) g(\nu) d\nu \quad (2.5)$$

For η_j^* , $j \neq 2$ (see Bourguignon *et al.*, 2004, Appendix 1):

$$E(\eta_j^* | Y_2^* > \max_{j \neq 2} (Y_j^*)) = \frac{P_j}{(P_j - 1)} \int J(\nu - \log P_j) g(\nu) d\nu \quad (2.6)$$

Bourguignon *et al.* (2004) name $\int J(\nu - \log P_j) g(\nu) d\nu$ as a function of $m_2(P_j)$ in order to emphasise that these integrals are functions of the probabilities:

$$m_2(P_j) = \int J(\nu - \log P_j) g(\nu) d\nu, \quad j = 0, 1, 2$$

Using the linear relationship between μ_2 and η_j^* , then the conditional expected value of residual term, μ_2 , can be written as:

$$\mu_2 = \sigma_2 \left[\rho_2 m_2(P_2) + \rho_1 \frac{P_1}{(P_1 - 1)} m_2(P_1) + \rho_0 \frac{P_0}{(P_0 - 1)} m_2(P_0) \right] + \varepsilon_2 \quad (2.7)$$

In the second stage, replacing the error term in the outcome equation (2.2) by its conditional expected value derived from (2.4) and a new residual term, ε_2 , we have bias correction in the outcome estimator, when the category $j=2$ is chosen:

$$Y_{i2} = \alpha_2 Z_i + \sigma_2 \rho_2 m_2(P_2) + \sigma_2 \rho_1 \frac{P_1}{(P_1 - 1)} m_2(P_1) + \sigma_2 \rho_0 \frac{P_0}{(P_0 - 1)} m_2(P_0) + \varepsilon_2 \quad (2.8)$$

Now, ε_2 is orthogonal to all other terms in the models and has zero expectation.

After inserting the correction integrals, least squares may be used to estimate the α_2 's.

Overall, Bourguignon's (2004) selection bias correction based on the MNL model is

still consistent with Heckman's (1979) two-stage design. In the first stage, we estimate the MNL model, and derive from it the fitted probabilities (\hat{P}_j) 's using the $(\hat{\beta}_j)$'s. The (\hat{P}_j) 's and the function of $(m_j(\hat{P}_j))$'s depend on appropriate specification of all (X_i) 's and incorporate all the information underlying the MNL model. Their combination in model (2.7) yields a consistent estimate of the conditional expected value of the residual term in the original outcome equation (2.2). Then, in the second stage, estimate (2.8) by the least squares method. The difference in selectivity correction within the MNL set-up proposed by Bourguignon *et al.* (2004) is that it involves all correlation coefficients between the disturbance term of the outcome equation of interest (fee model) and the disturbance terms of all categorical latent expressions. The integrals differ from the inverse Mill's ratios²⁶ in Heckman's (1979) two-stage selection model based on the binary logit.

In this study, the statistical package, STATA, used to run the two-stage selection models based on the MNL model. (2.8) is simplified in STATA syntax as:

$$Y_{i2} = \alpha_2 Z_i + \sigma_2 \rho_2 m_{22} + \sigma_2 \rho_1 m_{21} + \sigma_2 \rho_0 m_{20} + \varepsilon_2 \quad (2.9)$$

Consistent with the above demonstration, ρ_j is the correlation coefficient between μ_2 and η_j^* , and m_{2j} is the expected value of η_j^* , conditional on choice 2 being made computed using the Gauss-Laguerr quadrature method from the first-stage MNL in the STATA. The second stage regression is estimated by linear least squares and provides consistent estimators of α_2 , $(\sigma_2 \rho_2)$, $(\sigma_2 \rho_1)$, and $(\sigma_2 \rho_0)$. The standard

²⁶ $\lambda_i = f(\eta_i)/F(\eta_i)$, λ is usually described as the inverse of Mill's ratio. f is the density function of the standardised normal distribution and F is the cumulative function of standardised normal distribution.

errors of the outcome equation, σ_2 , are not estimated separately from the correlation coefficients, ρ_j . Neither are the latter constrained between -1 and 1 .

In summary, the two stage selection models provide the following improvements compared with the single model of audit fees:

- 1) Take into account the censoring (selection) process, because selection and outcome (audit fee) are not independent;
- 2) Use theory of auditor selection. Observations are censored by some variables X_i ;
- 3) Permit different variables and coefficients to be used in the selection equation and the audit fee equation.

4.7. Sampling

In this research that studies determinants of audit fee and Chinese listed companies' auditor selection, the initial population for cross-sectional analysis was the entire 1158 Chinese non-financial companies²⁷ listed on the Shenzhen Stock Exchange and the Shanghai Exchange in 2002. In a quantitative study, when the population is large, a representative sample of the population is drawn and then the findings derived from the sample will be generalised to the entire population. Therefore, the representativeness of the sample is crucial for testing whether the theory is applicable to the population. In order to obtain a representative sample, the sampling process

²⁷ In previous studies, companies in the finance industry were excluded because they have distinct financial statements and different auditing process.

depends on a number of considerations, such as model design, population characteristics, the degree of precision and accuracy required, and also constraints of time, cost and access to data. Bearing these considerations in mind, this empirical study chooses the cut-off sampling method to select observations. The following sections will justify the sampling method and explain the final sample used in this study.

4.7.1. The cut-off sampling method

There are two types of sampling in the literature: systematic and non-systematic design (Chaudhuri and Stenger, 1992). Probability sampling is a main objective of systematic sampling design. It makes inferences from information about a random sample to the population from which it was selected. In this way, this sampling helps avoid bias in case selection. In the population, each case has a non-zero probability of selection and is completely chosen at random. Although random sampling can remove human bias in cases, this is not to say that the population data and the sample data are the same. When using samples there is always the likelihood of sampling error: the sample does not accurately reflect the population from which it is drawn, but it can be estimated, with a specific level of probability. Cochran (1977) argued that random sampling methods yield good representativeness of a population.

In general, random sampling methodologies are used for a homogenous population. However, if these samples raise concerns, or if a review of the selected observations

suggests that major subcategories of interested variables in the model are not included, the sample should be expanded using non-systematic sampling. The non-systematic sampling is also called 'model-based' sampling, which is traceable to Brewer (1963), Royall (1970), and Cochran (1953, 1977). Cut-off sampling is a common non-systematic selection method used for specially establishment surveys in some countries (Statistics Canada, 2001; Haan *et al.*, 1999). Observations are selected by using a cut-off point to minimise the total sample size referring to the permitted error. Once the cut-off point is decided, all observations above the point will be selected and remaining observations below the point will be ignored. Haan *et al.*, (1999) concluded that using model-based inferences with a cut-off sample may have advantages over systematic sampling when the population is highly skewed, and non-sampling error and cost considerations suggest that the data for some observations are not efficiently obtainable. The model may provide better estimation using cut-off sampling than random sampling can, given data quality considerations. Hidiroglou (1986) recommended a modified cut-off sampling design for large-scale sampling in a skewed population. It will still take all observations above the cut-off point, but some samples can be added from below the point using systematic sampling. Modified cut-off sampling considers information ignored by the cut-off sampling and yields better estimation in the total mean square error. Cochran (1977) and Chaudhuri and Stenger (1992) argued that although systematic sampling depended on the principle of randomisation and non-systematic (model-based) sampling depended on the principle of conditionality, the two sampling methods were not completely incompatible.

Model-based sampling can make use of randomisation like modified cut-off sampling; and the form of a random sample can be guided by the modeling of data.

4.7.2. Sample size and stratified analysis

The above section discussed different sampling methods and provided guidance for sampling in this project. Before selecting a sample, one important issue has to be taken into account: the empirical model design, which requires sufficient information for estimation purpose. As the above explained, this project adopts the MNL model for auditor selection and second-stage multiple WLS regression models for audit fee determinants. In the MNL model, the dependent variable, auditor choice, is measured by three alternative groups of auditors: Big Four firms, large local firms, and small local firms. In the second stage, the study of audit fees, in order to control for selectivity bias, audit fees are estimated separately for each auditor group. In the study population, 1158 non-financial listed companies, the total number of companies selecting Big Four firms and large local firms in 2002 was very small, 103 (8.9%) and 136 companies (11.7%), respectively. The rest were small local firms, so the choices of auditors were skewed toward small auditors in the population.

In order to include the three categories of auditors in the sample and make meaningful group-based estimation, the modified cut-off sampling method is adopted. All 239 companies who chose Big Four firms and large local firms will be selected as part of the sample. The remaining population, which chose small local firms, 919 listed

companies will be selected for the quantitative study using a random sampling technique.

Since the random technique is used for the small local firms, it has to consider the representativeness of the sample. A key factor that affects how precisely the population figures can be specified is the size of the sample. In general, the larger the sample the better, but considering cost and time beyond a certain point increasing the sample size has smaller and only marginal benefit. Corbetta (2003) also pointed that when the population size was over a certain level, for rigorous random sampling it was the sample size (absolute amount), rather than the sampling fraction (sample size/population size), that determined the magnitude of error. Therefore, once the acceptable sample error and confidence level are fixed, the sample size can be calculated according to statistics theory. Corbetta (2003) provided a table indicating the size of a simple random sample required based on a given precision of estimate and a given size N of the whole population for a 95% confidence level (see Table 4.5)

The population size of remaining companies is 919, which is near to 1000. According to Table 4.5, for a 95% confidence level, 715 cases are sufficient in order to obtain estimates that are accurate to within 2 percentage points, and only 285 cases are needed for estimates with accuracy of ± 5 percentage points when the population size is 1000. So, taking into consideration cost and time, and an acceptable error level of 5%, the desirable sample size for companies who chose small local firms is around

285. Moreover, with this random sample size there is 95 per cent confidence level since the population estimate will be within ± 5 per cent of the parameters found in the sample, e.g. mean, proportion, correlation coefficient, etc.

Table 4.5. Precision of the estimation and sample size required based on a given size N of the whole population for a 95% confidence level.

Precision of the estimate					
5%		2%		1%	
N	n	N	n	N	n
100	80	100	96	100	99
300	170	300	270	300	296
500	220	500	415	500	475
1000	285	1000	715	1000	910
5000	370	5000	1660	5000	3330

Source: Corbetta (2003)

However, when the random sample is selected, Corbetta (2003) pointed out that other considerations need to be borne in mind: 1) whether there is sufficient variation in the sample for other key variables; 2) whether information for statistical controls is valid; and 3) how many missing data there are. Since the analysis of cross-sectional data must be sufficiently sensitive to capture the variation that exists, the sample size will probably be increased until all the key variables and controlled variables have reached a desirable level of variation. Therefore, 300 companies who chose small local firms in 2002 will be randomly selected. The total sample selected for study purposes is as shown in Table 4.6.

Table 4.6. Sample selection and stratified analysis

	2002
<i>Initial Population</i>	
Companies choosing Big Four firms	103
Companies choosing large local firms	136
Companies choosing small local firms	<u>919</u>
Total non-financial listed companies	1158
<i>Sampling</i>	
Companies choosing Big Four firms	103
Companies choosing large local firms	136
Companies choosing small local firms (random sample)	<u>300</u>
Total sample of listed companies	539
<i>For the MNL Estimation</i>	
the total sample:	539

4.7.3. The two-year pooled dataset

Cross-sectional models are a simple and cost effective design with strong external validity. However, they compare groups simply in terms of difference on the dependent variable without considering the time dimension. They are unable to unambiguously establish the time sequence in which events occur (Bryman, 2001). This weakness represents threats to the internal validity of cross-sectional studies. In order to remove the ‘noise’ of time in one-off cross-sectional studies as much possible, this research is based on a pooled two-year dataset, including data derived from selected observations for two continuous years, 2002 and 2003. The pooled dataset includes more information than the one-year dataset. Data from 2001 were excluded because this was the first year when audit fees began to be disclosed in annual financial reports required by regulation. The fee disclosures of listed companies in the first years probably could be inconsistent due to company’s initial different understanding of the new regulation. For example, some companies disclosed audit

fees paid during the period, while others disclosed fees incurred during the year. Some companies did not separate audit fees and non-audit fees. In this sense, data for 2001 are not reliable. Moreover, due to the time constraint, just two-year data in 2002 and 2003 were used for investigation purposes. Examining a wide cross-section of cases based on the pooled two-year dataset could mitigate the ‘noise’ of time to an extent. Also I add a dummy variable for the data year into the models to control for unobserved environment changes that might affect auditor choice and audit fee determinants from 2002 to 2003.

4.7.4. Data sources and data collection

Data in this study are partly drawn from secondary databases and partly hand-collected. The databases of Sinofin and Genius²⁸ are the main sources of secondary data. They have coded information disclosed in the annual financial reports of all Chinese listed companies over time. These datasets are used frequently for secondary analysis (Kato and Long, 2005). In order to reduce data errors as far as possible, I collect all required listed companies’ secondary data from both databases and double check whether they are consistent. If they are not, I look up the original numbers in the financial reports of the listed companies from the official websites of Shanghai and Shenzhen stock exchanges. Most accounting and financial data from the databases are reliable. I manually collected all audit fees in the original financial reports by myself to ensure uniformity because they are the most important variable in

²⁸ The Sinofin database is compiled by the Sinofin Financial Information Services Co. Ltd (www.sinofin.com.cn). The Genius database is a product of the Genius Financial Information Services Co. Ltd (www.genius.com.cn).

this study. Audit fees here are for annual domestic auditing reports only. I exclude the audit fees for foreign auditing reports produced according to the international accounting standards²⁹. Audit fees are accrued, not the amount they paid in the year.

After discussing the applicability of empirical models and the validity and reliability of sampling and data collection methods, the quantitative research design's aim is to establish specific hypotheses for two stage selection models. According to the proposed research process, the establishment of hypotheses will be decided when a review of previous theory and findings derived from semi-structured interviews are considered and. The formulation of hypotheses will be addressed in Chapter 6 and 7 after qualitative findings have been presented and discussed in Chapter 5.

4.8. Conclusion

This chapter has outlined the research process and research methods of this study, i.e. a multi-strategy research process where the qualitative approach facilitates the quantitative approach. Exploratory interviews will be conducted in advance and their findings used in the subsequent formulation of hypotheses, empirical analysis, and discussion of results. The chapter has also specified the interview design and two-stage advanced econometric models. This is probably the first time that two stage MNL models have been used in the auditing literature. Following the research design, the next chapters will separately analyse the data derived from semi-structured

²⁹ If a company issues A shares and also B/H shares, it is required to have a domestic auditing report according to the Chinese accounting standards and a foreign auditing report according to the international accounting standards (IAS). Companies are required to disclose their audit fees separately.

interview study and the quantitative empirical study, respectively.

CHAPTER 5

INTERVIEW RESULTS

5.1. Introduction

The last chapter on methodology has justified the research design and discussed the role of interviews in this thesis, which are intended to explore interviewees' views on auditor selection and audit fee determinants in China. The introduction to the Chinese institutional setting and auditing market described it as jointly influenced by the market and institutions. In order to collect qualitative evidence to identify the multiple roles of government and the weak legal environment for investor protection and their influence on demand and supply in the auditing market, personal interviews were conducted with appropriately qualified personnel from companies or audit firms in Beijing and Wuhan in order to understand companies and auditor differences in the Chinese auditing market and establish testable hypotheses for further empirical investigation in subsequent chapters.

This chapter first introduces the interview design and summarises information to be elicited from interviewees. Then interview results are analysed according to interviewees' responses concerning listed companies' demand motivations, i.e. what Chinese listed companies want from auditors and related factors; auditors' differentiations, i.e. perceived differences between Big Four auditors, large local

auditors, and small local auditors; and audit fee determinants.

5.2. Interview design and sample selection

As indicated in the previous chapter, interviews were semi-structured. Based on prior studies and background analysis I posed mainly open questions to interviewees and also wrote down possible answers in advance so as to structure and check interviewees' answers (see Appendix). The main questions were as presented below:

- 1) What functions do you think independent auditing has?
- 2) What independent auditing functions does your company want from your auditors (or do your accounting firm's clients want)?
- 3) What differences in auditing services are there among Big Four firms, large local firms, and small local firms?
- 4) What factors affect listed companies' choice of Big Four firms, large local firms or small local firms?
- 5) How are audit fees negotiated and decided between companies and auditors?
- 6) What are audit fee determinants?

The first four questions try to reveal the interior and external motivation of auditing demand in China and differences between auditors. The last two questions concerning audit fees are asked to identify audit fee determinants between different types of Chinese auditors and are based on Simunic's (1980) classic fee model.

Interviews were conducted with both sides of the auditing market: CFOs from listed

companies representing the perspective of buyers, and partners from accounting firms representing the perspective of sellers. All twenty interviewees were asked the same main questions shown above³⁰ to elicit opinions from both the demand side and supply side on these important issues. Interviews were conducted in two places: Beijing, the capital of China, and Wuhan, a metropolitan in central China. Twenty interviewees were selected in total from the two places. To maintain anonymity, all interviewees allowed me to disclose their company's industry, location, and auditor's type (Big four, large local or small local auditors) (see Table 5.1).

Table 5.1. Background information on interviewees' companies and audit firms

Listed company	Location	Industry	Audit firm	Type	Location
C1	Beijing	Aeronautics	A1	Small local	Beijing
C2	Beijing	Mine trade	A2	Large local	Beijing
C3	Beijing	Transportation	A3	Small local	Beijing
C4	Beijing	Pharmacy	A4	Small local	Beijing
C5	Beijing	Manufacturing	A5	Big Four	Beijing
C6	Beijing	Manufacturing	A6	Big Four	Beijing
C7	Beijing	Manufacturing	A7	Large local	Beijing
C8	Beijing	Pharmacy	A8	Small local	Wuhan
C9	Wuhan	Manufacturing	A9	Small local	Wuhan
C10	Wuhan	Steel	A10	Small local	Wuhan

Ten interviewees were partners from ten different accounting firms: seven in Beijing and three in Wuhan. Two of the seven interviewees from Beijing were from Big Four firms, two were from large local firms (in top 10 list in 2002), and the remaining three were from local accounting firms. The other ten interviewees were CFOs from different listed companies, eight in Beijing and two in Wuhan. All interviews were conducted face to face except for two, which were conducted by telephone during

³⁰ Appendix shows that the specific questions for CFOs interviewees and auditor interviewees may be slightly different, but the main questions are the same.

October and November 2003.

5.3. Interview analysis

At the request of interviewees, interviews were not taped because interviews touched on sensitive topics, the demand for high audit quality and determination of audit fees. Thus, I made detailed notes of all interviewees' responses, including those elicited during telephone interviewing. All interview results were based on these notes. Although my interview questions were open-ended, they were based on the literature review and background analysis. I made notes following the order of questions and coded some answers directly according to internal demand motivation, external demand motivation. I wrote down response and related them to theories when conducting interviews (see Appendix). These help me structure interviewees' answers.

Taking notes is part of coding the data as Charmaz (1995) pointed out:

"The first major analytic phase of the research consists of coding the data. In short, coding is the process of defining what the data are all about. Unlike quantitative coding, which means applying preconceived codes (all planned before the researcher even collects data) to the data, qualitative coding means creating the codes as you study your data" (Charmaz, 1995, p.37).

The interview process is both creative and interactive, at all stages. Coding is the most important process for analysing qualitative data. Taking notes probably involves more analytical coding activities than taping. As codes accumulated, I summarised them into themes. This represented a movement from the particular (line-by-line codes) to the general (patterns within those codes). Similarly, emerging themes represented a movement from the descriptive (e.g. summarising what an interviewee said or did, in

a series of codes) to the interpretative (making some attempt to identify what it all *meant*). Such processes are typical of what is called a *thematic analysis*, a generic qualitative approach to data analysis. In the next sections, I report my code analysis and study findings. I also include excerpts from raw data, in the form of extended quotations alongside my accounts of them, to enable the reader to make a ‘validity check’ between the data and my account.

5.4. What do Chinese listed companies want from their auditor?

The theories reviewed earlier identify two types of incentives that listed companies have to demand audits. One is an interior motivation explained by agency theory and signalling theory, and the other is an exterior motivation articulated from an institutional perspective. The chapter describing China’s institutional setting indicates that the interior incentive is not strong in the Chinese auditing market because state-ownership-dominance modifies agency problems and the inefficient managerial labour market is a poor signalling device. External institutional factors, such as legal system and government intervention, have a significant and complicated influence on how companies evaluate auditing services. Interview findings should add more insight on the demand-side: what exactly Chinese listed companies want from their auditors, driven by their inherent motivation and exterior motivation.

5.4.1. Demand preference under interior motivation

According to agency theory, one of a company’s inherent demand incentives for

auditing services is the role of monitoring in order to reduce agency costs caused by interest conflict between agents and principals. Generally, besides state shareholders there are two other groups of principals who seek for credible accounting information: creditors and other private shareholders. All interviewees were asked for their views on principals' monitoring motivation in the Chinese auditing market. Most interviewees agreed that agency conflicts are influenced by the Chinese ownership structure. Specifically, state shareholders and state-owned commercial banks do not have an incentive to demand external monitoring due to the influence of the government. However, domestic private investors and foreign investors may have a strong incentive to demand a higher quality of auditing than other shareholders receive. The involvement of foreign investors possibly increases a company's demand for credible auditors. But the percentage of domestic private shares is comparatively low in China; hence, private shareholders' influence is limited. Interview findings were consistent with background details provided in the literature review presenting institutional setting information. The next subsections contain a detailed analysis of interviewees' responses.

5.4.1.1. State shareholders and state creditors

Agency theory emphasises the principal's incentive for external monitoring. In developed countries, there are basically two distinct incentive mechanism patterns, the Anglo-American pattern and the German-Japanese pattern (Prowse, 1996). In the former, share ownership is dispersed, and unsatisfactory performance may lead to

shareholders selling or a hostile takeover; in the latter, core investors such as commercial banks and investment institutions who have significant stakes, have both the incentive and ability to monitor and control managers. The Chinese case is unique in that it differs from both: 1) share ownership is not dispersed, and most shares are state shares and not tradable; at the same time, 2) commercial banks are just credit banks that up to July, 2004, had not been allowed to hold equity shares in companies. Both state shareholders and commercial banks are subject to government policies and also protected by the government. Most interviewees agreed that state shareholders' and commercial banks' behaviours are affected by the non-profit objective imposed by the government and by the government's bankruptcy protection, as illustrated the following remarks:

'State-owned listed companies are normally subsidiaries of SOEs...state shareholders regard the stock markets as financing channels to solve the problems of SOEs...' (C3)

'The banks in China, mainly state-owned banks or investment companies, sometimes provide a loan according to government policy and not to company performance.' (A2)

'If you look at the large amount of bad debt of these state-owned banks, you will see how poorly they assess their clients. But because they are state-owned the government won't let them down because to do so would probably cause social unrest.' (A5)

'Sometimes the banks know the poor financial position of the company. But they are still willing to offer loans because they know the company could be listed in the security market and could raise money from there.' (A9)

Therefore, state-owned shareholders and creditors have their own operational objectives, which is affected by politic factors.

However, the government is not only a shareholder, but also a policy-maker and administrator in the Chinese stock markets. According to the political cost hypothesis (see Chapter 2), large companies in state monopoly industries³¹ (such as oil, steel, telecom, electricity) are likely to select well-recognised accounting firms because of their strong motivation to avoid government's attention and political costs.

Interviewee C1, for example, commented that:

'(regarding large state monopoly companies), the government monitors them very closely because they are all in important industries...these companies therefore seek reputable auditors to avoid government regulators' scrutiny.' (C1)

Interviews thus indicated that state shareholders have complex effects on listed companies' demand motivation for auditing.

5.4.1.2. Private shareholders

Interviewees agreed that, at present, the demand for auditing services by domestic private investors is generally not strong in the Chinese market. The first reason given by interviewees is that most individual domestic investors in the capital market are opportunists who aim at short-term gains caused by price fluctuation instead of long-term reward from the earnings' growth of companies. Many interviewees referred to opportunism in the stock markets and frequently mentioned its negative influence on demand for auditing as can be seen from the following remarks:

'The Chinese security market is rather like a gamblers' market for domestic private investors, particularly individual investors whose only concern is

³¹ These companies are called 'Guo Qi Da Pan Gu' since they have very large amounts of shares and total assets and are controlled by the government.

profit from share trade in the short term. '(A5)

'Stock prices in the Chinese auditing market are manipulated by 'Zhuang Jia'³². The auditing report is little use to combat speculative private investors' buying or selling of shares. '(C9)

A second reason is the poor quality of listed companies and the questionable quality of auditing their auditors provide:

'Many public investors don't have much confidence in the quality of listed companies. This directly leads to a decrease in their confidence in the auditor's report. '(C3)

'The poor quality of most listed companies devalues auditing. '(C5)

It would appear that the weak demand for auditing among private shareholders is caused by the particularities of the Chinese institutional setting. The major characteristics of the Chinese stock market according to most interviewees are: it is a policy-driven market with government intervention and poor legal protection for private investors:

'In China it is not the market but the government that decides which company can be listed and delisted. The government intends to solve the financial problems of SOEs by means of establishing the security market where companies can collect money from the public. '(A6)

'We call the security market in China the 'Policy Market'. The market is heavily subject to government policies. The fluctuation of share price is attributed to 'good' or 'bad' news from the government rather than the performance of listed companies. '(C5)

One interviewee referred to the immature state of the Chinese stock markets and the

³² 'Zhuang Jia' is the name given to those who obtain abnormal gain by manipulating share prices by illegal means.

lack of professional analysts and institutional investors:

'In the Chinese capital market, there is a lack of independent professional analysts and institutional investors who can provide rational investment guidance...'(A6)

All interviewees agreed that among private investors, foreign investors are the group most concerned about credible accounting information due to their experience in other mature markets. Interviewees confirmed that foreign investors' involvement in listed companies increased their demand preference for Big Four firms or other foreign firms (including accounting firms in Hong Kong). The reason for selecting Big Four firms is to obtain foreign investors' confidence in audited reports by virtue of foreign firms' reputation. Therefore, most interviewees thought companies listed in the B/H market or other overseas security markets would likely choose Big Four firms.

5.4.1.3. Corporate governance

China has recently adopted an independent director system in listed companies. Stakeholders and independent directors together play a role as interior drivers to ask for the monitoring of a company. Interviews explored interior drivers' different influence on the demand for independent auditing.

Chapter 3 discussed the negative effect of state ownership on the protection of property rights. Interviews provided evidence of poor corporate governance in monitoring activities. Qiang (2003) indicates that corporate governance is a set of instruments and mechanisms (contract, legal and market) available to shareholders for

influencing managers to maximise shareholder value and to fixed claimants. Selection of auditors and demand for credible accounting information is an important issue in corporate governance. Most interviewees agreed that corporate governance in Chinese listed companies is weak, and so far, independent directors who are responsible for financial activities have not played an efficient role in supervising accounting and auditing activities. One of the interviewees (C4) suggested that because the appointment of independent directors is a very recent requirement by the CSRC, and has been adopted in practice within a relatively short space of time, their role has not been recognized.

Many other interviewees questioned the competence of independent directors and thought that they experienced difficulty in monitoring accounting and auditing activities of companies. For example,

'Independent directors are all part-time staff who just attend board meetings several times a year. It is hard for them to become familiar with the detailed financial performance of the company and supervise audit activities.'(C2)

'Most independent directors are professors in universities. They sometimes lack practical experience in the industry.'(C7)

However, two interviewees expressed positive opinions about independent directors.

'Independent directors do exercise more caution and are more risk averse than other members in the Board of Directors because they care about their reputation.'(C8)

'In the recent years, litigation cases against director's neglect and fraud have started. Independent directors take less risk and try to participate more actively in corporate governance.'(C6)

The effectiveness of independent directors in supervising auditing activities needs to

be examined empirically through their role in auditor selection.

It could be concluded that the internal motivation to demand high quality auditing is generally not very strong in the Chinese market. In other words, shareholders and creditors in Chinese listed companies do not voluntarily want high quality auditing services from their auditors with respect to high ability and independence to reduce agency conflicts. The installation of independent directors and the appearance of foreign shareholders are positive interior drivers for high quality auditing services.

5.4.2. Demand preference under exterior motivation

From the above findings, state shareholders, creditors and private investors are not strongly driven by interior motivation to demand high quality monitoring of auditing in the Chinese auditing market. However, to be audited by independent auditors is a statutory obligation for companies who desire to be listed or have been listed in the market. Therefore, exterior motivation, such as government supervision and legal liability, rather than the interior agency problem stimulates listed companies' demand for auditing service in China. All listed company interviewees expressed considerable concern about government attention and regulation sanctions. External factors influence what listed companies want from their auditors and have a significant influence on companies' demand preference.

5.4.2.1. Clean audit opinion

Since the government began to pay attention to audit opinions in 2002, listed companies have become concerned about the effect of reviewing a qualified opinion. Chinese managers have the incentive to prefer clean audit opinions because modified opinions can alert the CSRC to the presence of earnings management and lead to the imposition of costly penalties. Companies receiving qualified audit reports must explain the nature and underlying reasons directly to the CSRC, and such opinion can result in sanctions. To be delisted is a severe penalty, and interviewees mentioned other costly negative influences due to qualified opinions:

'Qualified opinion may also result in less severe penalties such as earnings restatements, however, it will threaten the ability to subsequently raise capital or list foreign shares in the future.' (C1)

'Qualified opinion might bring closer future monitoring by the CSRC and also other investors.' (C3)

'A manager may also worry about his career due to qualified opinion.' (C8)

Chen *et al.* (1998) found qualified opinions were associated with stock price decline. Interviewees were asked if they were worried about their share price if a qualified opinion was issued. Most thought that the association was not direct, since the main reason for price change is the regulator's sanction on the company or other 'policy' changes from the government. Therefore, qualified audit opinions may add to the cost of issuing shares, or result in sanction costs to a listed company. Interviewees from

auditing firms thought auditor switching resulted from disagreement on qualified audit opinions. A previous qualified auditor opinion probably motivates a company to change its auditor to improve its audit opinion.

5.4.2.2. Auditors licensed by the government

In China, the auditing industry is not self-regulated, but government-supervised. Different from western countries, it is the government who establishes the industry and develops it. In the beginning, encouraged by the government, hundreds of accounting firms were set up as a new monitoring mechanism without effectual demand from companies. Under such circumstances, it was difficult to assure audit quality. The government adopted a system of licensing to supervise the industry. If accounting firms want to expand their business in certain fields, they must satisfy specified entry requirements and be licensed by related government departments. The MOF and the People's Bank of China recognise 354 accounting firms that are qualified to audit financial enterprises, such as banks, insurance and investment companies. The MOF has licensed 90 accounting firms to audit large state-owned enterprises. One hundred and two accounting firms are licensed by the CSRC and the MOF to undertake assets valuation for listed companies. At the end of 2003, 72 accounting firms were granted licenses to audit listed companies. Fifteen accounting firms are authorised to peer review specific accounting issues when the application documents of IPO Companies are examined by the CSRC. Licensing qualifications are independent. For an example, a large state-owned listed financial company has to

hire an auditor who is licensed to audit a large state-owned, financial and listed company. Interview results showed that many listed company respondents were concerned about what qualifications were held by accounting firms and what type of companies they were licensed to audit. Typical interview comments were as follows:

'When we choose our auditor, we have to consider if accounting firm has the necessary license granted by the government to audit us.' (C1)

'When we are looking for an accounting firm, we like to see how many qualifications it has, which will indicate its relationship with the government and its reputation in a view of our supervisors. If it has many qualifications, it is likely to be considered acceptable by supervisor. We will achieve the government's approval more easily.' (C3)

In this sense, listed companies' demand preference is linked with the government's perception of accounting firms, particularly when the company's audited reports need to be submitted to the regulator and supervisor for examination and approval. So all CFO interviewees pointed out that IPO companies, and companies who intend to issue additional shares or convertible bonds must prefer to present their financial statements with the names of accounting firms that are *'more credible in eyes of the government'*.

As a matter of fact, the granting of a licence is not just the government's assessment of an accounting firm but indicates a relationship between the firm and the government. This relationship can be an auditor's competitive advantage. Auditor interviewees all emphasised the importance of the relationship. Typical comments were:

'We have good cooperation with the government. We have the qualification

licence to help look into special cases. The relationship we build up with government can enhance our competitive ability. Clients will know that we not only provide auditing services, but can also help them to communicate with the government.' (A2)

'As one of the Big Four in China, we spent a long time entering the Chinese auditing market and becoming qualified in some areas. Now most of our work is auditing large state-owned enterprises. Our relationship with the government has an impact on our business in China.'(A5)

From interviews, I found that both listed companies and auditors were sensitive to government attention and its administrative influence. To reduce political costs and satisfy related government agencies, some listed companies chose auditors recognised by these agencies as having the appropriate qualifications and a good reputation. The finding reflects the impact of external factors on companies' auditor selection behaviour in the Chinese context.

5.4.3. Other demand preferences

The demand for auditing in China was initially and mainly driven by government encouragement and law enforcement. Listed companies have an obligation to hire independent auditors and publish their auditing reports. For outsiders, auditing reports are standardised opinions, which have little visible product differentiations. However, when standing inside listed companies we can find tangible audit service differentiations and better understand listed companies' preference based on their own concerns relating to the compulsory auditing. One CFO interviewee explained:

'Although we have no choice about whether to be audited and audit opinions, we still have freedom to choose who will conduct the auditing and satisfy our

reasonable interest.' (C6)

All interviewees emphasised the importance of a good relationship between auditor and listed company, which is the key to their long-term contract. They mentioned several key factors discussed below relating to their choice of auditor and their relationship with them.

5.4.3.1. Communication and coordination

The issue of 'communication and coordination' was addressed many times in interviews. Many interviewees referred to the will and ability of auditors to understand clients' business situations and to negotiate with clients to reach a consensus of opinion. Such auditor ability is very important for listed companies. One interviewee reported an unpleasant experience:

'This issue is about auditing style, or auditing habit. The last auditor we had was one of the Big Four firms. These people are very strict and tough to communicate well. Their process is complicated and inflexible.... We feel they lack understanding of Chinese companies, particularly state-owned companies and simply replicate the methods they use in other countries, which are not suitable here. In the end, we ended our contract with it.' (C4)

Many CFO interviewees expected the auditor to know their business and accounting system well and to possess competence in harmonising differing opinions. One interviewee commented as follows:

'We have good auditors who are familiar with our company's situation, partly due to their professional experience. However, more importantly, their knowledge about us comes from their efforts to communicate with us. They pay attention to communicating with accountants and managers at different levels. Such communicating does not just occur when they are carrying out

auditing here. During the rest of the year, they often call us or visit us to update their information. Because of their understanding of our business and professional knowledge, we are willing to listen to their advice when we have different opinions. They readily understand our situations. Accordingly, it is possible to reach consensus on matters. Working with them, we save time and costs.’ (C5)

This interviewee’s comments inferred that when listed companies choose auditors they may consider whether work style is compatible with their companies’ culture and their understanding of their business is sufficient. Many interviewees indicated that many listed companies that come from traditional state-owned enterprises are afraid to hire foreign accounting firms because they have a different company culture.

5.4.3.2. Location

Listed companies and accounting firms are dispersed across the whole country; they are distributed in almost all provinces in China. The 72 qualified accounting firms are located in 27 cities. Interviews showed that listed companies generally like to choose a local firm, because transport, subsistence and hospitality fees can be saved to some extent. Moreover, local auditors are easily available to communicate and can access more local information about the company. Also, some interviewees indicated that because listed companies need to deal with the local government or local banks, the local accounting firms are in a better position to communicate with these local authorities. Therefore, some interviewees thought listed companies usually choose local auditors, unless that they had a particular reason for choosing a cross-region auditor. For example, they might need a reputable and high quality auditor that they cannot find in the local place. As previously mentioned, Big Four firms and large

local firms are concentrated in a few big cities, i.e. Beijing, Shanghai and Shenzhen.

Interviewee C10 revealed:

'We can find that many IPO companies change their auditors into local ones once they finished issuing shares.' (C10)

5.4.3.3. Non-auditing services

For outsiders, such as the government, creditors, investors, the auditing result is only a standardised auditing opinion. However, for listed companies, it is more than that.

Audited by a good team, listed companies can obtain valuable advice from them.

Most interviewees indicated that they expected more spill-over benefits from auditing.

For example, interviewee C1 said:

'When we look for a good auditing team, we expect them to improve our accounting system, to evaluate the performance of our managers and provide advice about company operations using their professional knowledge. Although we would feel pressure from their strict work, we experience long-term benefits in improvement to our business operation.' (C1)

In addition, professional and reliable auditors can help managers remove obstacles to implementing their policies. Several interviewees had had such experiences:

'As a CFO, I find that well-known external auditors' involvement sometimes alleviates pressures that arise from interest conflicts between different departments. Their voices are stronger and more persuasive than internal managers' and, sometimes, they can help to implement new policy.' (C9)

'We both aim to improve our work. For auditors it is important to reduce their audit risk in the future.' (C2)

The intention to improve management really depends on top managers and the board of directors in listed companies. If they are go-ahead leaders, normally they will be

concerned about the quality of audit teams and the affixed benefit. The following factors affecting leaders' need for better NASs were mentioned in interviews:

'Managers in private high-tech companies are quite enterprising. They prefer to choose Big Four firms or local top firms to assure companies' financial statements and extract their professional experiences.'(A8)

'The age, educational background, work experience of managers often reflect their will and style in management. Younger and high-educated managers are possibly more desirous of better management performance.'(C6)

'Managerial ownership can be an incentive to provide better management. But it can also result in earnings management.'(C5)

Some CFO interviewees thought that the possibility of improving management could come from knowledge spill over from auditing. Such help is not special consultancy services as perceived in other markets, but part and parcel of auditing activities. According to most interviewees, consultancy services provided by accounting firms in China are not well developed and are concentrated in foreign firms. Most accounting firms do not have professional consultancy services and their value added services are simple and at low cost. One interviewee stated:

'We often provide value added services, such as training, answering daily enquiries, or giving suggestions. These services are usually free. We are happy to help because we can reduce audit risk and have more bargaining power.'
(A4)

Although these value-added services are rarely charged, they do add a competitive advantage to auditors and companies gain benefit from them.

5.4.3.4. Guanxi

The philosophy of Guanxi prevails in China. Guanxi is closely related to the Confucian doctrine that stresses the ties of kinship and close personal relationships (Au and Wong, 2000). In business terms, Guanxi or personal connection can be seen as the manifestation of group orientation through which interpersonal associations can replace formal organisational structure (Boisot, 1986; Coleman, 1993; Putnam, 1993). In the Chinese context, the implementation of business contracts is normally based on Guanxi. Many studies (Alston 1989; Hall and Xu, 1990; Leung and Yeung, 1995; Yang, 1994) addressed the importance of Guanxi in the Chinese business environment. Many interviewees pointed out that Guanxi sometimes was more important than formal business considerations when listed companies choose auditors. The following opinions from interviewees show how Guanxi affects listed companies' selection of auditors:

'Traditionally, we have the sayings that acquaintances can make things run smooth. If accounting firms have Guanxi to access top managers, directors or big shareholders of listed companies, it is likely that the firm will get the business. It is a sort of ineradicable psychology.' (A1)

'Guanxi can provide the basis of a good relationship between auditors and listed companies. Less conflict and disagreement are likely during the auditing process.' (A1)

'In drastic competition among accounting firms, Guanxi is crucial to win more clients. Guanxi is not just the access to listed companies' decision-makers, but also networks with other related bodies, such as the government, securities companies, banks, and so on. Everyone is seeking Guanxi because it overrides natural competition sometimes.' (A3)

Guanxi is a big personnel network, which is subtle and complicated. It is difficult to perceive by non-insiders. Therefore, it is hard to examine whether and how Guanxi can impair auditors' independence. Theoretically, listed companies should steer clear of Guanxi when they select auditors. However, interviews indicated that from Chinese listed companies' standpoint, Guanxi is one of their considerations when selecting auditors.

In summary, Chinese listed companies on the demand side of the auditing market do not have strong motivation for high audit quality. The characteristics of the Board of Directors and top managers, ownership structure, company culture, the existence of a strong incentive to gain the government's approval, and geographical distance between the auditor and the company all have implications for the companies' selection of auditors. From a company perspective, product differentiation of independent auditing are more than independence and competence to find accounting fraud. To satisfy the regulations and the government in form is more important than to get independent auditing in nature.

5.5. What product differentiations do Chinese auditors have?

The Chinese auditing market is shared by thousands of accounting firms varying significantly in size, qualification, and reputation. In order to find the product differentiations of accounting firms in the Chinese auditing market, both companies and auditors were asked: what product differentiation do Chinese auditors have?

Foreign brand name and size, used to differentiate auditors in prior studies, were also agreed as indicators of auditor type in the Chinese market by all interviewees. Obviously, as indicated in Chapter 3, Big Four firms possess an international brand name and large local accounting firms have more office branches and CPAs than small local accounting firms. However, we cannot directly observe and measure their important product characteristics, such as audit quality, Guanxi with the government, and relationship with clients. The opinions of all interviewees concerning the product differentiations of Big Four auditors, large local, auditors and small local auditors were elicited.

5.5.1. Big Four firms vs. local firms

As Chapter 3 indicated, initially the Chinese government adopted a protectionist policy towards public accounting and auditing. Business legislation and regulation limited the practice of foreign accounting firms in China. However, the domestic accounting market has been gradually opened to foreign competitors in recent years. The Big Four accounting firms have been allowed to form joint ventures with Chinese local accounting firms since 1994. Foreign accounting firms are allowed to maintain a majority equity holding and maintain control of staffing decisions (Lin, 1998). Foreign partners can also be involved in the design of the internal control system and practical rules for joint venture firms. Therefore, foreign firms were perceived as possessing specific product differentiation compared with local accounting firms by most interviewees.

5.5.1.1. Audit quality

'Foreign accounting firms already possess reputation and are known-well for their high quality service in the international stock markets.' (A3)

Most interviewees thought Big Four firms provide higher quality auditing services in terms of more independence and better capability. For example,

'(Foreign auditors) are more cautious and aware of risk...' (A5)

'...they care more about independence and their reputation.' (A4)

'Foreign firms know more about the international security market and international accounting standards.' (C1)

'They have more detailed and complicated auditing processes and methods, which have been developed maturely in other markets.' (C3)

However, a few listed company and local auditor interviewees did not believe Big Four firms necessarily have high quality. In their opinion, Chinese people make a fetish of Big Four firms. In fact, foreign auditors have a disadvantage in that they do not have sufficient understanding of the particular complexities of the Chinese business environment, and do not communicate effectively with local listed companies. Interviewees expressed the following opinions:

'(a foreign firm)...performs auditing according to its experience in other markets which is not always applicable in China.' (C8)

'Their comprehensive auditing method is sometimes not practical in Chinese companies because the companies do not have reliable internal control systems.' (A6)

'Sometimes we cannot have a good team of auditors from foreign firms because they are so busy dealing with large clients, whereas we can have an experienced team from local firms who are dealing with less clients.' (C7)

The development of foreign auditors in the Chinese auditing market is a gradual process. Their independent image built up in other markets help them to monopolise

in a specific Chinese market, such as the B/H share markets that involve foreign investors. Some interviewees argued that local large firms probably have more competitive advantages than have foreign firms in the domestic stock market (A share market). Many CFO interviewees considered it easier to communicate with local firms and viewed them as more flexible in auditing practices. Local firms that used to be affiliated with the government or university have often maintained a group of clients with the help of the affiliation.

5.5.1.2. Target clients

'International reputation is an exclusive competitive advantage that Big Four firms have over local firms. It enables foreign firms to gain access to most companies listed in the B-share market, H-share market or other overseas stock exchanges.' (A5)

In order to maintain their reputation Big Four firms select their clients and target specific customers with low risk. Two partner interviewees from Big Four firms indicated that they do not have a large number of listed company clients. They are very cautious towards domestic listed companies because they think these companies still have high risk. One partner interviewee said:

'Good quality companies are often not listed in the stock market. By contrast, the companies with financing or operation problems are encouraged and pushed towards reform and listed as modern corporations by the government.' (A6)

Big Four firms currently do not regard Chinese listed companies as their main target clients; instead, they prefer to audit large state-owned and non-listed enterprises as well as B/H share companies, which are required to be audited by foreign accounting firms by the regulations. Non-listed enterprises have low risk because it is not

necessary to publish accounting statements. Also, they are mostly controlled by the Chinese government. Through auditing enterprises, foreign auditors expect to build up trust and close relationships with local or central government, which are the policy-makers, supervisors and major drivers for auditing in the Chinese auditing market. In addition, these large state-owned enterprises are potentially future listed companies and can bring much profit due to their large size.

Therefore, Big Four firms in China only concentrate on a small market that is made up of large listed companies and those companies that have foreign shareholders. In contrast, the business of local firms is focused on listed companies. They have a large clientele of listed companies and dominate the auditing of relatively small size companies listed in the A share market only.

5.5.1.3. Non-auditing services

Most interviewees thought foreign firms have an obvious advantage in NASs, such as consultancy and taxation services. As shown in Chapter 3, foreign accounting firms started their business in China with consulting services, not auditing services. Good NASs can attract companies who need professional help in management, corporate governance, or financing. Compared with foreign firms, local accounting firms rarely provide any consultancy services. Local auditor interviewees indicated that, at present, they mainly focus on auditing services and only a few local firms have competitive advantage in providing taxation services due to their previous affiliation with local or central taxation agencies.

5.5.2. Large local firm vs. small local firm

In 2003, the CICPA ranked the top hundred accounting firms according to two measures of size: overall annual income and number of CPAs. The league table provided general information about audit firms' size and their employees' qualification, quantified proxies for audit quality found in other auditing markets. The CICPA ranked the top accounting firms in order to provide the public with more auditor information and to try to help local top firms build up their reputation through the ranking. Most interviewees agreed that top accounting firms in the list found it easier to obtain acceptance.

'Normally only large accounting firms possess the qualification necessary to audit listed companies.' (A2)

However, some interviewees expressed a different opinion regarding the size of accounting firms in that they doubted whether large size firms are associated with higher quality audit services in the emerging Chinese market since there is insufficient effectual demand for auditing quality:

'All local firms were affiliated with the government or universities. Their clientele were impacted by these affiliations.' (A4)

'The collapse of Zhongtianqin accounting firm is evidence that larger local accounting firms also experience audit quality problem in China. The firm was a well known and large before. But the firm was simply merged with other firms without an effectual risk control system. On merge risk dramatically increased. So, as this case show, it is difficult to guarantee audit quality.' (A1)

Interviews thus showed that the association between local auditing firm size and audit quality is still in dispute. But the government regulator and supervisors still regard size as an important indicator of audit quality and try to encourage more firms to

merge in order to enhance local firms' reputation.

5.5.3. Teamwork with securities companies

In order to improve the quality of listed companies, the CSRC proposed replacement of the quota system by a recommendation system in the listing application process in 2003. In the new system, companies that intend to issue new shares, additional shares or convertible bonds have to be recommended to the CSRC by a securities company. The securities company has to take responsibility for the correctness, accurateness and fairness of all application documents, including audited financial statements. This reform is an attempt on the government's part to assign monitoring responsibility to a third independent party, a securities company. According to many interviewees, once securities companies take on these responsibilities, they become the effectual external monitor of listed companies. Securities companies not only play a role in financing but also provide comprehensive services to listed companies, such as business planning, corporate governance, management and information disclosure. One auditing partner asserted confidently:

'In the future, securities companies will definitely need auditors' professional work to accomplish their responsibility as recommenders.' (A1)

He referred to a seminar organised by several large accounting firms and securities companies to discuss how to establish closer cooperation between accounting firms and securities companies. It is likely that accounting firms' cooperation with securities companies will be a factor that listed companies will have to increasingly consider when they choose auditors.

Indeed, the influence of securities companies on the demand for auditing has already been felt. Most CFO interviewees revealed their readiness to choose the accounting firms recommended by their securities companies embarking on issuing their shares.

'A major concern is our auditors' willingness to cooperate with other agencies, particularly the securities company, when we are preparing documents for issuing shares.' (C1)

Most auditor partner interviewees agreed that cooperation with securities companies could improve efficiency and bring more business.

'For issuing shares involves many agencies, ... teamwork is essential. We have to work together and help each other out.' (A3)

'The auditor's work needs to be accepted by the securities company...a good relationship is helpful to reach agreement among all the agencies.' (A1)

'Good teamwork can bring us more clients. We need to build up a long term relationship with other team mates.' (A4)

Many interviewees also pointed out that the large number of accounting firms in the Chinese auditing market partly drives intense competition. Market pressure therefore necessitates firms establishing a good relationship with other service providers, and is an efficient way to obtain and maintain clients when product differentiation of firms have not yet been well established.

The influence of securities companies is becoming increasingly noticeable. When a securities company becomes a recommender of a listed company, the listed company will likely choose an accounting firm that has previously worked with that securities company.

In summary, interviewees discussed differences among Chinese auditors who are

differentiated by brand name and size. Generally speaking, Big Four firms are perceived to have higher audit quality than local auditors because of their international brand name. Also, consistent with prior studies, some interviewees thought large local auditors have higher audit quality than small local auditors. However, there is still some doubt about their product differentiation. Auditors' relationship with the government and teamwork with underwriters also impact on their services. The auditor side is interactive with the company side. Many interviewees indicated that when it comes to studying auditors' product differentiation, it is necessary to bear in mind listed companies' demand preferences, which drive auditors' behaviour in such a buyer market. Therefore, the selection of large local firms and Big Four firms by certain groups of companies may not be simple because of their perceived high audit quality, but also because of other competitive advantages, such as a close relationship with top managers, the government, or other related parties. In addition, audit fee factor is not included in the product differentiation of auditors. Whether there are fee premiums in the Chinese market and if the premium influences a company's selection decision are important questions. Thus, interviews explored the audit fee issues in the Chinese market (see the next section).

Determination of the association between a company's characteristics and its selected auditor type is helpful to analyse the company's complicated motivation, which is influenced both by interior and exterior factors. Interview findings indicate that Chinese listed companies lack interior motivation to demand high quality auditing

since external factors, such as legal regulations and government intervention, influence companies' auditor selection. Later quantitative analysis will be presented to find out whether quantitative evidence supports the theories.

5.6. Audit fee determinants in the Chinese auditing market

Like other products, auditing services' quality is determined by the characteristics of both supplier and consumer; and audit fee is an observable outcome of the interplay between audit demand and supply. Since listed companies were required to disclose audit fees in the annual report in 2001, fee data have become publicly available. Interviews explored some audit fee issues in the Chinese market in order to provide a basic understanding of fee determination, and to examine the fee effect in demand preference.

5.6.1. The determinants of audit fees

Theoretically, the determinants of audit fees can implicate the relationship between fees and audit efforts. Simunic's (1980) fee model has been examined in many countries and three main factors have been confirmed to be associated with audit fees: size and complexity of clients, and risk. In China, pricing based on audit hours does not prevail. Interviewees offered several reasons for this. First, pricing guidelines published by the local or central government (see Chapter 3), which mainly use total assets. Moreover, as the average audit fee in the Chinese market is still relatively low. Simunic's model provides applicable dimensions of fee determination for the Chinese

market. In order to help formulate hypotheses for fee determinants in the emerging Chinese market for later quantitative analysis, interviewees' opinions on the determinants of audit fees were elicited. They all agreed that the size and complexity of listed companies are main determinants of fees, but expressed different views regarding the effect of audit risk on fees. They also discussed other potential fee determinants.

5.6.1.1. Size and complexity of listed companies

All interviewees indicated that the size and complexity of listed companies are the first two factors they consider when determining audit fees because they are directly associated with audit efforts. Also, they pointed out that the size and complexity of companies have been specified as the most important determinants in the government's guidelines on audit fees. These guidelines are references for the determination of audit fees in practice. However, several proxies for company size were discussed in interviews, such as total assets and total turnover. Interview results suggested that total assets is the more popular proxy for company size in practice when fixing audit fees. Interviewees also pointed out other determinants, namely, industry type, number of subsidiaries, and assets' dispersion as proxies for company complexity.

5.6.1.2. Risk

Chapter 3 indicates that risk is a disputed factor in the determination of audit fees,

especially in China. Most interviewees, except partners in Big Four firms, agreed that risk was not seriously considered in their audit fees. They thought it difficult to charge a risk premium in the Chinese market, because of the weak demand for high quality, low litigation risk, intensive competition among auditors, and the government's sensitivity to 'opinion-shopping'.

In China, risk is not very high for companies due to their large state shares. The government tends to protect listed companies from bankruptcy and will assist bankrupt companies through compulsory merger or acquisition. Further, litigation risks are not high in China because of the incomplete legal system, so auditors do not have a strong motivation to charge a risk premium in the audit fees.

'In western countries, clients' business risk could cause auditors' wealth transformation through their litigation systems, so they have a risk premium...however, in China this rarely happens.' (A5)

In addition, the insufficient demand for independent auditing leads to companies' reluctance to pay high audit fees. However, auditors have to input more audit efforts in order to control audit risk. The more audit risk a company has, the more audit efforts are probably needed, so, accordingly, the audit fee should be raised. But risk management and high price may lead to many clients switching to other auditors. Companies' and auditors' resistance to raise auditing price for risk management results in low audit fees in China. Interviewees commented on this issue as follows:

'Audit fees are always made by contract before auditing is conducted. If an increase in audit fees is asked for afterwards, this will harm the relationship with clients, even though more costs may have been incurred.' (A3)

'Auditors are not able to predict all audit risk before auditing, so audit fees do not include the risk in advance.' (A9)

At the same time, government supervisors have paid much attention to 'opinion-shopping' and 'low-balling' in recent years. Audit fees have become a sensitive topic since the requirement that fees should be disclosed to the public in 2001. Therefore, the administrative risk from the government makes the auditor more cautious about raising the audit charge. Interview results confirmed that administrative risk is a significant threat for auditors, and they are afraid to attract regulators' attention by high audit fees. Some auditor interviewees, who were cautious about audit risk, expressed their view on the relationship between audit risk and audit fees as follows:

'We cannot accept high audit fees for clients' high risk; a high audit fee will arouse supervisors' scrutiny.' (A2)

'Disclosure of audit fee is to make us (auditors) more conscious of audit fee level and clients' intention of buying auditing opinion.' (A3)

'If we cannot reach agreement with clients on problematic issues, which means a high audit risk for us, it is not a matter of asking for high audit fees, but a matter of whether to stop contracts.' (A7)

Interview results indicated that audit fees in China lack elasticity because risks seem not to be included in audit fees by many auditors due to pressure from competition and high policy cost from the government attention. For audit firms providing high quality auditing services, such as Big Four firms, company risk may be associated with client selection rather than audit fee determination. High risk could lead to

auditors' refusal to deal with some companies, but audit fees are unlikely to be increased once the client relationship is established.

5.6.1.3. Other determinants

Besides the three basic factors in Simunic's fee model, interviewees mentioned other fee determinants: client's cash flow condition, geographic location of the auditor and companies, interim report auditing, audit opinion, auditor tenure, and an "ST (Special Treatment, for listed companies that post net losses for two straight years)³³." status of the companies. Some of these fee determinants, namely, location, audit opinion, and tenure (see Chapter 2). Others are peculiar to the Chinese market, such as status, interim report auditing and cash flow.

Interviewees referred to significant income difference between modern large cities and less developed areas in China. Compared with others, Beijing, Shanghai, and Shenzhen are regarded as relatively developed regions, where personal income is higher and the economy is more open and active. Such differences may be reflected in audit fees. Interviewees suggested that accounting firms in the aforementioned cities might have higher audit fees because they incur higher auditing costs.

Audit opinions have been a sensitive issue since the CSRC attached importance to

³³ In China when a listed company has experienced two years of net loss, it will be titled as a Special Treatment (ST) share, and then its daily price fluctuation is restricted within 5%. If the income loss continues in the third year, the stock will be titled as Particular Transfer (PT) stock, which will only be traded every Friday. A prefix "ST or PT" is placed before the name of stock to differentiate from others as an action of special treatment or suspension of listing alert.

them. Most interviewees thought audit opinions do not affect audit fees because people tend to relate them to 'opinion-shopping'. They also disagreed that a previous qualified audit opinion is associated with audit fee. A previous qualified auditing opinion may influence the selection of clients with potential high audit risk but auditors will not ask for high audit fees to bear the audit risk. According to two interviewees, a previous qualified opinion might motivate new auditors to put more effort into auditing, but there is still limited scope for increasing audit fees.

In other markets, 'low-balling' has been found (see Chapter 2), which indicates a positive association between audit fee and auditor tenure. In the Chinese market, nearly all contracts between auditors and companies are annually signed and cooperation is not very tight. Most auditor interviewees revealed that they have little bargaining power concerning audit fees because of the intensive competition in the market. Companies' potential to switch to other auditors is a crucial threat to their current auditors. All interviewees thought that when controlling for change in other factors, such as client size and complexity, audit fees would tend to fall rather than rise because auditing costs might be contained due to a long-term cooperation. Interview results thus showed that the association between auditor tenure and audit fees in the Chinese market is significantly related to bargaining power of buyer and seller, and 'low-balling', is rarely found in China, a buyer's market, where auditors are very competitive and companies can easily change auditors for a lower price.

More than half of interviewees considered cash flow a positive factor for audit fee determination. If a client has sufficient cash flow in some years, auditors can probably obtain a relatively high audit fee. When the company is short of cash, it will be motivated to bargain with the auditor about audit fees, so audit fees will be influenced by a company's net cash flow. As to the interim report, it is not required to be audited for all listed companies in China³⁴. Most interviewees thought that if companies have their interim statements audited, audit fees for annual statements will accordingly be influenced because audit efforts may be saved. But the degree of influence is still unclear and requires further empirical study.

To sum up, among audit fee determinants identified in interviews, some were the same as those in other markets, for example, company size and complexity and auditor tenure. However, risk factors, such as profitability and liquidity, were not considered significant in fee determination, explaining why it is difficult to improve audit quality in China and why audit effort to control risk cannot be compensated through audit fees. As a result, auditors' economic motivation to enhance audit quality has been restrained.

5.6.2. The effect of supplier type on audit fee: fee premium

Many prior studies had found that Big Four accounting firms have a significant fee

³⁴ The CSRC requires that the interim financial statements of the following categories of listed companies should be audited: 1) the company that has had a qualified audit opinion for three years and intends to apply for increasing additional shares or start issuing additional shares in the next half year; 2) in the middle of the year, the company intends to pay dividends, or transfer retained earnings to additional shares, or carry accumulative deficit coverage in the next half year; 3) the company has already been suspended, but has obtained a grace period; or 4) the company that the CSRC says should have an interim report audited for other reasons.

premium in other markets (see Chapter 2). Interviewees from local accounting firms thought Big Four firms have more comprehensive auditing processes and methods, which may require more audit efforts and drive up the fee premium. Also, Big Four firms in China may charge a fee premium for their reputation, bringing their audit fees closer to the international level and the salaries of their staff on average are higher than those in local firms.

Interestingly, two interviewees who were senior partners in Big Four firms in China both denied that they charge high audit fees:

'To compete with local auditors, we do not charge higher audit fees.' (A5)

'People think that we charge higher audit fees, but fees are in accordance with the characteristics of clients.' (A6)

Interviewees' opinions about fee premium were based on their impression of high audit fees charged by Big Four firms. During interviews, it was hard to tell whether interviewees' opinions about fee premium had controlled for other fee determinants. High audit fees charged by Big Four firms may be a result of the large size of the company or other client characteristics. People easily neglect the issue of auditor selection. Some companies are not willing to choose Big Four auditors or Big Four auditors do not want to audit some companies. When interviewees considered fee premium, they normally assumed that a listed company would be audited by any type of auditor. However, in practice, this is not the case. The estimation of fee premium should take auditor selection into account and quantitative analysis should be more

reliable than interview findings on this issue. In the following quantitative study, I will control for all other fee determinants and the self-selection of auditors, and estimate fee premium accurately.

5.6.3. Cost-minimising companies

Interviews showed Chinese listed companies lack strong interior motivation for hiring high quality auditors. Most interviewees saw little value in auditing. According to Beattie and Fearnley's (1998) classification of buyer types for auditing, most Chinese listed companies are '*grudgers*' and a small number of them are '*status-seekers*'. The small number of status-seekers see value in auditing and seek to enhance external parties' perceptions of them by associating with auditing firms of acknowledged status. Most listed companies regard auditors as their rivals and resent auditing. They are cost-minimisers. Most CFO interviewees admitted that when they select auditors, one of the main concerns is audit fee:

'One important consideration in auditor bidding is the fee they will charge... and the fees are normally decided before auditing is conducted.' (C10)

'We will refer to audit fees charged to other companies similar to us and also to the average audit fee level in our industry. We don't want our fees to be higher than those.' (C4)

Most local auditor interviewees pointed to the negative impact of price wars, which had previously been very serious in the industry. This is why the regulators had required fee disclosure, in order to stop companies firing auditors to seek lower fees.

'We have fee pressure from our clients. It is difficult to raise the charge even though it is necessary to maintain the quality of our work.' (A3)

'Companies do not know what exactly determines auditing price and the quality is not observable before it is done. Companies always expect to pay less.' (C9)

The cost-minimisation motivation of most Chinese companies had seriously ruined competition and audit quality in the auditing market. Disclosure of audit fees in annual financial reports is a measure to avoid price wars.

Therefore, audit fee and auditor selection interact with each other. Some auditors will charge high audit fees, and probably some companies will not choose these firms because of their fee premiums. Chinese companies' sensitivity to audit fees is due to the fact that internal demand motivation for independent auditing is lacking, an important characteristic of the Chinese auditing market. It is necessary to empirically consider the interactive relationship between audit fees and auditor selection to obtain evidence on audit fee determination and auditor selection in China. Such examinations could help us collect convincing evidence of determinants of auditor selection and audit fees in the Chinese auditing market.

5.7. Conclusion

Interview results have provided in-depth information on the motivations for demanding auditing services in the Chinese stock market and differences among Big Four firms, large local firms and small local firms. After analysing the internal and external motivations, interview results showed that the general demand of companies for high quality independent auditing is not strong in China, but government influence

and the involvement of foreign investors may motivate some companies to select reputable auditors. Most interviewees also suggested that Big Four auditors, large local auditors and small local auditors differ in terms of international reputation, qualifications, audit quality, NASs and their relationship with underwriters. Moreover, Big Four auditors have their target clients. Large local auditors also may be cautious about accepting high-risk companies, so auditor selection is not only determined by companies' preference, but also by auditors' will.

Interviews also explored audit fee determinants. Results indicated that audit fees in China are not elastic to company risks, and average fees are not high as a result of weak demand for high quality auditing. Weak demand is the basic factor impeding improvement in audit quality in the Chinese auditing market. There is thus interplay between the demand and supply in the auditing market. Interview findings are informative for establishing empirical models of auditor selection and audit fee and providing quantitative evidence in the Chinese context. These models will be dealt with in the next two chapters.

Finally, interviews disclosed several distinct factors relating to auditor selection and audit fee determinants, such as Guanxi, teamwork with securities companies, relationship with the government, cash flow, and so on. These factors are China-specific and mostly difficult to measure and estimate in empirical studies. The findings add qualitative evidence to the literature and help to identify variables, which

might be omitted in the following empirical study.

CHAPTER 6

EMPIRICAL ANALYSIS AND RESULTS:

AUDITOR SELECTION

6.1. Introduction

This chapter focuses on the first stage of the two-stage selection model. Based on extant theories and prior studies, the MNL model is used to estimate the effects of country-specific factors and company-specific factors on auditor choices in the Chinese auditing market. The results provide empirical evidence that a weak legal environment and strong government introduction in China modify Chinese listed companies' motivations to select auditors. The estimation of the MNL model finds significant factors affecting auditor choices and the goodness-of-fit tests show a great strength of prediction of the MNL model for auditor choices in China.

The chapter comprises three main parts: the first part specifies the MNL model by explaining the dependent variable and establishing hypotheses for the estimation; the second part explains the sample and reports descriptive analysis and the last section examines the validity and goodness-of-fit of the MNL model, and interprets the results of the estimation.

6.2. Specification of the MNL model

6.2.1. The dependent variable

Chapter 4 has already explained the two-stage models adopted in this study to link auditor selection to audit fees. In the first stage, the MNL model is used for auditor selection. The empirical efficiency of the MNL model is obtained at the expense of a strong underlying assumption of IIA, i.e. the relative probability of two auditor choices is unaffected by the addition of a third auditor choice.

The interview study has identified the three types of auditors, Big Four firms, large local firms, and other small local firms, and also explored their product differentiation. The interview results suggest that the perceived differentiations among the auditors could involve international reputation, audit quality, professional qualifications licensed by the government, relationship with the government, previous affiliation, location and so on. In China, Big Four firms are known for their international reputation, high audit quality and high credibility. They also have a high threshold in choosing their clients. Large local firms, which are in the expanding period, have competitive advantages in terms of good acceptability by the government, extensive social networks, and a large capacity in practice compared with small firms. Competing with Big Four firms, they lack an international reputation and thus, may not attract some companies. But they are more flexible in auditing practices, and have lower thresholds to accept clients than Big Four auditors. Therefore, differentiation among Big Four firms, large local firms and small local firms is hard to be ordered by

any one dimension and the auditor choices are independent from each other.

Under the circumstance that Chinese listed companies generally do not demand high audit quality, auditors have to compete with each other in other aspects. The three alternative auditor choices are assumed to be independently irrelevant from each other and coded as a categorical variable. The MNL model is restrictive, referred to as the IIA. The IIA test in the next section finds that the IIA is not violated in the dataset of this study.

The three alternative auditor choices are coded as 0 for small local firms, 1 for large local firms and 2 for Big Four firms. According to the top 100 accounting firm list published by the CICPA in 2003, Big Four firms are listed as the top 4 according to total turnover in 2002 (including turnover of the member firms and turnover of non-listed companies). In this study, the large local firms are defined as the local firms among the top 10 accounting firms (see the chapter on methodology).

Since there are more than two alternative choices that constitute a nominal variable, the MNL model is used to calculate the probability of any alternative choice compared with one reference choice. It does not matter which category is set as the reference group as the result of estimation would be the same (STATA reference manual: release 7, 2001). Here, if the category of 0 is set as a comparison group, then the remaining logit coefficients will represent the change relative to the =0 category.

In other words, the coefficients are the effects that the independent variables have on the probability of choosing a Big Four firm, or a large local firm relative to the base category of a small local firm. The following hypotheses are formulated to establish a hypothetical association between the independent variable and the alternative auditor choice conditional on one reference choice.

6.2.2. Hypotheses and the independent variables

I argue that auditor selection decisions depend jointly on the internal incentives of the company and external influences of the institutions in terms of legal protection and government intervention. I investigate the effects of a range of factors related to signalling devices, agency costs, legal costs and political costs on the Chinese listed companies' auditor choices. Table 6.1 lists all variables in the MNL model for auditor selection.

6.2.2.1. Agency cost hypothesis

Agency theory argues that companies with high agency costs will demand high quality auditors. However, Dopuch and Simunic (1982) pointed out that linking auditing with reduced agency costs relied on the fact that auditing has survived in a competitive setting and presumably is cost-effective. In China, the large per cent of state ownership and a weak legal protection for investors violate the assumption and modify the agency problem between owners and managers, thus a company is

Table 6.1: Variables in the MNL model for auditor selection

Variables	Definition and Note		
Dependent			
Auditor choice	0=small local firm, 1=large local firm, 2=Big Four firms		
Test variables			
H_5	The sum of squares of the share percentages of the largest five shareholders.		
MS_per	Proportion of managerial shares over total shares		
Gearing	Total long-term liability/total assets		
ROA	Return on total assets (net profit after tax and interest/ total assets)		
IPO	Initial public offer company		
LnTA	Ln(total assets)		
Nonnegotiable	Proportion of non-negotiable shares over total shares		
B/H	Company issuing B/H shares. 1= issuing A share and B/H shares, 0= only issuing Ashares		
ID_per	Percentage of independent directors in the Board of directors.		
Control Variables			
SqrtSUB	Square root of the number of subsidiaries		
SqrtIND	Square root of the number of industries that a company belongs to		
LOC	Listed company's location. 1=Beijing, Shanghai, or Shenzhen, 0=others.		
LOA	1= auditor and company are not located in the same province, 0= auditor and company are located in the same province		
Pre_AO	Previous audit opinion. 1=modified audit opinion; 0=clean audit opinion		
Year02	1=data in 2003, 0=data in 2002		
Ind. Dummies	for the main industry type, including mining, manufacturing, utilities, information technology, wholesale and retail, estate, social services, and media.		
Robustness			
LnTurnover	Ln(total turnover)		
ROE	Return on total equity (net profit after tax and interest/ total equity)		
Cr_5	The sum of the share percentages of the largest five shareholders		
Traditional theories			
An institutional perspective			
<u>Agency cost hypothesis</u>	<u>Signalling hypothesis</u>	<u>Political cost hypothesis</u>	<u>Substitution hypothesis</u>
H_5	ROA	LnTA	B/H
MS_per	IPO	Nonnegotiable	ID_per
Gearing			

generally not strongly motivated to demand external monitoring of auditors. In order to obtain empirical evidence to support the above inferences on agency costs hypothesis, variables measuring agency costs motivation is included as independent variables in the MNL model. In the next paragraphs, I justify these variables and formulate corresponding hypotheses. If these variables do not statistically significantly influence auditor choices, these hypotheses related to agency theory will be rejected.

Ownership diffusion

Francis and Wilson (1988) suggested that diffusion of ownership could affect the extent of owner-manager conflict. Greater diffusion of ownership increases the agency costs that are required to obtain proxy transfers necessary to affect management policy and, in particular, to force a change in management. Thus, owner constraints on management actions are inversely proportional to the degree of diffusion. Agency theory suggests that a higher quality audit can be considered as part of the complex control system that mitigates the relative inability of diffused ownership to directly monitor and control management behaviour. So the theory predicts a demand for higher quality auditors when agency problems are more severe. In this sense, shareholders with more diffuse ownership are more likely to seek a higher quality auditor to monitor the managers' behaviour.

Therefore, here, I use the Herfindahl (H) index, for measuring diffusion by adding up

the squares of the share percentages of the largest five shareholders. The H index gives added weight to the largest five shareholders. The lower the index is, the higher the degree of ownership diffusion and then the stronger the demand for high quality auditors from the shareholder to reduce the high agency costs. So, according to agency theory it is predicted that:

H1: The H index of shares is negatively associated with the odds of choosing Big Four firms or large local firms relative to small local firms and the odds of choosing large local firms relative to small local firms.

Managerial Shares

The previous chapter reviewed the literature relating to the effect of managerial share on their auditing demand (Jensen and Meckling, 1976; Demset, 1983; Fama and Jensen, 1983a, 1983b). Jensen and Meckling (1976) argued that managerial shares could mitigate the agency problem. Managers with larger shareholdings have stronger incentives to act in other shareholders' interests. However, Demset (1983) and Fama and Jensen (1983a, 1983b) argued that high levels of managerial ownership could lead to management 'entrenchment' because control challenges are difficult to mount by other stockholders. In this sense, managers with larger shareholdings have greater control over the company and therefore greater scope for acting in their own private interests. Agency theory suggests that the agency conflict increases the demand for high quality auditors. Therefore, managerial ownership does not have a linear relationship with the choice of high quality auditors.

Lennox (2005) argued that the association between managerial ownership and high

quality auditors is found to be significantly negative within low and high regions of management ownership. The association is flatter and slightly positive within intermediate regions, suggesting the existence of an opposite entrenchment effect. In China, although managers are allowed to own shares, the proportion of managerial shares over total shares is extremely small. In the selected sample, the average proportion of managerial ownership is 0.0004 and the maximum is just 0.041. Apparently, the Chinese managerial ownership is in the low region (Lennox sets the lowest threshold for the low region at 0.05). Therefore, according to agency theory and Lennox's (2005) findings, the entrenchment effect should not happen in China and managerial ownership might be predicted to be negatively associated with the choice of high quality auditors.

However, in the Chinese context, it is difficult to predict signs of the association between managerial shares and their auditor selection. As the background chapter discussed, the conflict between state-owners and managers is different from that between private-owners and managers because of the government's multiple objectives and ambiguous property rights. The state shareholders' monitoring role is weaker than that of private shareholders. Thus, the decrease of managerial ownership does not necessarily increase state shareholders' demand for high quality external monitoring of auditors. In addition, as a new scheme for manager compensation, managerial ownership relates manager compensation to company market price. Under the weak monitoring of shareholders, in order to enhance the price of shares, some

managers could engage in earnings management for favourable performance and then select a low quality auditor, such as a small local auditor. In contrast, managers in companies having a good performance would like to hire reputable auditors (Big Four auditors) to signal their quality from others. Given the above different arguments, the nature of the effect of managerial ownership on auditor choice is an empirical issue. To guide the empirical analysis, I tentatively formulate the following hypothesis without predicting the direction of the impact:

H2: The level of managerial shares is associated with the odds ratios of choosing auditors among large local firms, small local firms and Big Four firms.

Leverage (the gearing ratio)

Agency theory focuses on the role of long-term creditors in monitoring activities (Smith and Warner, 1979; Palmrose, 1984; and Simunic and Stein, 1987). When creditors have a higher percentage of long-term loans over total assets, agency costs will increase and thus the long-term creditors will ask for high quality external monitoring. However, in the Chinese context, the interviewees suggest that long-term creditors are normally state-owned banks who do not have strong incentives to monitor companies. Government controlled banks emphasise political or social objectives, such as developing certain strategic industries, providing employment and subsidies (Lewis, 1950; Gerschenkron, 1962; Kornai, 1979; Shleifer and Vishny, 1994; La Porta and Shleifer, 2002).

La Porta and Shleifer (2002) argued that government ownership of banks is larger and

more pervasive in countries with low levels of per capital income, backward financial systems, interventionist and inefficient governments and poor protection of property rights. Under such circumstances, the government does not necessarily compete with the private sector as a source of funds. Moreover, Gerschenkron (1962, p.20) argued: “*There is no doubt that the government as an agens movens of industrialization discharged its role in a far less than perfectly efficient manner. In competence and corruption of bureaucracy were great.*” In line with the argument about government ownership of banks, the demand motivation for high quality auditors from long-term creditors is weakened by the state ownership in the Chinese banks. In order to examine the above argument about long-term creditors, I formulate a hypothesis without a predicted sign:

H3: The gearing ratio is associated with the odds ratio of choosing Big Four firms relative to large local firms and small local firms and the odds ratio of choosing large local firms relative to small local firms.

6.2.2.2. Signalling hypothesis

Signalling theory supposes that managers will be motivated to signal their good quality companies from other poor quality companies for their future compensation and reputation. However, the lack of an efficient managerial labour market weakens Chinese managers’ signalling motivation to demand credible auditors. In order to examine the signalling motivation, I examine two independent variables, company profitability ratio and the IPO company.

Profitability (ROA)

Signalling theory suggests that managers in good quality companies have an incentive to differentiate themselves from low quality companies by selecting a creditable auditor. Managers who differentiate themselves successfully could have high future compensation in the managerial labour market. However, in China the differentiation motivation from the managerial labour market is not strong because there is no efficient labour market. But managers may still have differentiation motivation, which is driven by financing activities and regulation. As discussed in the background chapter, the Chinese stock markets were created to help SOEs solve their financing problems. The regulations made by the CSRC expressly emphasise the requirements to maintain profitability levels; otherwise the company will be titled 'ST' or 'PT'. Furthermore, if listed companies intend to issue additional shares, they also need to achieve a certain level of profitability ratio. Therefore, the regulations on profitability impose costs to listed companies and would motivate managers in companies with high profitability ratios to seek to add credibility to their financial statements, while managers in companies with low profitability are motivated to manage earnings and turn to low audit quality. So it is hypothesised that company profitability influences the demand for reputation and audit quality in the Chinese market.

The interviews found that Big Four firms and small local firms were obviously different in reputation and audit quality. As to large local firms, they have not built up a high reputation, which differentiates them from Big Four firms; but they have better

professional competence and independence than small local firms because of the size effect (DeAngelo, 1981b). ROA (net profit after interest and tax/total assets) and ROE (net profit after interest and tax/total equity) are the common proxies for profitability in the literatures. Here, I choose ROA and ROE will be examined as a robustness test at the end. Therefore, the hypothesis can be written as:

H4: The ROA of a listed company is positively associated with the odds of choosing Big Four firms relative to small local firms and large local firms, and the odds of choosing large local firms relative to small local firms.

IPO

Previous studies show that IPO companies would like to choose high quality auditors as a signalling device and a way to mitigate underpricing. In China, before 2001 in the IPO market the quota system and strict administrative control in pricing of new issues had made companies chase for positive high initial returns and not be willing to choose high quality auditors (Li *et al.*, 2004). Since the quota system was abolished and administrative control in pricing was changed after 2001, Li *et al.* (2004) reported that the average extent of IPO underpricing (defined as the difference between first day closing price minus the IPO price, then divided by the IPO price) of IPO companies decreased substantially from 157% in 2000 to 72% in 2003. At the same time, the government began to attach importance to reputable external auditors' monitoring in addition to administrative monitoring. The series of reforms in the government's control in the stock market create a potential opportunity for reputable auditors to serve as a signalling device for the quality of the IPO companies. In order to examine the change, it is hypothesised that:

H5: Being an IPO company increases the odds of choosing Big Four firms relative to small local firms, and the odds of choosing large local firms relative to small local firms.

Based on analyses of theories and the Chinese institutional background, agency problems and signal devices do not efficiently motivate Chinese listed companies to select high quality auditors. In general, Chinese listed companies ‘flight from quality’ (DeFond *et al.*, 1999, p.269), in other words, they would not like to choose Big Four auditors. However, under these circumstances, Big Four auditors still have a large turnover in China. Not all listed companies fly away from Big Four auditors although large local auditors and small local auditors dominate the Chinese auditing market in the number of auditing reports. The imposed legal costs and political costs modify motivations of some listed companies to choose their auditors. I justify the political cost hypothesis and the substitution hypothesis for auditor selection in China, and add more independent variables into the auditor selection model, such as company size, complexity, location, cross-listing status, previous year audit opinion, and corporate governance.

6.2.2.3. The political costs hypothesis

As the Chinese institutional background indicates, China is a country where the government plays a significant role in the economy. In the auditing market, the government not only dominates ownership of listed companies, but also regulates the market. Therefore, the government functions to maintain the development of the market and the stability of the society. The government has a great power to

administer the auditing industry and intervene in listed companies' business. The government scrutiny is a significant risk for both listed companies and auditors. According to previous studies (Deegan and Gordon, 1996; Belkaoui and Karpik, 1989) that developed the political cost hypothesis, Chinese listed companies subject to political attention would be motivated to hire well-recognized auditors to avoid political scrutiny and reduce political costs. Big Four auditors are better recognised by the government than large and small local auditors because of their international reputation and large local auditors are better recognised than small local auditors because of their large businesses. This is reflected in the fact that the Chinese government had appointed only Big Four auditors as statutory peer reviewers for auditing IPO companies³⁵. But this provision was influenced by the subsequent 'Andersen' scandal, and as a result, the CSRC has added some large local auditors into the list of 'peer reviewers' (Liu, 2005). Therefore, the three types of auditors are perceived by the government differently.

Company size

Traditionally, the political cost hypothesis rests on the size assumption that large companies are more sensitive to political control than smaller companies (Watts and Zimmerman, 1986; Deegan and Hallam, 1991; and Deegan and Carroll, 1993). Therefore, larger companies face more political costs than smaller companies. In

³⁵ On 30th December 2001, the CSRC issued the No. 16th Regulations on Public Disclosures of Listed Companies: Peer Review Provisions. This regulation created a huge reproach from local companies and local auditors. They suggest that the government should not make a fetish of Big Five firms. The Andersen scandal gives strong evidence that Big Five firms also have problems.

order to avoid political risks, they will select auditors who are creditable in the view of the government. Big Four auditors and large local auditors are better recognised by the government and they attract large companies. Also Big Four auditors and large local auditors have more member branches and expertise to audit the larger companies. The interviews also found that the increasing demand for internationally reputable auditors was normally from such large state-owned companies because they were motivated to differentiate themselves from others and add credibility to their accounting information in the overseas markets. Following previous studies, company size is measured by total assets transformed into logarithm. Here, according to the political cost hypothesis and signalling theory I expect that:

H6: Company size is positively associated with the odds of choosing Big Four firms relative to large local firm and small local firms, and with the odds of choosing large local firms relative to small local firms.

Non-negotiable Shares

Besides the traditional measure for political sensitivity, Frank (2004) stated that large companies that operate in less competitive markets were more aware of government control. As the background chapter introduced, two thirds of the equity of Chinese listed companies are held either by state asset management agencies, SOEs, or both in the forms of non-tradable state and legal person shares. The government control in terms of non-negotiable state ownerships make capital less competitive, and injure the interests of the public investors. Many studies have argued that these non-negotiable-share holders as controlling shareholders have used the listed firms to tunnel resources to serve the interests of local governments and parent SOEs and thus

have generated detrimental effects on the listed company's performance. Therefore, the government will pay more attention to the companies who have a large percentage of non-negotiable shares.

In addition, some scholars have pointed to institutional change in the recent years (Green and Liu, 2004; and Li *et al.*, 2004) and thought that the demand for high quality auditing is increasing, particularly when more and more 'super-large' and solely state-owned SOEs have entered into the domestic security markets. Most 'super-large' state-owned companies have a large percentage of non-negotiable shares because the government is afraid of losing control in those companies. Hence, the government pays much attention to those significant state-owned companies and the government's acceptance of a company's auditor is relatively important. Therefore, the percentage of non-negotiable shares can be regarded as an indicator for political cost in the Chinese context. So this study assumes that government imposes additional politic costs on companies subject to their attention. Consequently, companies with a large per cent of non-negotiable shares are subject to a high level of scrutiny by the government, or are more politically visible, and thus have a strong incentive to select reputable auditors. Based on this reasoning, I hypothesise that:

H7: The percentage of non-negotiable shares is positively associated with the odds of choosing Big Four firms relative to large local firms and small local firms, and with the odds of choosing large local firms relative to small local firms.

6.2.2.4. Substitution hypothesis

Choi and Wong (2003) developed the substitution hypothesis arguing that in a weak legal environment for investor protection, high quality auditors can serve as a company-level substitution for the legal environment. Lang *et al.* (2002a and 2002b) found that cross-listing could have a positive impact on the selection of auditors in protecting outside investors for companies from markets with poorer investor protection. Auditors with an international reputation can also add recognisable credibility to companies listed in different capital markets.

B/H shares

As was introduced in the chapter on institutional background, in China, the stock market is divided into the domestic market (A shares market) and foreign market in which B/H shares are traded by foreign investors. The companies who issue not only A shares but also B/H shares are required to make two sets of financial statements according to Chinese accounting standards and IASs. Since in China there is a weak legal protection for investors, companies involving foreign investors or who are listed in the overseas security markets have a strong preference for choosing Big Four firms which have an international reputation as a substitution for weak legal investor protection. Since only Big Four auditors have international reputation, it is hypothesised that:

H8: B/H share is positively related to the odds of choosing Big Four firms relative to large local firms and small local firms.

Corporate Governance (the percentage of Independent Directors on the Board of Directors)

Dyck and Zingales (2002) and Klapper and Love (2002) documented that company-level corporate governance provisions can increase individual company market valuation more in countries with weak legal environments than in strong legal environments. In line with this thinking, companies with good corporate governance may select high quality auditors in order to take the place of a weak legal system for investor protection and maximum market value. Auditor selection could differ based on the strength of corporate governance. Under the Board of Directors, the audit committee responsible for determining audit fees and independence arrangements are influenced by non-executive independent directors (Menon and William, 1994; Beasley and Salterio, 2001). A more independent board of directors could prevent earnings manipulation in the first place and thereby hire auditors of a high quality (e.g. Weisbach, 1988; Ireland and Lennox, 2002). In China, the independent directors have been introduced by the CSRC recently for improving Board monitoring. Although, the interview findings indicate that the Chinese independent directors have not played an effective role in auditing activities, it is interesting and necessary to see whether empirical evidence confirms the interview result. So the hypothesis for independent directors is that:

H9: The percentage of independent directors on the Board of directors of listed companies is associated with the odds of choosing Big Four firms relative to large local firms and small local firms.

6.2.2.5. Control variables in the auditor selection model

Company complexity

According to the previous literature in audit selection (e.g. Healy and Lys, 1986; Johnson and Lys, 1986; Palmrose, 1984; Simunic and Stein, 1987; Ireland and Lennox, 2002), company complexity is a common control variable in the auditor selection model. They argued that large auditors or high quality auditors associated with complex companies because of their competence. The interview data suggested that business and geographical diversification might increase the difficulty in auditing. Big Four firms or large local firms are supposed to be more capable of coping with the complexity than small local firms.

A large number of CPAs and more membership firms may facilitate them to cooperate with large and complex companies. Besides the total assets, Table 4.4 presents the number of CPAs and the number of membership firms of the top 10 accounting firms.

We can see that Big Four firms and large local firms have a large number of CPAs and most of them have more than two membership firms located in different places.³⁶

Based on previous studies, the number of subsidiaries and industries in the form of square roots is used as a proxy for company complexity because of its non-linear relationship with the dependent variable. Therefore, I expect that *the square root of the number of company subsidiaries and industries is positively associated with the odds of choosing Big Four firms or large local firms conditional on small local firms.*

³⁶ Among the top 100 accounting firms, the largest number of membership firms is 10. On average, the number of membership firms is less than two (1.62) (see the CICPA's official website: <http://www.cicpa.org.cn/ReadNews.asp?ID=3121>; <http://www.cicpa.org.cn/news/2004top100.htm>).

Company and auditor location

Another variable of control is company and auditor location. In the interviews, location has been discussed as a basic factor in auditor selection. Theoretically, companies prefer auditors geographically close in order to reduce auditing costs and avoid geographical inconvenience in communication for a long relationship (Beattie and Fearnley, 1998). The headquarters of all the top 10 accounting firms are located in Beijing or Shanghai. So it is expected that *listed companies in Beijing, or Shanghai will have a greater probability of choosing Big Four firms or large local firms relative to small local firms due to the proximity*. For companies in other places, many interviewees pointed out that proximity is also their prior consideration unless they have strong reasons for selecting remote auditors because of the unique international reputation or better acceptability by the government that the closer auditors don't have. Therefore, I code auditor location as 1 when auditor is not in the same province as the company, and as 0 otherwise. It is expected that *selecting remote auditors is positively associated with the odds of Big Four firms or large local firms relative to small local firms and also is positively associated with the odds of Big Four firms relative to large local firms when high reputation is desirable for the company*.

Previous audit opinion

Previous studies have argued that MAOs are likely to impose additional costs on the company, such as negative market effects (Fried and Schiff, 1981; Wells and Loudder, 1997; and Chen *et al.*, 2000), extra auditing costs (Whittred, 1980) and so on. In

China, there is additional policy cost from the regulation. The background chapter has addressed the CSRC regulation on audit opinion: trading will be suspended for shares of companies whose financial statement is accompanied by qualified opinions due to accounting standards violations. To avoid those extra costs, listed companies with qualified previous audit opinions may have the motivation to seek a clean opinion for the next year. As a result, they may escape rigid auditing. At the same time, DeAngelo (1981a) and Klein *et al.* (1978) suggested that on the supply side, Big Four firms prefer high quality and low risk companies in order to build up and maintain their brand name. The interviews with partners in Big Four firms also suggested that they were relatively conservative in choosing companies with previous MAOs under their strict risk management. In contrast, local firms without a brand name provide lower quality and are less conservative in choosing clients. As a result, it is expected that *the previous modified audit opinion will decrease the odds of a company choosing Big Four firms relative to large local firms and small local firms.*

Year of data and industry type

Since my dataset comprises two-years of data, I inserted a dummy variable for the year of data, 2002 or 2003, in order to control for the year bias in the results. Also I included industry type into the control variable index. There are eight industry dummies, i.e. mining, manufacturing, utilities, information technology, wholesale and retail, estate, services and media. The industry type is coded according to the CSRC's guidance in industry classification (2001).

In summary, controlling for company complexity, location, previous audit opinion, industry type, the year of data and auditor location, four hypotheses driven from the traditional theories and the theory in relation to institutional factors are to be examined in the MNL model (see Table 6.1).

6.3. Preliminary analysis

6.3.1. The sample

The company sample used in the empirical study is drawn from two databases, the Sinofin and Genius, which have coded all published annual reports of all Chinese listed companies. The collected data only come from the 2002 and 2003 annual reports of listed companies who were listed in the domestic security market (A share market). As the methodology chapter explained, the initial sample, 539 listed companies, is selected based on the total number of listed companies in 2003 using the cut-off sampling method. Then the data of these observations in 2002 and 2003 are collected avoiding time bias. The pooled sample will be used for both selection and fee equations since this is the two-stage model.

Some observations are eliminated from the sample because their fee disclosures are inconsistent with the fee disclosure regulation of the CSRC. According to the No. 6 Reply to Regulations of listed company Information Disclosure published in December, 2001, listed companies should disclose incurred audit fees that are related to the current annual report based on the accrual concept and distinguish the audit fee

and NAS fee. However, some companies disclosed audit fees based on the cash concept, which was the amount of fee payment during this period. In addition, some other companies did not separate NAS fee from audit fee or there was no fee disclosure or other required data (such as the number of subsidiaries, and the number of industries involved) in their annual reports. Therefore, those observations that don't have reliable and completed data are removed from the initial sample. As a result, the final sample only has 960 cases in total, with the invalid observations removed (see Table 6.2).

Table 6.2. Final sample size after data collection

	2002	2003	Total
<i>Initial Sample</i>			
Companies choosing Big Four firms	103	86	189
Companies choosing large local firms	136	121	257
Company choosing small local firms	300	332	632
Total sample:	<u>539</u>	<u>539</u>	<u>1078</u>
<i>Data Missing</i>			
Companies choosing Big Four firms	(34)	(28)	(62)
Companies choosing large local firms	(15)	(13)	(28)
Companies choosing small local firms	(27)	(28)	(75)
Total fee data missing:	<u>(76)</u>	<u>(69)</u>	<u>(165)</u>
<i>Final Sample</i>			
Companies choosing Big Four firms	69	58	127
Companies choosing large local firms	121	108	229
Companies choosing small local firms	273	304	557
Total sample:	<u>463</u>	<u>470</u>	<u>933</u>

Finally, the sample includes 463 listed companies in 2002 and 470 companies in 2003. In 2002, among these companies, there are 69 companies choosing Big Four firms, 121 companies choosing large local firms and 273 ones choosing small local firms. In 2003, due to auditor switching, fewer companies chose Big Four firms and large local

firms but more companies chose small local firms. After removing the missing data, only 58 companies chose Big Four firms and 108 companies selected large local firms while 304 companies hired small local firms.

6.3.2. Group mean comparison and medians

We can perceive the differences of the companies through mean comparisons among the three groups of companies. The mean comparisons could explore the potential factors associated with the auditor choices through finding the different characteristics of the three groups of companies choosing these different auditors. For simplicity, the groups of companies choosing Big Four firms, large local firms, and small local firms are called Group 2, Group 1, and Group 0, according to the code of the dependent variable, auditor choices. Comparing the means of company characteristics of all groups, I find significant mean differences in company size, complexity, location, business risk, corporate governance and equity structure among these groups of companies (see Table 6.3).

Table 6.3 lists the means, standard deviations, medians and skewnesses of all variables based on the pooled two-year data. Skewness is a measure of symmetry, or more precisely, the lack of symmetry. A distribution, or data set, is symmetric if it looks the same to the left and right of the center point. The skewness for a normal distribution is zero, and any symmetric data should have skewnesses near zero.

Table 6.3. A comparison of means of variables among the groups of companies choosing different auditors

	Small local auditors (n=577)				Large local auditors (n=229)				Big Four auditors (n=127)			
	Mean	S.D.	Median	Skewness	Mean	S.D.	Median	Skewness	Mean	S.D.	Median	Skewness
<i>Test variables:</i>												
<i>H 5</i>	0.22	0.14	0.18	0.582	0.25***	0.16	0.22	0.718	0.30***/*	0.18	0.29	0.760
<i>MS per</i>	5E-4	0.003	6E-5	11.251	2E-4*	3E-4	5.8E-5	2.878	6E-4 /**	0.003	8E-5	7.549
<i>Gearing</i>	0.55	1.10	0.47	17.651	0.49	0.32	0.4759	7.756	0.42	0.17	0.43	-0.124
<i>RO4</i>	-0.02	0.44	0.02	-20.711	-0.003	0.40	0.03	-14.650	0.04	0.04	0.04	-1.210
<i>IPO</i>	0.04	0.20	0	4.592	0.03	0.17	0	5.454	0.06	0.23	0	3.899
<i>LnTA</i>	20.92	0.81	20.88	-0.177	21.28***	0.80	21.16	-0.033	21.88***/*	1.16	21.75	0.862
<i>NonNS</i>	60.43	12.19	62.5	-1.468	61.71	10.82	62.96	-0.407	64.82***/*	14.81	67.01	-1.127
<i>B/H</i>	0.01	0.11	0	8.913	0.026	0.16	0	5.932	0.10***/*	0.30	0	2.624
<i>ID per</i>	0.29	0.08	0.31	-0.635	0.28	0.08	0.28	-0.664	0.28	0.08	0.30	-0.260
<i>Control variables:</i>												
<i>SarsSUB</i>	1.98	1.25	2	0.605	2.57***	1.44	2.45	0.557	2.60***	1.65	2.65	0.354
<i>Sart/ND</i>	1.69	0.53	1.73	0.508	1.67	0.51	1.73	1.127	1.65	0.48	1.73	0.198
<i>LOC</i>	0.12	0.32	0	2.397	0.59***	0.49	1	-0.401	0.60***	0.49	1	-0.402
<i>LO4</i>	0.36	0.48	0	0.597	0.46***	0.50	0	0.167	0.58***/*	0.50	1	-0.303
<i>Pre AQ</i>	0.10	0.30	0	2.722	0.10	0.29	0	2.829	0.02***/*	0.15	0	6.274
<i>Year02</i>	0.53	0.50	1	-0.108	0.42	0.50	0	0.114	0.46	0.50	0	0.174
<i>Mining</i>	0.01	0.11	0	8.913	0.01	0.09	0	10.560	0	0	0	-
<i>Manuf</i>	0.67	0.47	1	-0.702	0.47***	0.50	0	0.131	0.52***	0.50	1	-0.079
<i>Utility</i>	0.03	0.16	0	5.752	0.02	0.13	0	7.367	0.02	0.12	0	7.779

(to be continued)

(continued)

Table 6.3. A comparison of means of variables among the groups of companies choosing different auditors

	Small local auditors (n=577)					Large local auditors (n=229)					Big Four auditors (n=127)				
	Mean	S.D.	Median	Skewness	Mean	S.D.	Median	Skewness	Mean	S.D.	Median	Skewness			
<i>Tech.</i>	0.05	0.21	0	4.292	0.08*	0.27	0	3.132	0.09**	0.29	0	2.773			
<i>W&R</i>	0.07	0.25	0	3.391	0.13***	0.34	0	2.187	0.05/**	0.21	0	4.268			
<i>Estate</i>	0.02	0.14	0	7.034	0.04**	0.20	0	4.466	0.08***	0.27	0	3.128			
<i>Service</i>	0.02	0.15	0	6.184	0.03	0.16	0	5.932	0.02	0.15	0	6.273			
<i>Media</i>	0.01	0.12	0	8.315	0.02	0.13	0	7.367	0.02	0.12	0	7.779			

Note: Mean^{a/b}, a indicates the significant level when a Group of small local firms is the comparison group. Comparison of means between groups of large local firms and small local firms and between groups of Big Four and small local firms; *b* indicates the significant level when a group of large local firms is the comparison group. Comparison of means between groups of Big Four and large local firms.

* , mean difference is significant at the 0.1 level (2-tailed); ** , mean difference is significant at the 0.05 level (2-tailed); *** , mean difference is significant at the 0.01 level.

A negative value for the skewness indicates data that are skewed left and a positive value for the skewness indicates data that are skewed right. Most skewness coefficients in Table 6.3 are close to 0. The highest absolute value of skewness coefficients is 20.711 (the variable ROA). The results indicate that most independent variables have systemic distribution.

I use the independent sample t-test (in SPSS 11.0) to examine the mean differences of the variables among the three subgroups of companies choosing Big Four auditors, large local auditors and small auditors. Some mean differences are statistically significant at the 0.01 level. For example, compared with Group 0, companies in Group 1 and Group 2 have larger average total assets and have a larger number of subsidiaries in the consolidated financial statements. Among the companies choosing large local firms or Big Four firms, there are more located in the developed cities, Beijing, Shanghai, or Shenzhen, and more companies are not in the same place as their auditors. In the group where companies chose Big Four firms and large local firms compared with Group 0, more companies are issuing B/H shares besides A shares, and their average ownership concentrations are significantly higher.

Table 6.3 also indicates the mean differences between Group 1 and Group 2. Compared with companies choosing large local auditors, companies choosing Big Four auditors have a significantly higher average company size and ownership concentration, and a greater percentage of non-negotiable shares. Companies choosing

Big Four auditors have a greater probability of having clean previous audit opinions than both companies choosing large local auditors and small local auditors because the mean of Pre_AO in Group 2 is significantly lower than those in Group 1 and Group 2. This may imply that only companies with low audit risks would like to choose Big Four auditors because of their high audit quality. It also can indicate the supply-effect on auditor selection that Big Four auditors are more likely to turn down companies with high audit risks. Issuing B/H share and managerial ownership could also be factors affecting companies' choice of Big Four auditor rather than large local firms because of the significant mean difference of variable B/H.

Beside the above variables, the means of other variables are not statistically different. But some means are worthy of note. Companies choosing large and small local auditors may not have good profitability because their average ROAs are both negative. Only companies choosing Big Four auditors have a positive average ROA. The means of the percentage of independent directors are not very different across the three groups (0.29, 0.28 and 0.28). It is probably due to the regulations published by the CSRC in 2001³⁷, which requires listed companies to have one third of directors in the Board independent by 2003. This variable may not influence companies' auditor choices. Although the results of the mean comparisons can identify potential variables associated with the auditor choices, to confirm the associations it is

³⁷ In August 2001, the CSRC published 'The Guidance to establish Independent Director system in the Chinese listed companies'. It requires that all listed companies should have two independent directors before 2002 and in 2003 the percentage of independent directors has to reach one third (1/3) of the Board of directors. Among the independent directors, one must be a specialist in accounting.

necessary to examine one variable controlling for the others through the MNL model.

6.3.3. Multicollinearity

Multicollinearity in logistic regression models is a result of strong correlations between independent variables. The existence of multicollinearity inflates the variances of the parameter estimates. That may result in a lack of statistical significance of individual independent variables while the overall model may be strongly significant, particularly for small and moderate sample sizes. Multicollinearity may also result in wrong signs and magnitudes of regression coefficient estimates, and consequently in incorrect conclusions about relationships between independent and dependent variables. Therefore, it is important to examine the correlations between the variables, particularly the independent variables. If two independent variables are highly correlated, one of them had better be removed from the model. The Pearson product-moment bivariate correlations are presented in Table 6.4.³⁸ The simple bivariate correlation is the most common measure of a linear relationship. The coefficient has a range of possible values from -1 to $+1$. The value indicates the strength of the relationship, while the sign ($+$ or $-$) shows the direction. The significance value (P) has been examined to conclude whether the correlation is statistically significant at the 0.1 level. Silver (1997) pointed out that if the correlation coefficient is more than 0.7, the two variables can be regarded as having a linear relationship and we can remove one of the two from the model.

³⁸ For ordinal and categorical variables, Spearman correlation coefficients should be used. For simplicity, I have used Pearson product-moment bivariate correlation coefficients. The results would not differ a lot.

In the correlation table, no severe linear relationship among the independent variables has been found. However, several independent variables are significantly correlated. For examples, SqrtSUB, ROA, LOC, B/H, and H_5, are positively correlated with total assets while Pre_AO, MS_per and IPO are negatively correlated with total assets. It indicates that in China the large companies have more subsidiaries, better profitability, and less percentage of managerial shares and fewer have MAOs, and more possibly are located in Shanghai, Beijing, or Shenzhen. It is interesting that company size, and non-negotiable shares are positively correlated with H_5, which implies that a large company or a company with a higher proportion of non-negotiable shares (the state owned shares) may have a high degree of ownership concentration. Pre_AO, MS_per and SqrtIND are negatively correlated with the ownership concentration (H_5). So the company with high ownership concentration may have a smaller percentage of managerial shares, a less modified audit opinion and they are not involved in a large number of industries.

In addition, Pre_AO is positively correlated with Gearing and negatively correlated with ROA. It indicates that a company with a previous modified audit opinion may have a high business risk in profitability or leverage. Through the correlation test, I unexpectedly found that SqrtIND, a proxy for company complexity, is negatively correlated with company size, non-negotiable share percentage and ownership concentration (H_5). Possibly, this implies that state-largely-owned large companies

normally dominate in a certain industry and are controlled by the government, and then don't get involved much in the other industries, while companies with a small size, smaller percentage of non-negotiable state-share and higher degree of ownership diffusion may have more freedom, and then it may possibly engage in more kinds of industries. The correlations among independent variables provide help to analyse the results of coefficients on the variables in the next section.

However, in some situations, when no pair of variables is highly correlated, but several variables are involved in interdependencies, to examine only bivariate correlation may not be sufficient. It is better to use multicollinearity diagnostic statistics, the Variance Inflation Factor (VIF), which is the number of times the variance of the corresponding parameter estimate increased due to multicollinearity as compared to how it would be if there were no multicollinearity. There is no formal cutoff value to use with VIF for determining presence of multicollinearity. Values of VIF exceeding 10 are often regarded as indicating multicollinearity, but in weaker models, particularly in logistic regression, values above 2.5 may be a cause for concern (Allison, 1999). Table 6.4 presents the VIFs for all independent variables. No values above 2.5 are found. Therefore, there is no serious multicollinearity problem in the estimation of auditor selection.

Table 6.4. Bivariate Correlations and VIF

	<i>SrctSUB</i>	<i>SrctIND</i>	<i>LOC</i>	<i>LOA</i>	<i>Pre AO</i>	<i>Year02</i>	<i>Mining</i>	<i>Manuf.</i>	<i>Utility</i>	<i>Tech.</i>	<i>W&R</i>	<i>Estate</i>	<i>Service</i>	<i>Media</i>	<i>H 5</i>	<i>MS per</i>	<i>Gearing</i>	<i>ROA</i>	<i>IPD</i>	<i>LntA</i>	<i>NonNS</i>	<i>B/H</i>	<i>ID per</i>	
<i>SrctSUB</i>	1																							
<i>SrctIND</i>	.254*	1																						
<i>LOC</i>	.331*	.165*	1																					
<i>LOA</i>	-.111*	-.121*	-.339*	1																				
<i>Pre AO</i>	-.004	.043	.025	.008	1																			
<i>Year02</i>	.077*	.146*	.028	.020	.028	1																		
<i>Mining</i>	-.119*	-.017	-.065*	.118*	.048	.010	1																	
<i>Manuf.</i>	-.173*	-.120*	-.234*	.003	-.061*	-.011	-.120*	1																
<i>Utility</i>	-.057*	-.071*	-.071*	-.001	-.048	-.015	-.015	-.190*	1															
<i>Tech.</i>	.059*	.023	.126*	-.013	.066*	.012	-.025	-.311*	-.040*	1														
<i>W&R</i>	.099*	.061*	.079*	-.098*	-.049	.006	-.029	-.363*	-.046	-.076*	1													
<i>Estate</i>	.046	-.024	.074*	-.021	.007	-.007	-.018	-.226*	-.029	-.047	-.055*	1												
<i>Service</i>	.023	.085*	.077*	-.035	.001	.006	-.016	-.194*	.025	-.041	-.047	-.030	1											
<i>Media</i>	.067*	.010	.073*	.040	.057*	-.001	-.012	-.150*	-.019	-.032	-.037	-.023	-.020	1										
<i>H 5</i>	-.262*	-.086*	.059*	-.065*	-.080*	-.084*	.102*	.152*	-.032	-.070*	-.131*	-.064*	.042	.005	1									
<i>MS per</i>	-.006	-.019	-.004	.025	-.026	-.010	-.015	.049	-.015	-.026	-.005	-.016	-.019	-.013	-.006	1								
<i>Gearing</i>	-.029	.005	-.001	.048	.239*	.037	-.026	-.060*	-.023	.020	.012	-.005	-.016	-.018	-.111*	-.017	1							
<i>ROA</i>	.069*	-.046	.011	-.058*	-.226*	.010	.018	.066*	.008	-.061*	.010	.018	.010	-.010	.102*	.016	-.520*	1						
<i>IPD</i>	-.135*	-.014	-.064*	.015	-.063*	-.078*	.035	.037	.004	-.030	-.022	-.038	-.033	-.025	.071*	.020	-.032	.026	1					
<i>LntA</i>	.260*	-.037	.180*	-.017	-.165*	.053	.027	-.031	.038	-.018	-.082*	.068*	.019	-.022	.289*	-.071*	-.207*	.229*	-.082*	1				
<i>NonNS</i>	-.265*	-.094*	.017	-.010	.005	-.021	.057*	.055*	.028	-.040	-.017	-.071*	.043	.083*	.525*	.029	-.0001	.004	.080*	-.037	1			
<i>B/H</i>	.032	-.006	.060*	.030	-.005	-.027	-.017	.113*	-.026	-.043	-.050	-.031	-.027	-.021	-.005	-.020	-.010	.018	-.002	.240*	-.101*	1		
<i>ID per</i>	.042	-.081*	-.027	.068*	-.035	.516*	.060	-.009	-.041	0.011	.004	.069*	-.050	-.020	-.042	-.010	.015	.013	.006	.031	-.026	-.048	1	
<i>VIF</i>	1.53	1.16	1.39	1.19	1.12	1.44	1.11	2.16	1.17	1.33	1.47	1.20	1.15	1.11	1.84	1.01	1.43	1.43	1.04	1.56	1.52	1.12	1.40	

Note: * significant level ≤ 0.1 , displaying with a star

6.4. Empirical analysis

6.4.1. Independence of irrelevant alternatives assumption test

As the above explained, the MNL model has a basic assumption that the odds ratios are independent of the other alternatives (the IIA). To test the IIA assumption, a classic test proposed by Hausman and McFadden (1984) is adopted in this thesis. The idea behind the Hausman test is that if a subset of the choice set is truly irrelevant, omitting it from the model altogether will not change the parameter estimates systematically. Thus the test for the violation of the IIA assumption is to estimate the model with all of the alternatives and compare the coefficient estimates with those of a model with a subset representing potential nesting structures. Here, three discrete choices of auditors are supposed to be irrelevant to each other. As shown in Table 6.5, the H_0 for the Hausman test is that the odds of the auditor choice are independent of other alternatives. The results of the Hausman test support the IIA assumption, suggesting that it is appropriate to use the MNL model in this study.

Table 6.5. Hausman test for the IIA

<i>Hausman Test for the IIA</i>									
	2002			2003			2002-3		
<i>Omitted:</i>	<u>Small</u>	<u>Large</u>	<u>Big 4</u>	<u>Small</u>	<u>Large</u>	<u>Big 4</u>	<u>Small</u>	<u>Large</u>	<u>Big 4</u>
Chi2	3.322	-175.1	-3.487	0.000	0.000	-4.848	0.000	-34.369	-5.104
df	16	20	21	1	1	21	1	21	22
P>chi2	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Evidence	for H_0								

Note: H_0 : Odds (Outcome—J vs Outcome—K) are independent of other alternatives.

6.4.2. Wald test using two choices that can be combined

The Hausman specification test for the MNL model strongly accepts the null hypothesis of IIA. Hence, it can be concluded that the MNL model is an appropriate specification for modeling auditor choices in this study. Before analysing the estimated coefficients of independent variables, another important test for combining categorical choices is also suggested by Anderson (1984). He pointed out that if none of the X_i 's significantly affected the odds of choice m versus choice n , we can say that m and n were *indistinguishable* with respect to the variables in the model. The null hypothesis that m and n are indistinguishable can be tested with a Wald test (Long, 1997). The results presented in Table 6.6, show that the null hypotheses are rejected and the three auditor choices are distinguishable with respect to the independent variables. It provides empirical evidence of the product differentiations among Chinese large local firms, small local firms and Big Four firms and further suggests the advantage of the MNL model over the binary logit/probit model in this study.

Table 6.6. Wald test for combining categorical outcomes

	Small -- Large	Small -- Big Four	Large -- Big Four
Chi2	181.707	189.471	60.618
df	23	23	14
p>chi2	0.000	0.000	0.000

6.4.3. The estimated coefficients of the MNL model

The above test further indicates the appropriateness of the MNL model. Table 6.7 presents the coefficient estimates and their t -values from the selection model by maximum likelihood for the two-year pooled sample. This diagnostics is useful for

identifying the coefficients that are statistically significantly different from 0. A significant variable influences the choice probabilities of each alternative, whereas an insignificant variable does not. However, notice that the coefficients in the MNL model are estimated only up to a scale factor, while the coefficients for the reference choice are set equal to zero. Here, I set auditor choice = small local firm as the reference group. The estimated results are not varied with the reference category chosen (STATA reference manual, 2001).

Therefore, here the log likelihood ratio test (LR_Chi2=642.85^{***}) indicates the significant results of the MNL model, and the estimated coefficients reflect the significant effect of one independent variable on the likelihood of moving to Big Four firms or large local firms relative to small local firms (the reference auditor choice). However, the coefficient estimates in Table 6.7 cannot represent the true marginal effects of the independent variables and do not include the estimation of Big Four firms (AC=2) relative to large local firms (AC=1). Therefore, it is difficult to interpret the coefficients (Greene, 1997) and provide the whole pattern. The next section introduces advanced interpretation methods.

6.4.4. Robustness check

Before the interpretation, I did a robustness check on several test variables such as company size, ROA, H₅ as these variables can be measured differently. I ran the MNL model again with the replaced new variables, LnTurnover, ROE (net profit after

Table 6.7. Estimated coefficients for the MNL models

Variable	2002-2003			Robustness	2002-2003	
	Predicted sign	Coef.	t-Statistic		Coef.	t-Statistic
<i>Big Four firms (AC=2)</i>						
<i>Test variables:</i>						
<u>H 5</u>	—	0.776	0.66	<u>CR 5</u>	0.438	0.28
<u>MS per</u>	?	−25.45	−0.30	--	−31.77	−0.41
<u>Gearing</u>	?	−3.483	−3.91 ^{***}	--	−3.562	−4.43 ^{***}
<u>ROA</u>	+	3.325	0.98	<u>ROE</u>	1.124	0.67
<u>IPO</u>	+	1.142	1.70	--	1.043	1.62
<u>LnTA</u>	+	1.385	0.204 ^{***}	<u>LnTurnover</u>	1.026	7.15 ^{***}
<u>NonNS</u>	+	0.045	3.93 ^{***}	--	0.041	2.55 ^{**}
<u>B/H</u>	+	1.417	1.68 [*]	--	1.748	2.08 ^{**}
<u>ID per</u>	+	−0.212	−0.10	--	−0.611	−0.30
<u>CONS</u>		−36.34	−7.85 ^{***}	--	−26.83	−8.65 ^{***}
<i>Control variables:</i>						
<u>SqrtSUB</u>	+	0.286	2.53 ^{**}	--	0.299	2.74 ^{***}
<u>SqrtIND</u>	+	−0.430	−1.52	--	−0.554	−1.99 [*]
<u>LOC</u>	+	5.099	10.2 ^{***}	--	4.961	10.05 ^{***}
<u>LOA</u>	+	4.257	8.95 ^{***}	--	4.199	8.94 ^{***}
<u>Pre AO</u>	−	−1.076	−1.51	--	−1.092	−1.52
<u>Year02</u>	?	−0.572	−1.76 [*]	--	−0.550	−1.57
<u>Mining</u>	?	−32.72	−0.00	--	−31.80	−0.00
<u>Manuf.</u>	?	−0.038	−0.10	--	−0.723	−1.96 ^{**}
<u>Utility</u>	?	−1.042	−0.97	--	−0.690	−0.69
<u>Tech.</u>	?	1.054	1.88 [*]	--	−0.455	−0.82
<u>W&R</u>	?	0.794	1.27	--	−0.314	−0.50
<u>Estate</u>	?	1.925	2.63 ^{***}	--	1.983	2.79 ^{***}
<u>Service</u>	?	−1.293	−1.44	--	−0.822	−0.96
<u>Media</u>	?	−2.208	−2.03 ^{**}	--	−2.515	−2.22 ^{**}
<i>Large Local Firm (AC=1)</i>						
<i>Test variables:</i>						
<u>H 5</u>	−	2.012	2.20 ^{**}	<u>CR 5</u>	1.194	1.02
<u>MS per</u>	?	−608.9	−2.41 ^{**}	--	−641.0	−2.49 ^{**}
<u>Gearing</u>	?	−1.226	−1.92 [*]	--	−0.481	−1.16
<u>ROA</u>	+	−0.835	−1.33	<u>ROE</u>	0.299	0.56
<u>IPO</u>	+	0.445	0.83	--	0.329	0.61
<u>LnTA</u>	+	0.584	3.73 ^{***}	<u>LnTurnover</u>	0.381	3.93 ^{***}
<u>NonNS</u>	+	0.009	0.91	--	0.008	0.71
<u>B/H</u>	?	0.368	0.44	--	0.483	0.58
<u>ID per</u>	?	−1.591	−1.03	--	−1.935	−1.25
<u>CONS</u>		−13.37	−4.16 ^{***}	--	−10.83	−5.16 ^{***}

(continued)

Variable	2002-2003			Robustness	2002-2003	
	Predicted sign	Coef.	t-Statistic		Coef.	t-Statistic
<i>Large Local Firm (AC=1)</i>						
<i>Control variables:</i>						
<u>SqrtSUB</u>	+	0.244	2.66 ^{***}	--	0.213	2.39 ^{**}
<u>SqrtIND</u>	+	-0.600	-2.78 ^{***}	--	-0.661	-3.09 ^{***}
<u>LOC</u>	+	4.314	11.4 ^{***}	--	4.329	11.3 ^{***}
<u>LOA</u>	+	3.047	8.59 ^{***}	--	3.074	8.55 ^{***}
<u>Pre AO</u>	-	0.082	0.22	--	0.059	0.15
<u>Year02</u>	?	-0.292	-1.20	--	-0.195	-0.74
<u>Mining</u>	?	-1.208	-1.30	--	-1.043	-1.16
<u>Manuf.</u>	?	-0.294	-1.01	--	-0.517	-1.79 [*]
<u>Utility</u>	?	-0.313	-0.41	--	-0.254	-0.34
<u>Tech.</u>	?	0.130	0.29	--	-0.062	-0.14
<u>W&R</u>	?	0.991	2.30 ^{**}	--	0.633	1.46
<u>Estate</u>	?	0.891	1.36	--	0.784	1.23
<u>Service</u>	?	-1.142	-1.72 [*]	--	-0.928	-1.40
<u>Media</u>	?	-1.85	-2.10 ^{**}	--	-1.778	-1.94 [*]
Sample size		933			933	
Log likelihood		-530.79915			-530.90213	
LR_Chi2(28)		642.85 ^{***}			637.91 ^{***}	
Pseudo R2		0.3772			0.3753	
<i>Note: Outcome AC=0 is the comparison group. * , ** , *** significant at 0.1,0.05, and 0.01 levels.</i>						

tax and interest/total equity), and CR_5 (concentration ratio of the biggest five shareholders), to see whether the use of different proxies produces different results.

The robustness test results represented in Table 6.7 show that no significant differences are caused by the different proxies because the log likelihood ratio test produces a similar result. Only a few variables have their significance level of t-tests for the coefficients changed. Specifically, the negative association between the gearing ratio and the probability of choosing large local firms relative to small local firms becomes statistically insignificant. Replacing H_5 with Cr_5, I do not find a

significant influence of ownership concentration on auditor choices. Except for these two, the results of the other test variables based on the prior estimation are not affected by the different proxies.

The different proxies do reduce significance levels of t-tests for coefficients on the year of data and some industry dummy variables to less than the 0.1 significant level, such as mining, manufacturing, technology, and wholesale & retail. So the next analysis will not draw conclusions on these variables whose results become statistically insignificant in the robustness check.

Large local firms defined in Table 6.7 are the other six firms among the Top 10 audit firms except Big Four firms (see Table 4.4). For the robustness check, I redefined large local firms. Still based on the list of the top 100 audit firms, I calculated the average turnover of all top 100 firms and the local audit firms whose turnover is above the average level are coded as large local firms. As a result, only three other local audit firms are added into the group of large local firms (see Table 6.8). In other words, besides Big Four firms only nine local firms have turnovers over the average level among the top 100 firms. I used the new defined dependent variable and re-examined the MNL model. The statistical results were very poor. The log likelihood ratio test ($LR_Chi2=31.63$) was not statistically significant at the 0.1 level and Pseudo R^2 is 0.0181. Also the results of t-tests for the coefficients on all independent variables were not statistically significant at the 0.1 level. These results

indicate that the estimated results based on the MNL model for auditor selection are sensitive to the definition of the dependent variable, large local firms.

Table 6.8. Alternative definition of the large local firms

Rank	Name	Total Turnover (1,000 RMB)	The number of	
			Member offices	CPA's (rank)
<i>Big Four firms:</i>				
1	PWC Zhongtian	766,313	5	391(1)
2	KPMG Huazhen	334,386	2	176(10)
3	D&T Huayong	291,520	6	105(33)
4	Ernst Young Huaming	246,320	1	146(16)
<i>Large local firms:</i>				
5	Shu Lun Pan	100,888	4	223(4)
6	Yue Hua	83,421	7	321(2)
7	China Rightson	70,814	0	165(11)
8	Beijing JingDu	64,977	3	160(13)
9	Shinewing	64,643	1	191(8)
10	China Audit	63,242	7	238(3)
<i>Added large local firms:</i>				
11	Jiangsu Gongzheng	47,622	1	130(21)
12	Shanghai Zhonghuahuyin	47,441	1	89(45)
13	Guangzhou Yangcheng	45,306	1	80(59)
Average Turnover		44,310		

Source: From the official website of the CICPA. ³⁹

However, it is worthy noting that only nine local audit firms of the total top 100 have turnover above the average turnover and all the rest of the local firms are below the threshold. The turnover of the three newly added local firms are all between 47,620 and 45,300 thousand RMB, which is quite close to the average turnover (44,310

³⁹ See <http://www.cicpa.org.cn/ReadNews.asp?ID=3121>; <http://www.cicpa.org.cn/news/2004top100.htm>

thousand RMB). This indicates that the sizes of the newly added local firms are not significantly large. In contrast, the six large local firms defined previously have a relatively significantly large size in terms of turnover. The lowest turnover is 55,240 thousand RMB, and the second lowest turnover is 63,240 thousand RMB. The potential reason for the poor results using the new definition of large local firms is that the sizes of newly added firms are not significantly larger than, and their characteristics are closer to, small local firms. In this sense, the old definition about large and small local firms is better to distinguish the size difference. Therefore, the following analysis is based on the results in Table 6.7.

6.4.5. The methods of interpreting the estimated coefficients

The estimation findings for the pooled sample indicate the highly significant effects of some variables on auditor choices. For the likelihood of moving to Big Four firms relative to small local firms, most independent variables are significantly associated with the probability of auditor choices, except the percentage of managerial shares, Herfindahl index and independent directors. In order to interpret the result explicitly, in the next section I introduce an odds ratio method to analyse the estimated coefficients.

Odds ratios

Long (1997) discussed several methods to interpret the coefficients of the MNL model. The marginal effect of the mean, automatically computed by many programs, is a

popular summary measure for models with categorical dependent variables. However, Long (1997) pointed out that the marginal effect of the mean is limited. The value of the marginal effect depends on the values of all independent variables and on the coefficients for each category.⁴⁰ Since all of the β_{ij} s involve the marginal effect of X_i on choice, j does not need to have the same sign as the corresponding coefficient β_{ij} . Further, as the marginal effect is based on the level of X_i (such as the mean), if X_i s level changes, the sign of the marginal effect can also change. Finally, the measure is inappropriate for dummy independent variables. But in this study there are five binary independent variables in this MNL model for auditor selection. Therefore, it is difficult to translate the marginal effect into the change in predicted probability that will occur if there is a change in X_i .

Long (1997) and Huthcheson and Sofroniou (1999) suggested the method of interpretation that took advantage of the tractable form of the logit model: using odds ratios. A simple transformation of the β s in the logit model indicates the factor change in the odds of an event occurring (Long, 1997). Different from the marginal effect, odds ratio considers the dynamics among the dependent choices. For example, an increase in company total assets increases both the probability of choosing large local firms and of choosing Big Four firms. Using odds ratio, we can answer how it affects the odds of a company choosing Big Four firms relative to large local firms. The odds

⁴⁰ For continuous independent variables, the marginal change in the probability is computed as:

$$\frac{\partial P(Y = j|X_i)}{\partial X_i} = P(Y = j|X_i) \left[\beta_{ij} - \sum_{j=0}^2 \beta_{ij} P(Y = j|X_i) \right]$$

ratio is the exponential of the contrast coefficient, β_{ij} (set reference choice as 0, 1 or 2), computed in Table 6.9. Let's focus on the odds ratio, $\exp(\beta_{i|0})$, which is the odds ratio of large local firms relative to small local firms and it can be interpreted as:

“For a unit change in X_i , the odds of large local firm choice relative to small local firm choice are expected to change by a factor of $\exp(\beta_{i|0})$, holding all other variables constant.” (Long, 1997, p.79)

To make interpretation simpler, we compute the percentage change in the odds. This quantity can be interpreted as the percentage change in the odds for a unit change in X_i , holding all other variables constant (Long and Freese, 2003). This interpretation is superior since the effect of a unit change in X_i on the logit does not depend on the level of X_i or on the level of any other variable.

In Table 6.7, the MNL coefficients only represent the effect that the independent variables have on the probability of choosing Big Four firms or large local firms relative to the base category of small local firms. Since my interest is also in the comparison between large local firms and Big Four firms, Table 6.9 presents percentage changes in odds ratios among all pairs of choices. In interpreting these results, recall that the MNL model estimates relative probabilities of the two alternative choices. Therefore, the effects will be differentiated according to which one is the reference category. However, no matter which one is a reference choice within a pair of choices, the magnitude of change in their odds ratios with respect to unit change in an independent variable and the significance level is the same. Hence,

Table 6.9. Estimated odds ratios of selected company characteristics on auditor choice (2002-2003)

		Percentage Change in the Odds of Auditor Choice (2002-2003) (Odds Comparison between Groups)										
		Small VS Large		Small VS Big Four		Large VS Big Four						
Variable	%	(1/0) %StdX	(0/1) %StdX	(2/0) %StdX	(0/2) %StdX	(2/1) %StdX	(1/2) %StdX	(1/2) %StdX	(1/2) %StdX			
<i>Test variables</i>												
<i>H 5</i>	648.0**	36.5	-86.6**	-26.7	117.4	12.7	-54.0	-11.3	-70.9	-17.4	244.1	21.0
<i>MS per</i>	-100**	-80.1	3e+266**	401.3	-100.0	-6.5	1e+13	7.0	3e+255**	368.7	-100**	-78.7
<i>Gearing</i>	-70.6*	-66.0	240.7*	194.4	-96.9***	-95.4	3157***	2051	-89.5***	-86.3	856.1***	630.7
<i>ROA</i>	-56.6	-28.3	130.5	39.6	2680	277.0	-96.4	-73.5	6309.9	426.1	-98.4	-81.0
<i>IPO</i>	57.8	9.4	-36.6	-8.6	213.5	25.4	-68.1	-20.2	98.7	14.5	-49.7	-12.7
<i>LnTA</i>	79.3***	71.0	-44.2***	-41.5	299.6***	257.2	-75.0***	-72.0	122.8***	108.8	-55.1***	-52.1
<i>NonNS</i>	0.9	11.2	-0.9	-10.1	4.6***	74.6	-4.4***	-42.7	3.7***	57.1	-3.6***	-36.3
<i>B/H</i>	44.5	6.3	-30.8	-5.9	312.6*	26.3	-75.8*	-20.8	185.5*	18.9	-65.0*	-15.9
<i>ID per</i>	-79.6	-12.3	391	14.0	-19.1	-1.7	23.6	1.8	297.4	12.0	-74.8	-10.7

(to be continued)

(continued)

Table 6.9. Estimated odds ratios of selected company characteristics on auditor choice (2002-2003)

Variable	Small VS Large		Small VS Big Four		Large VS Big Four							
	(1/0)	(0/1)	(2/0)	(0/2)	(2/1)	(1/2)						
	%	%StdX	%	%StdX	%	%StdX						
<i>Control variables</i>												
<i>SqrsSUB</i>	27.7***	40.4	-21.7***	-28.8	33.1**	48.9	-24.9**	-32.8	4.3	6.0	-4.1	-5.7
<i>SqrlND</i>	-45.1***	-26.8	82.1***	36.6	-34.9	-20.0	53.7	25.1	18.5	9.2	-15.6	-8.4
<i>LOC</i>	7375.4***	623.0	-98.7***	-86.2	16287***	936.2	-99.4***	-90.3	119.2*	43.3	-54.4*	-30.2
<i>LOA</i>	2004.9***	348.3	-95.2***	-77.7	6960.2***	713.4	-98.6***	-87.7	235.4***	81.5	-70.2***	-44.9
<i>Pre AO</i>	8.6	2.3	-7.9	-2.3	-65.9	-26.0	193.2	35.2	-68.6*	-27.7	218.4*	38.3
<i>Year02</i>	-25.4	-13.6	34.0	15.8	-43.6*	-24.9	77.3	33.2	-24.4	-13.1	32.3	15.0
<i>Mining</i>	-70.1	-11.1	234.6	12.5	-100.0	-95.9	1.6e+16	2351	-100.0	-95.4	4.8e+15	2078
<i>Manuf.</i>	-25.5	-13.4	34.2	15.5	-3.7	-1.8	3.8	1.9	29.3	13.4	-22.6	-11.8
<i>Utility</i>	-26.8	-4.6	36.7	4.9	-64.7	-14.6	183.5	17.1	-51.8	-10.5	107.4	11.7
<i>Tech.</i>	13.9	3.2	-12.2	-3.1	186.9*	28.7	-65.1*	-22.3	151.9*	24.8	-60.3*	-19.9
<i>W&R</i>	169.5***	31.2	-62.9**	-23.8	121.3	24.3	-54.8	-19.5	-17.9	-5.2	21.8	5.5
<i>Estate</i>	143.7	17.3	-59.0	-14.8	585.6***	41.2	-85.4***	-29.2	181.3*	20.4	-64.4*	-16.9
<i>Service</i>	-68.1*	-16.2	213.1*	19.4	-72.6	-18.2	264.2	22.2	-14.1	-2.3	16.4	2.4
<i>Media</i>	-84.3**	-20.2	538.3**	25.3	-89.0**	-23.6	809.6**	30.8**	-29.8	-4.2	42.5	4.4

Note: % = per cent change in odds for unit increase in X. %StdX = per cent change in odds for SD increase in X

*, **, and ***, change in odds is significant at the 0.1, 0.05 or 0.01 level respectively (two-tailed test)

the interpretation of the MNL model focuses on the effects on the odds ratios of different pairs of choices. The changes of odds ratios in Table 6.9 are presented according to pairs of auditor choices: Small local firm vs. large local firm, Small local firm vs. Big Four firm, and large local firm vs. Big Four firm.

Odds ratio plot

While the interpretation of each odds ratio is simple, the number of pair comparisons makes it difficult, particularly when we need to track which coefficients are statistically significant. Long (1997) suggests a simple method, an odds ratio plot, to find patterns of the coefficients among different categorical choices. Figures 6.1-6.5 plots the coefficients of all independent variables from Table 6.9 (relative to Small firms).

To plot the coefficients, the relative magnitude of the odds ratio $\exp(\beta_{i|0})$ are shown by the distance between L and S. The larger the coefficient of the odds ratio, the greater the distance is. If an increase in X_i increases the odds of choice L over S, then L would be plotted to the right of S and vice versa. The bottom line is a scale in the units of the original β s (relative to Small firms)⁴¹. The top line is what I am interested in, the factor change in the odds scale. This is a logarithmic scale with each value equal to the exponential of the value on the bottom scale. Consider *LnTA* (see Figure

⁴¹ Figures 6.1-6.5 show the coefficients relative to small firms, which is why the S's are located at 0 on the logit scale and 1 on the factor scale. The results can also be plotted relative to either choice L (Large local) or B (Big Four). The difference is to shift the plots for each variable so that they are located with L or B at 0 on the bottom scale. Therefore, the relative positions would remain the same.

6.3), choice S is located at 0 on the bottom scale to indicate that a change in $LnTA$ does not change the logit of S relative to S. Then choice L for $LnTA$ is located at $1.793=1+79.3\%=\exp(0.584)^{42}$, indicating that a unit change in $LnTA$ increases the odds by a factor of 1.793. The lack of statistical significance is shown by a connecting line. The understanding is that if a coefficient is not statistically significant, the variable does not differentiate the two choices and so the pair of choices are linked. In the plot, it is presented by 'L—S' for x_i . The plot is useful for grasping the overall pattern of the relationship between the independent variable and the odds among all pairs of choices.

6.4.6. Interpretation of the effect on auditor choices

6.4.6.1. Agency cost hypothesis

Table 6.9 and Figures 6.1 to 6.5 visualize the effects of all test variables and some control variables on odds ratios of a pair of auditor choices. Agency cost hypothesis argues that large long term debts and high diffusion of ownership would increase agency costs and then motivate a company to demand high quality external monitoring. But the interviews do not support the agency hypothesis and suggest that in China long term creditors are state-owned banks and play an inefficient monitoring role. Their policies have political and social objectives. They do not strongly demand high quality auditing when agency costs increase. Figure 6.1 shows the odds changes due to company leverage ratios (gearing). The gearing orders auditor choices from B

⁴² 0.584 is an original coefficient of $LnTA$ in Table 6.8-1. 79.3% is transformed percentage change in odds ration in Table 6.9, which is computed as $100 \times (\exp(0.584) - 1) \%$.

to L to S, and statistically significantly differentiates each auditor choice. The result implies a negative association between leverage and the odds ratios of choosing Big Four auditors relative to large local auditors relative and small local auditors, and also the negative association between leverage and the odds ratio of choosing large local firms relative to small local firms.

Therefore, the results do not support agency theory and are consistent with the argument in the interviews about the weak monitoring role of Chinese state-owned banks. Under this circumstance, companies are easily engaged in earnings management. DeFond and Jiambalvo (1994) and Press and Weintrop (1990) document the negative association of leverage with high audit quality auditors. They argue that companies who have a high risk measured by gearing ratio (total long-term liability/total assets) are more likely to be engaged in earnings management and then to avoid auditors with high auditing quality. Their arguments are probably true in the Chinese context.

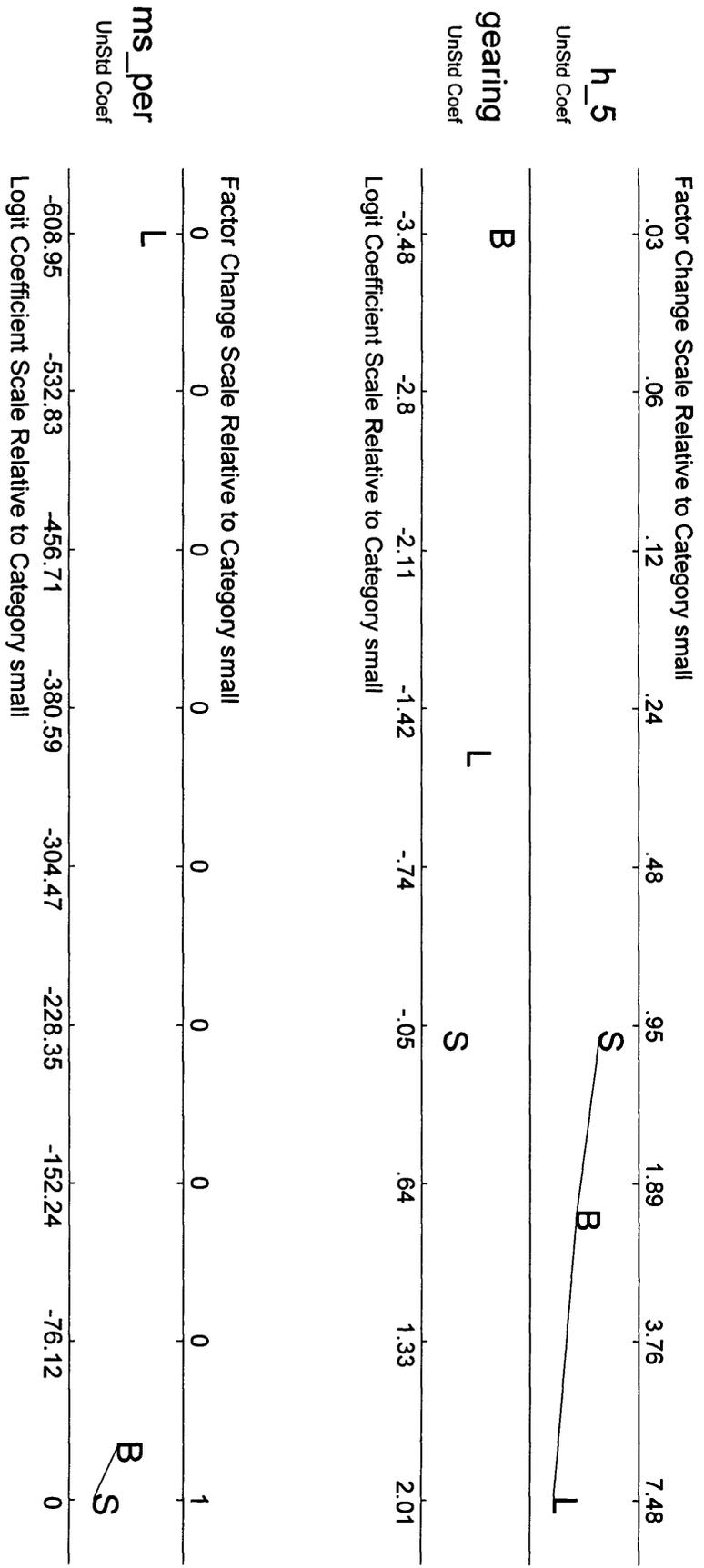
The variable for ownership concentration only significantly positively influences auditor choices of large local firms relative to small local firms when using H_5 (see Figure 6.1.). If I replace H_5 with Cr_5, no significant association can be found. The result is inconsistent with the agency hypothesis that ownership concentration is negatively associated with choices of high quality auditors. So the agency costs hypothesis is rejected again. It suggests that agency costs arising from diffusion of

ownership do not motivate the companies to select high quality auditors in China.

Finally, choices of small local firms and Big Four firms are significantly differentiated from large local firms by the percentage of managerial shares. It shows the different effects of managerial shares on auditor choices. A unit decrease in the percentage of managerial shares will both significantly decrease the odds of choosing Big Four firms and small local firms relative to large local firms by many times (see Figure 6.1.).

Therefore, although a decrease of managerial shares actually increases agency costs, the demand for high quality auditors does not accordingly increase for all listed companies. Agency theory cannot explain the result that companies move away from Big Four firms to large local firms when managerial ownership decreases. Actually the results are consistent with my arguments about managerial shares. The weak monitoring role of state shareholders mitigates the conflicts between managers and shareholders. Managerial ownership strengthens managers' influence and the earnings management motivation. Whether to select high quality auditors depends on earnings management activities, managers' professional ethics, education, capability and other personal characteristics rather than the number of shares managers have. As one interviewee said, *'A good management team sometimes can make everything different.'* However, these factors are not easily measured and not included in this empirical study. The results of managerial ownership reject the agency hypothesis and

Figure 6.1. Odds ratio plots relative to small local firms: Variables for agency cost hypothesis

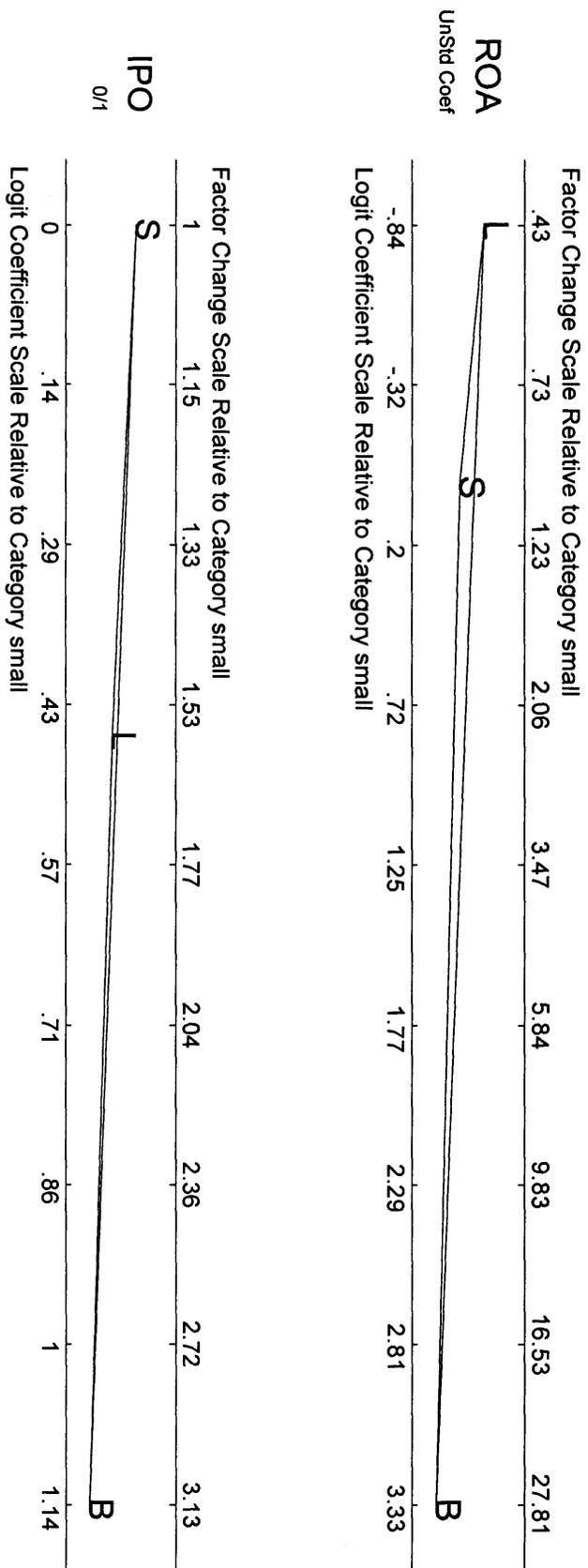


indicate the scope for future study about the effect of earnings management and manager personal characteristics on auditor selection. These factors are found to be significant in auditor selection by the interviews, but are not included in this quantitative study.

6.4.6.2. Signalling hypothesis

Derived from signalling theory, managers in good quality companies are supposed to have an incentive to differentiate themselves from low quality companies by selecting a credible auditor. However, in China, this motivation is challenged by the immature managerial labour market. Figure 6.2 shows that ROA does not significantly influence any pair of auditor choices. The results reject the signalling hypothesis that managers in Chinese listed companies with high profits would like to choose credible auditors to differentiate themselves from other managers. The results also show that the regulations on profitability do not motivate companies with a high ROA to select high quality auditors to safeguard their disclosed information. Interestingly, ROA plotted L to the left of S. Although there is a lack of significance level to confirm the association that ROA is positively correlated with the odds of small local firms relative to large local firms, the sign of coefficient is consistent with the interview finding that small local firms might compromise their audit quality to agree on their clients' desirable ROA.

Figure 6.2. Odds ratio plots relative to small local firms: Variables for the signalling hypothesis



Previous literature argues that IPO companies would like to select high quality auditors in order to have a differentiation effect and prevent underpricing activities. Li, *et al.* (2004) point out the adverse effect of the previous inappropriate regulations on company demand for high audit quality. But they also document recent improvements, such as the average extent of IPO underpricing decreasing substantially due to the new policy, and argue that a potential opportunity for reputable auditors to serve as a signalling device for the quality of the IPO firms is created. The results in this study reject the signalling hypothesis about IPO, which does not significantly influence any auditor choices. Therefore, the signalling hypothesis is only supported by the variable of ROA. Companies with high ROA have a signalling motivation to select Big Four auditors.

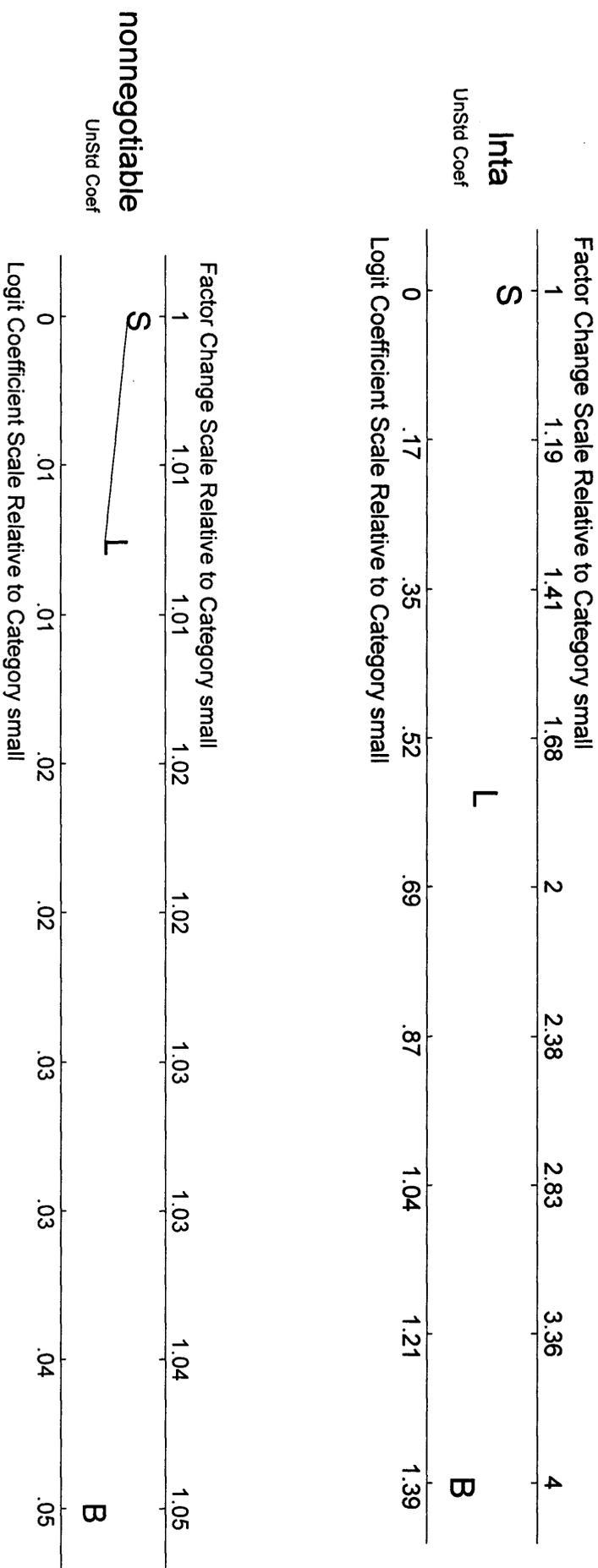
6.4.6.3. Political cost hypothesis

Figure 6.3 presents the results of two variables for political cost hypothesis, LnTA (company size) and Nonnegotiable (the proportion of non-negotiable shares over total shares). The hypothesis argues that in China, large listed companies and companies with a large percent of non-negotiable shares are subject to political attention and thus they would like to hire auditors well-perceived by the government to avoid political scrutiny and reduce political costs. The results of company size are consistent with the hypothesis. LnTA significantly differentiates every pair of auditor choices at a significant level of 0.01, and orders the choices from S to L and then to B. It indicates the order of auditors according to their acceptability in view of the government. Big

Four auditors are better perceived by the government than large and small local auditors because of their international reputation and high quality; and large local auditors are better perceived than small local auditors because of their large business. A unit increase in the log of company total assets increases the odds of Big Four firms relative to large local firms and small local firms by 122.8% and 299.6% respectively and also the odds ratio of large local firms relative to small local firms by 76.3%. The plot pattern indicates that the larger a listed company is; the better-perceived auditor it would like to select. The result suggests the positive association between company size and political costs in China.

The other variable for political invisibility, Non-negotiable, is found to order auditor choices the same as LnTA. But it only significantly differentiates Big Four firms and all local firms, and does not differentiate large local firms and small local firms (see Figure 6.3). A unit increase in the percentage of non-negotiable shares increases the odds of Big Four firms relative to small local firms and large local firms by 4.6% and 3.7% both at significance levels of 0.01. The results support the effect of political cost motivation on the choice of Big Four auditors and documents that the percentage of non-negotiable shares could be a measure of the political costs. However, increases in the percentage of non-negotiable shares do not significantly influence the odds ratio of choosing large local firms relative to small local firms. This suggests that political costs do not motivate auditor switch between local auditors.

Figure 6.3. Odds ratio plots relative to small local firms: Variables for the political cost hypothesis

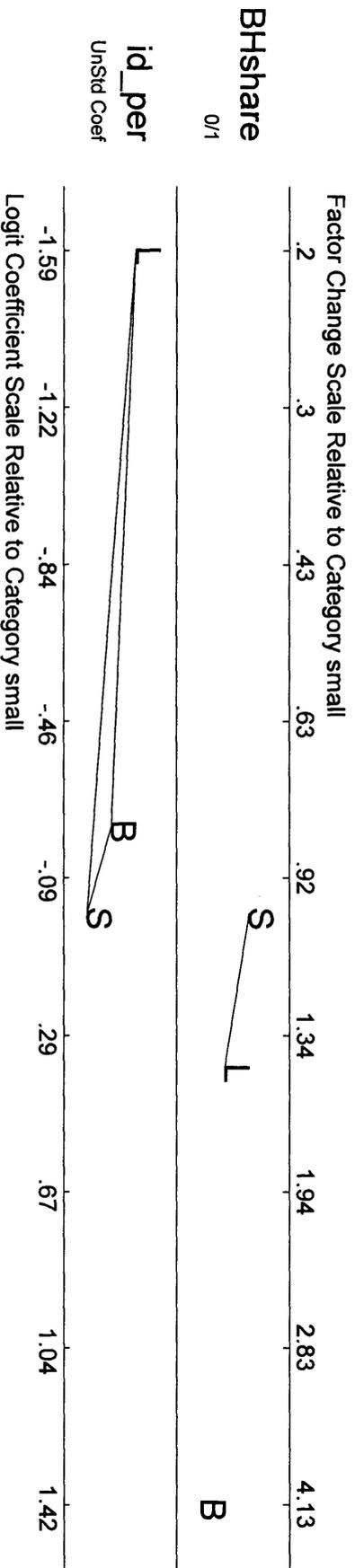


6.4.6.4. Substitution hypothesis

Figure 6.4 shows that issuing B/H shares differentiates two groups of auditors, local firms versus Big Four firms, by significantly increasing the odds ratio of Big Four firms relative to small local firms and large local firms by 312.6% and 185.5% both at a significance level of 0.1. Consistent with the substitution hypothesis, Big Four auditors are selected by cross-listed companies, serving as a substitution for weak legal protection for foreign investors. As introduced in the background chapter, Big Four firms have monopolized the B/H market for a long time by virtue of their international reputation, professional understanding in international accounting standards and high audit quality. For foreign investors, the reputable Big Four auditors are a good form of protection, particularly in a weak legal environment. Although the B share market was opened to domestic investors in 2001 and large local firms have entered into the B share market gradually, they are still lacking a competitive international reputation. This is probably why large local firms have not been differentiated from small local firms by B/H. It documents the market segmentation in the Chinese auditing market well, due to the bicentric structure of the stock market.

The percentage of independent directors in the Board as a proxy for corporate governance is to examine whether the newly introduced independent director system has a 'substitution effect' on auditing activities. The result in Figure 6.4 does not accept the hypothesis. The potential reason for the results may be due to the requirement in the NO. 102 Notice issued by the CSRC that by mid 2003 Chinese

Figure 6. 4. Odds ratio plots relative to small local firms: Variables for the substitution hypothesis



listed companies should have 1/3 independent directors in the Board. The means in Table 6.3 show that in 2002 the average percentages of independent directors are all 24% among different groups of companies, while in 2003 the means are all raised to around 33%. The rigid requirement makes it difficult to examine the quality of corporate governance on auditor selection. Therefore, it is worthy of future study to examine other proxies rather than the number of independent directors for corporate governance in Chinese listed companies.

6.4.6.5. Control variables

Here I only analyse the control variables that are found to significantly influence auditor choices both in the original estimation and the robustness estimation. The plot results of the control variables are presented in Figure 6.5.

Consistent with the interviews, in China auditor location and company location are significant factors affecting auditor choices because companies prefer auditors geographically close in order to reduce auditing costs and avoid geographical inconvenience in communication for long relationship. Auditor and company locations significantly differentiate among any of the auditor choices and order the auditor choice from Small local to Large local to Big Four firms. It indicates that being located in Shanghai, Beijing, or Shenzhen will significantly increase the odds of choosing large firms or Big Four firms relative to small firms, and of choosing Big Four firms relative to large firms because Big Four firms are all located in Beijing,

Shanghai or Shenzhen. It provides evidence of the distance proximity preference. If the auditor is not located in the same province as the company, the odds ratio of choosing a large local firm and Big Four firm relative to a small firm will increase by 2004% and 6960% and the odds ratio of choosing Big Four firms relative to large firms will increase by 235% respectively. It supports the interview result that choosing a remote auditor is motivated by seeking an auditor with an international reputation that is differentiated from others.

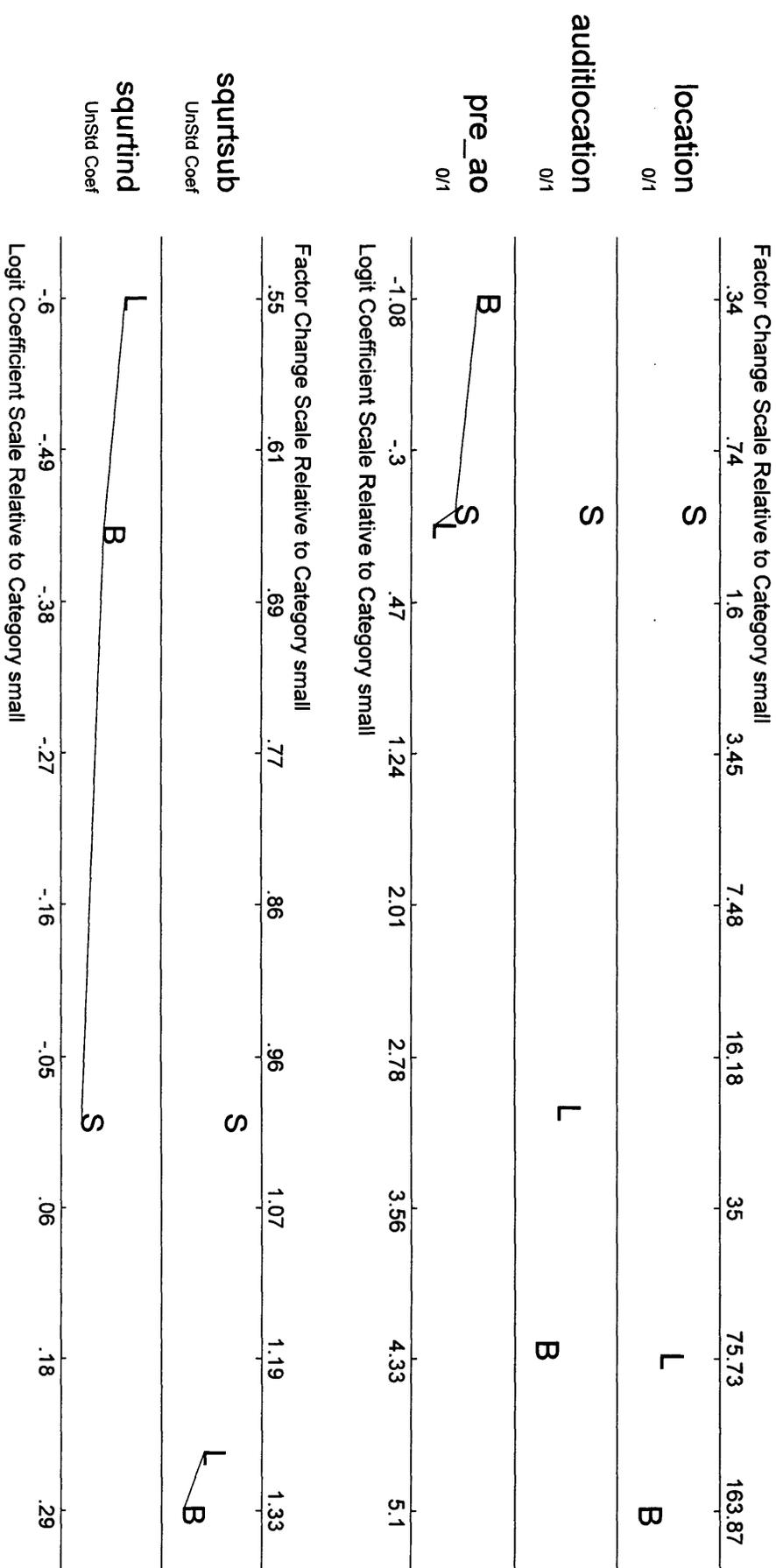
Another control variable, previous audit opinion, only significantly distinguishes choices of Big Four firms and large local firms. Having a qualified previous audit opinion significantly decreases the odds of Big Four firms relative to large firms by 68.6%. The result may suggest that Big Four firms are significantly more conservative than large local auditors to take the risk of auditing firms with a previous qualified audit opinion. Small local firms are not differentiated from Big Four firms and small local firms by the previous audit opinion at a statistically significant level. But in the plot, S (small local firms) is plotted in the middle of B (Big Four firms) and L (large local firms). The pattern is not consistent with the expectation. This may imply that companies with previous qualified audit opinion would replace their small local auditors with large local firms in order to avoid the CSRC's scrutiny on them. This is worthy of future study.

The other variables for control in the model are about company complexity, SqrtSUB

and SqrtIND. They do not significantly differentiate among every pair of choices (see Figure 6.5). SqrtSUB distinguish the three alternative choices into two groups: Big Four firms and large local firms vs. small local firms. A unit increase in the square root of the number of subsidiaries increases the odds ratio of a large local firm or Big Four firm relative to small firms by 27.7% or 33.1% at statistically significant levels of 0.01 and 0.05. This is consistent with my argument that Big Four firms and large local firms have a better capability than small local firms to audit complex companies. Big Four firms and large local firms as a group all have a relatively large size in terms of the number of CPAs or member offices. It shows that there are no significant capability differences in auditing complex companies among Big Four auditors and large auditors.

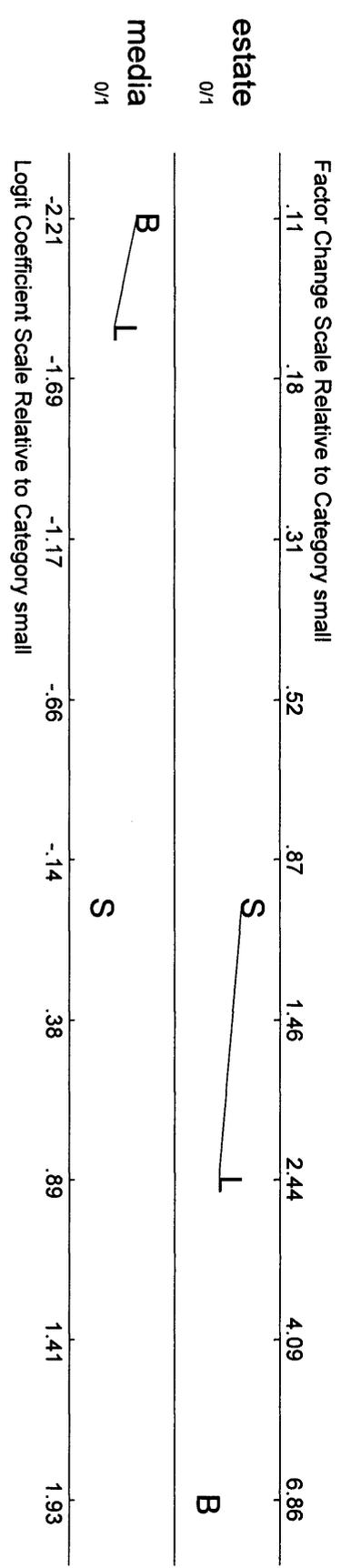
Interestingly, a unit increase in the square root of the number of industries decreases the odds ratio of large local firms to small firms by 45.1% (see Table 6.9). The result of the number of industries does not support that company complexity is positively associated with choices of better competence auditors. It implies that the influence of company complexity on its auditor choice in the Chinese auditing market relies on different proxies for the complexity. Theoretically, the complexity in term of the number of industries may motivate companies to seek large firms for their diverse expertise (Craswell and Taylor, 1991). However, in the Chinese emerging market auditors' industry expertise may have not have been developed yet. It is possible that companies have high business risk due to complex cross-industry business and then

Figure 6.5. Odds ratio plots relative to small local firms: Significant control variables



(to be continued)

Figure 6.5. Odds ratio plots relative to small local firms: Significant control variables



ask for a low quality of auditing. As a result, the odds ratio of large local firms relative to small local firms decreases. Table 6.4 shows that the correlation between total company assets and the number of industries is negative. It may imply something interesting about small companies involved in many industries. This needs further study to be explained. But at least this work provides significant inconsistent empirical results of the effect of company complexity on auditor choice.

Lastly, the year of data is found to negatively influence auditor choices of Big four firms relative to small local firms at the significance level of 0.1, but the robustness estimation does not support the significance influence. So I cannot draw solid conclusions about the influence of the year of data on auditor choices. But I can conclude that companies in the estate industry would like to choose Big four firms relative to local firms while companies in the media industry would like to choose small local firms relative to Big Four firms and large local firms.

6.4.7. The goodness-of-fit of the MNL model for auditor choices

Overall, except for the independent director, ROA, IPO and ID_per, all independent variables, have a significant influence on auditor choices. It indicates that the MNL model produces significant estimation. An important goodness-of-fit test of the MNL model is the degree to which it correctly predicts actual auditor choice. Therefore, the goodness-of-fit for the model is measured by the relative correspondence between the actual auditor choice and their predicted choice in terms of the Hit ratio and the

average choice probability⁴³.

Table 6.10 presents the numbers of predicted and actual auditor choices. In general, the model fits the data reasonably well. The model's predictive accuracy is good for companies choosing small local firms (81.8%) and Big Four firms (65.2%). The general Hit ratio is 75.56% (using the pooled sample). Outside of these independent variables, however, there is some unexplained variation in the model, which may reflect a certain degree of inherent randomness or error terms concerning auditor selection and omitted factors, such as internal control systems, manager's ethics, the Guanxi network and relationships with other service agencies (e.g. securities companies). Some omitted factors have been argued to be associated with auditor selection in the interviews, but because they are difficult to measure or collect data I do not include them in the empirical model. But at least, the highly significant association of the included factors indicates their importance as determinants of auditor choices. The average probability of auditor choice is 0.6673, which is far more than the naive average probability, 0.33.⁴⁴ The results of the two measures clearly show the goodness-of-fit of the MNL model in this study.

⁴³The Hit ratio (the percentage of companies for whom the predicted choice alternative is the same as the known actual alternative chosen by the company), where the distance is compared between model predicted fit and random fit. The average choice probability denotes the average of the estimated choice probabilities for the choices actually made by the company.

⁴⁴ To interpret the average choice probability, note that for a naïve model that assigns equal choice probability for each alternative, the value of the average choice probability would be $1/3$, where 3 is the number of alternatives. Here, the naïve model should have an average choice probability of 0.33. If the average choice probability of the model is sufficiently larger than that of the naïve model, it suggests that there is benefit to using the model to predict what a company would actually choose.

Table 6.10. Goodness-of-fit test for the MNL model

Actual Choice	<i>Prediction of Auditor Choice</i>		
	Small	Large	Big Four
Small	523	44	10
Large	85	122	22
Big Four	<u>31</u>	<u>36</u>	60
Total	639	202	92
Percentage of Hits	81.8%	60.4%	65.2%
No. of Obs.	933		
No. of Hits	523+122+60=705		
Hit Ratio *	705/933=75.56%		
Av. Probability **	0.6673 (>0.33)		

*Note: 1) Value in bold represents predicted decisions that agree with actual decisions.
2) *, For computing the hit ratio, each company is assigned the alternative for which that company's auditor choice probability is the highest.
3) **, The average choice probability denotes the average of the estimated choice probabilities for the choices actually made by the customers.*

6.5. Conclusion

Based on the theories discussed above, four groups of hypotheses for auditor selection have been estimated using the MNL model, holding other necessary variables constant (such as company complexity, previous audit opinions, company location, and auditor location). The results reject the agency cost hypothesis about the effect of company gearing and ownership diffusion on auditor selection. Managerial ownership is also not found to mitigate agency conflict or to motivate all companies to select high quality auditors when agency costs increase. Therefore, I conclude that outside shareholders, creditors and managers of the Chinese listed companies play a weak monitoring role in demanding high quality auditors. Furthermore, it is not found that reputable auditors serve as a signalling device for the quality of the IPO companies

and highly-profitable companies. So the internal motivations, namely, reducing agency costs and signalling, are not found to have much significant influence on choices of high quality auditors.

In contrast, the external motivations of reducing political costs and substituting legal protection are found to influence auditor choices significantly. Company size and the percentage of non-negotiable shares both significantly and positively influence company choice of Big Four auditors for avoiding political attention. Being a cross-listed company increases the odds ratio of choosing Big Four auditors relative to local auditors.

The estimation results of the MNL model also indicate the differences among Big Four auditors, large local auditors and small auditors. It has been proved that Big Four auditors and large local auditors have better capability than small local auditors to audit large and complex companies. Big Four auditors are more conservative to select less-risky clients than large local auditors. Under the circumstances of the weak monitoring of outside shareholders and creditors, a large number of listed companies do not demand high quality audits. However, Big Four auditors' famous brand names help them to grab a small number of super large state-owned listed companies, and companies issuing B/H shares. Currently, local firms cannot compete with Big Four auditors in these areas. Therefore, not all listed companies move away from Big Four firms. But local firms are more attractive than Big Four firms for most other Chinese

listed companies. Large local firms catch more business than small local firms in virtue of their capability, qualifications, the relationship with government and underwriters, and the Guanxi (personal network). In the next chapter, I further study the pricing difference of these three types of auditors after considering the selectivity bias. But note here that the above estimated conclusions are sensitive to the definition of large local firms.

CHAPTER 7

EMPIRICAL ANALYSIS AND RESULTS:

AUDITOR SELECTIVITY, AUDIT FEE DETERMINANTS

AND AUDIT FEE PREMIUM

7.1. Introduction

This chapter addresses the second-stage research question in this study: audit fee determinants in the Chinese auditing market. Based on the two-stage MNL selection models (Bourguignon *et al.*, 2004), I consider the selectivity of auditor in fee determination. That is, correction terms calculated from the selection models in the last chapter are added to the fee determination regression in order to: 1) identify the effect of the selectivity of auditors on audit fees; 2) achieve unbiased coefficients on other explanatory variables for fee determinants; 3) estimate fee premium among three types of auditors. The hypotheses for the explanatory variables are based on prior fee studies and my interview findings. The variables include company-specific factors, such as company size, complexity, risk and net cash flow, and auditor-specific factors, such as auditor tenure. I attempt to identify fee determinants for the three groups of auditors, Big Four firms, large local firms and small local firms, as well as examining the fee premium charged by auditors. Since the selectivity effect is taken into account, the estimated fee premium will be more accurate because the advantageous (or adverse) selection effect experienced by different auditors is

controlled for. This chapter is organised into three main parts: 1) specification of the audit fee model and hypotheses development, 2) descriptive analysis, and 3) results analysis and interpretation.

7.2. Specification of the audit fee model and hypotheses

7.2.1. Stratified analysis and correction terms

As was discussed in the literature review and methodology chapters, most prior studies test for fee determinants independently used a single-equation with a dummy for audit firm type included among the explanatory variables (e.g. Craswell *et al.*, 1995; Palmrose, 1986; and Simon and Francis, 1988). However, it is problematic to treat the auditor type dummy as exogenous because companies are not randomly assigned to audit firms. Although the fees companies paid to their auditors can be observed, the fees they would have paid to alternative auditors cannot be observed. Recent studies in auditor selection (Copley *et al.*, 1995; Lennox and Ireland, 2002; Chaney *et al.*, 2004 and 2005) and my interview findings suggest the existence of an interrelationship between audit fee and auditor selection. They support the adoption of the two-stage selection model that can identify the selectivity of the auditor in audit fee determination and fee constraint in auditor selection.

Different from the single-equation of audit fee determination that includes a dummy variable of auditor type as an exogenous variable, the two-stage selection model splits auditors into subgroups and examines audit fee determinants separately with

correction terms inserted. The correction terms are computed from the first stage estimation of the MNL selection model. As there are three alternative auditor choices in this study, I estimate the following three audit fee determination models for a stratified analysis:

$$Big4LnAF_{i2} = \alpha_2 Z_i + \sigma_2 \rho_{02} m_{02} + \sigma_2 \rho_{12} m_{12} + \sigma_2 \rho_{22} m_{22} + \varepsilon_2$$

$$LargeLnAF_{i1} = \alpha_1 Z_i + \sigma_1 \rho_{01} m_{01} + \sigma_1 \rho_{11} m_{11} + \sigma_1 \rho_{21} m_{21} + \varepsilon_1$$

$$SmallLnAF_{i0} = \alpha_0 Z_i + \sigma_0 \rho_{00} m_{00} + \sigma_0 \rho_{10} m_{10} + \sigma_0 \rho_{20} m_{20} + \varepsilon_0$$

In most existing studies, the dependent variable is the natural log of the audit fee. Big4LnAF, LargeLnAF and SmallLnAF are dependent variables for observable annual audit fees charged by Big Four firms, large local firms and small local firms respectively. Here, in order to make audit fees comparable, I focus on the audit fees for domestic auditing reports and exclude the additional audit fees for foreign auditing reports that are based on the IAS and for foreign investors. Theoretically, the three fee determination equations could include different sets of explanatory variables (Z), but in order to compare the fee determinants among the three groups I include the same set of independent variables into the three equations. I also test the same audit fee determinant hypotheses for all three groups of auditors.

(m_{j0}) 's, (m_{j1}) 's and (m_{j2}) 's are correction terms representing conditional expected values of errors in the auditor selection model, conditional on choice 0 (small local firms), 1 (large local firms) and 2 (Big Four firms) being made respectively. The

conditional expected values⁴⁵ have no analytical solution as a function of P_j , and they must be computed numerically (Bourguignon, Fournier and Gurgand, 2001). ρ_{j0} , ρ_{j1} and ρ_{j2} are the correlations between the error terms in the audit fee model of interest and in all categorical latent expression, constrained between -1 and 1 . If (ρ) 's are statistically different from zero, it indicates the existence of an interrelationship between auditor selection and fee determination. σ_2 , σ_1 and σ_0 are the standard errors of the fee equations, which are not estimated separately from the correlation coefficients, ρ_j in the STATA package.⁴⁶ By adding the correction terms for selectivity, the second-stage fee model yields constant estimates of the conditional expected value of the residual term and other explanatory variables, and selectivity bias must be corrected.

7.2.2. Hypotheses and independent variables

One of advantages of the two-stage selection model is that it allows different variables and coefficients to be included in the selection equation and audit fee equation. Therefore, the model takes into account theories for auditor selection and audit fee determinants separately. The previous studies in audit fees are derived from the seminal work of Simunic (1980). According to his work, audit fees are charged on the basis of audit efforts and audit risk, which are measured by attributes of both the company and its auditor. Following this, many fee studies examine company size, complexity, risk and auditor tenure as the main factors affecting audit fees (see Table

⁴⁵ Bourguignon *et al.* (2004) pointed out that the integrals must be done only once for each observation. In the Stata ado program, it used a quadrature method.

⁴⁶ However, the STATA package provides the implied (σ_j) 's.

7.1).

Table 7.1. Variables in the audit fee models

Variables	Definition and Note
Dependent:	
Big4LnAF:	Ln(Audit fee charged by Big Four firm)
LargeLnAF:	Ln(Audit fee charged by large 10 local firm)
SmallLnAF:	Ln(Audit fee charged by other firm)
Independent (z_i):	
Test variables:	
LnTA:	Ln(total assets)
SqrtSUB:	Square root of the number of subsidiaries
SqrtIND	Square root of the number of industries that a company involves
Liquid:	Current assets/ current liability
ROA:	Return of total assets (net profit/ total assets)
Pre_AO:	Previous audit opinion. 1=modified audit opinion; 0=clean audit opinion
NCF:	Net cash flow
Tenure:	Tenure of auditors
Control variables:	
Interim:	1=The interim report has been audited; 0= otherwise
Year02	1=data in 2003, 0=data in 2002
Ind. Dummies	Eight dummy variables for the main industry type, including mining, manufacturing, utilities, information technology, wholesale and retail, estate, social services, and the media.

However, most prior studies are undertaken in a specific market and mainly focus on company-specific or auditor-specific factors without theoretical consideration of country-specific factors. Taylor *et al.* (1999) and Choi and Wong (2003) argued that legal, historical and political dimensions of the differences of markets have a significant influence on auditor pricing behaviour. In China, the government has great control over the auditing industry and has made explicit regulations about audit fees⁴⁷.

⁴⁷ The earliest regulation about audit fees is No. 9 Decree issued by the MOF in 1989, *Supervision of Audit Fees charged by CPA Firms*. It has required that: 'Audit fees should be decided within the fee limit set by different

These regulations have an important impact on auditor pricing behaviour. So based on the Chinese institutional background and the interview findings, I develop hypotheses of fee determinants. Some are intended for testing traditional explanatory variables while others pertain to China-specific variables such as the interim auditing report and net cash flow, which are found in the interviews to associate with audit fees in China.

All independent variables in the audit fee model are presented in Table 7.1.

Company size

Company size is always reported as a significant and positive determinant of audit fees in different markets. Therefore, no matter how different the institutional background a market has, company size is a basic audit fee determinant, even in China's audit fee regulations. Consistent with the variable in the auditor selection model, $\ln(\text{total assets})$ is adopted for company size again. I predict that:

Ha: LnTA is positively associated with audit fees because company size increases audit efforts.

Company complexity

Complexity reflects the nature and diversity of the business of the company. For companies with a similar size, volume of audit effort may also vary according to their diversified operations because the more complex a company is, the more expertise, experience and time the audit of it requires. The same as company size, complexity is

government finance bureaus and according to the nature of services, risk, complexity, location, working conditions, working hours and expenses; without any major changes the audit fee should be consistent between previous and current auditors.'

another basic fee determinant mentioned by the Chinese regulations. I still use SqrtSUB and SqrtIND to measure company complexity and predict that:

Hb: they are positively associated with audit fees.

Risk

Simunic (1980) suggested that company risk might lead to extra audit efforts to control high risk and then risk a premium in audit fees. Therefore, many previous studies (e.g. Simunic, 1980; Firth, 1985; Francis and Simon, 1988; and Craswell *et al.*, 1995) agree that the level of company risk is positively related to audit fees. However, as shown in the literature review, many different proxies for risk have been examined in prior studies, such as liquidity, profitability, previous audit opinion and so on. Different from company size and complexity that are recognised to be dominant factors in all different countries, no risk variables have been widely proved to be significant determinants. The theory in relation to institutional factors argues that legal environment and government intervention impose legal costs and political costs on companies and auditors. Choi and Wong (2003) argued that the audit fee is higher for risky firms in strong legal environments than for those in weak legal environments. Companies and auditors face less litigation risk in a weak legal system protecting investors. As a result, generally auditors would not be motivated to put more audit efforts to control company risk and accordingly they charge a less risk premium than those in a strong legal system. In this sense, these institutions determine the content and level of company business risk and audit risk, which in turn impacts audit pricing

on the risks.

Therefore, based on the Chinese institutional background, it is predicted that the effect of risk factors on audit fees may not be as the same as they are in a strong legal environment. For instance, company liquidity risk is not significant because most listed companies are largely state owned and liquidity problems seldom make them bankrupt in such a weak legal environment for investor protection. Moreover, the establishment of the Chinese stock market is to solve the SOEs' financial problems. Therefore, the liquidity problem is not regarded as a severe risk but an excuse to list in the stock market. In this sense, liquidity risk may not attract much attention from auditors and influence audit fees. In order to provide empirical evidence for the argument, it is hypothesised that:

Hc: the liquidity ratio (current assets/current liabilities) is associated with audit fees.

If the result rejects the hypothesis, it indicates the impact of the institutions on fee determination.

Besides liquidity risk, there are other common risk factors in the literature, such as profitability risk (e.g. Francis and Simon, 1988) and previous modified audit opinion (e.g. Lee, 1996). In contrast to liquidity, profitability has been attached an excessive importance by the Chinese regulations. By regulation, Chinese listed companies must report at least 10% per year return on assets, in three consecutive years if they want to

raise additional capital and companies that report three consecutive years of losses are automatically delisted by the CSRC (*Company Law, 1994, Articles 157 and 158*). The regulations about profitability impose additional costs on the company and result in an auditor's attention to profitability risk. The lower profit ratio may lead to more audit efforts. Therefore, I predict that:

Hd: the profit level measured by ROA is negatively related to audit fees.

As to previous modified audit opinion, the background chapter noted that before 2001 the regulations were silent about the effect of an auditor's modified opinion and this had encouraged listed companies to engage in earnings managements at the cost of modified opinions. But after 2001, *the CSRC No.157 Decree* requires that trading be suspended for shares of companies whose financial statements are accompanied by MAOs due to accounting standards violations. Therefore, the new regulation has increased the expected cost of receiving MAOs and enhanced company risk. Auditors may spend more efforts to audit companies with previous MAOs and charge higher audit fees. However, most interviewees think that audit opinions do not affect audit fees because people intend to relate it to 'opinion-shopping'. They argue that the prior auditing result may influence their decision in selecting a client considering its potential high audit risk, but the auditor will not ask for high audit fees to bear audit risk. In order to examine the effect of previous MAOs on audit fees, it is hypothesised that:

He: having a modified audit opinion in the previous year is positively associated

with audit fees.

Net cash flow

The interviews suggested that net cash flow is one of the factors that relate to audit fees. Several interviewees pointed out that if a company has more net cash flow it is possible for the auditor to bargain with the company for a better price. Whereas, a shortage of cash flow will motivate the company to bargain for lower audit fees. The influence of net cash flow on audit fees may be significant in the buyer market where companies have more bargaining power than auditors. In order to examine the interview finding, it is hypothesised that:

Hf: the net cash flow of a company is positively associated with audit fees in China.

Interim auditing

An interim report is not required to be audited for all listed companies in China. For some specific companies (such as ST/PT companies, or companies who plan to issue additional shares within the year), interim auditing is compulsory. Most interviewees think that interim auditing is relatively independent from annual auditing. Although they agree that interim auditing can save some auditing efforts in the annual audit, they do not know to what extent the fee for annual auditing might be influenced. Thus, interim auditing might be a factor influencing fees for annual report auditing. However, as some companies did not disclose their audit fees for interim auditing and those for the annual audit separately, interim auditing creates a bias in the disclosed

fees. To solve this problem, I collect audit fees including both fees for interim and annual auditing if interim auditing occurred. Then I set interim auditing as a dummy variable in the fee model to control for its bias in the fee data. Therefore,

Hf: interim auditing is positively related to audit fees.

Tenure

Besides the above company-specific factors, auditor-specific factors have been argued in prior audit fee studies. Auditor type and auditor tenure have been found as significant fee determinants. As this study analyses audit fee determinants separately in the three auditor groups, it could identify pricing differentiations among auditors. In this sense, the effect of auditor type has been taken into account. Auditor tenure is input into audit fee regression models as an independent variable. There are inconsistent arguments about the association between auditor tenure and audit fees. In some studies (e.g. Francis and Simon, 1987; Turpen, 1990; Roberts *et al.*, 1990; Pong and Whittington, 1994; Ward *et al.*, 1994; Gregory and Collier, 1996), 'low-balling' has been found. They document evidence of price-cutting in the early years of an audit and a positive association between audit fee and tenure. However, Simon and Francis (1988) and Walker and Casterella (2000) argued that audit fees would tend to fall rather than rise because the cost of auditing may be saved for long-term cooperation. All interviewees agree on the latter argument and explain that 'low-balling' is rare in China because of the weak demand for high quality auditing. Most Chinese listed companies are cost-minimisers. In addition, Gigler and Penno

(1995) argued that an imperfectly competitive market makes low-balling on initial audits unnecessary, as an efficient auditor may be able to earn abnormal profits in all periods. Diacon *et al.* (2002) also pointed out that asymmetry information on auditor quality might result in a high-balling pricing strategy. Low quality auditors can charge high audit fees in the early years because their quality is difficult to perceive in advance, and then they reduce renewal fees to prevent their clients from switching audit firms. In order to examine the effect of auditor tenure on audit fees in China it is hypothesised that:

Hg: the tenure of auditors is associated with audit fees in China.

Since it is difficult to predict the sign of the association, to be conservative, I will conduct two-tail t-tests for all coefficients on the independent variables in the regression models. Finally, I control for the year of data and industry type in the fee regressions, the same as the first-stage equation.

7.3. Preliminary analysis

The two-stage selection model has to use the same data because the two equations are correlated. As the estimations of the auditor selection model in the last chapter are based on the pooled sample from 2002 to 2003, the second stage audit fee study is still based on the pooled sample. The sample will be divided into three groups according to observable fees charged by different types of auditor. As a result, there are 577 companies whose fees were charged by small local firms, 229 companies charged by

large local firms, and 127 companies charged by Big Four firms. Based on the hypotheses, fee determinants for different auditors are estimated as the same function of company size, complexity, interim auditing, company risk (liquidity ratio, previous audit opinion and ROA), net cash flow, auditor tenure and the correction terms derived from the first-stage MNL selection model. In the next subsection, descriptive statistics will be generated to explore which variables are likely to be significant audit fee determinants and a group mean comparison will be used to see whether there are significant differences in fee determinants among the three types of auditor (see Table 7.2). In the following subsection, bivariate correlations will be presented to check whether there is correlation between independent variables (see Table 7.3).

7.3.1. Group mean comparison and medians

Table 7.2 lists means, standard deviations, medians and skewnesses of all variables in different groups. Most skewness coefficients are close to 0 and suggest the systemic distribution of the data, which the fee regression model relies on. The highest absolute value of skewness coefficients is 20.711 (the variable ROA). Table 7.2 presents the means of the explanatory variables among different groups and significant mean differences compared with the reference group, small local auditors. Obviously, compared with small local firms, large local firms and Big Four firms have significantly higher average audit fees. The average audit fee charged by Big Four

Table 7.2. Comparing means of variables among the groups of companies choosing different auditors.

	Small local auditors			Large local auditors			Big Four auditors					
	Mean	S.D.	Median	Skewness	Mean	S.D.	Median	Skewness	Mean	S.D.	Median	Skewness
LnAF	12.83	0.44	12.79	0.567	13.05***	0.52	13.12	0.010	13.36****/****	0.60	13.24	0.567
<i>Test variables:</i>												
LnTA	20.92	0.82	20.88	-0.177	21.29****	0.84	21.16	-0.0327	21.91****/****	1.21	21.75	0.862
SqrtSUB	1.99	1.24	2	0.605	2.53****	1.43	2.45	0.557	2.60****	1.65	2.65	0.354
SqrtIND	1.68	0.53	1.73	0.508	1.66	0.51	1.73	1.127	1.65	0.48	1.73	0.198
Liquid	1.60	1.28	1.31	5.282	2.02	3.65	1.3	8.201	1.76	1.44	1.34	2.634
ROA	-0.02	0.44	0.02	-20.711	-0.003	0.40	0.03	-14.650	0.04	0.04	0.04	-1.21
Pre AO	0.10	0.30	0	2.722	0.10	0.30	0	2.830	0.02****/****	0.15	0	6.274
NCF	9E+07	3E+08	4.53e+07	4.152	1E+08	3E+08	6.94e+07	1.594	1E+09****/****	6E+09	1.58e+08	8.674
Tenure	4.91	2.89	5	0.738	4.31****	2.64	4	1.044	5.51****/****	3.33	5	0.523
<i>Control variables:</i>												
Interim	0.05	0.21	0	4.117	0.03	0.17	0	5.454	0.03	0.17	0	6.274
Year02	0.53	0.50	2003	-0.108	0.42	0.50	2002	0.114	0.46	0.50	2002	0.174
Mining	0.01	0.11	0	8.913	0.01	0.09	0	10.560	0	0	0	-

(to be continued)

(continued)

Table 7.2. Comparing means of variables among the groups of companies choosing different auditors.

	Small local auditors				Large local auditors				Big Four auditors			
	Mean	S.D.	Median	Skewness	Mean	S.D.	Median	Skewness	Mean	S.D.	Median	Skewness
<u>Manuf.</u>	0.67	0.47	1	-0.702	0.47***	0.50	0	0.131	0.52***	0.50	1	-0.079
<u>Utility</u>	0.03	0.16	0	5.752	0.02	0.13	0	7.367	0.02	0.12	0	7.7791
<u>Tech.</u>	0.05	0.21	0	4.292	0.08*	0.27	0	3.132	0.09**	0.29	0	2.773
<u>W&R</u>	0.07	0.25	0	3.391	0.13***	0.34	0	2.187	0.05/**	0.21	0	4.268
<u>Estate</u>	0.02	0.14	0	7.034	0.04**	0.20	0	4.466	0.08***	0.27	0	3.123
<u>Services</u>	0.02	0.15	0	6.1837	0.03	0.16	0	5.932	0.02	0.15	0	6.273
<u>Media</u>	0.01	0.12	0	8.315	0.02	0.13	0	7.267	0.02	0.12	0	7.779

Note: Mean^{a/b}, a indicates the significant level of the t-test when the group of small local firms is the comparison group. Compare means between groups of large local firms and small local firms and between groups of Big Four and small local firms; *b* indicates the significant level when the group of large local firms is the comparison group. Compare means between groups of Big Four and large local firms.

***, mean difference is significant at the 0.1 level (2-tailed);

****, mean difference is significant at the 0.05 level (2-tailed); *****, mean difference is significant at the 0.01 level.

firms even double the average fee charged by small local firms. The average total assets and the number of subsidiaries in the companies audited by the Big Four firm group and the large local firm group are also significantly higher than those for the companies in the small local firm group. Therefore, this result indicates that company size and complexity are positively related to audit fees.

The risk proxies, such as ROA, liquidity, and previous audit opinion, have different means among the groups, but only previous audit opinion has significantly different means in the Big Four firm group compared with the small local firm group. This implies that companies choosing a Big Four firm have less company risk compared with those choosing a small local firm because they have less modified previous audit opinions. Liquidity ratios are not significantly different among different groups. The companies choosing the large local firm group do not have any significant difference in company risk compared with the companies choose small local firms.

The mean difference of net cash flow between Big Four auditor group and small local auditor group is significant at the level of 0.01. It suggests that Big Four auditors' clients have higher net cash flows than small local auditors'. The average net cash flow of the small local auditor group is also lower than that of the large local auditor group though the difference is not statistically significant. The difference in the net cash flow may influence pricing of different auditors. The interviews suggested that the lack of cash flow might be a constraint to audit efforts, which in turn influences

audit fees. The effect of net cash flow on audit fees will be analysed in the next section.

In addition, the average auditor tenures are significantly different among the groups. Companies choosing Big Four firms have a longer tenure of auditors compared with companies choosing small local firms, while companies choosing large local firms have a shorter auditor tenure. It indicates that large local firms' clients switch auditors more frequently than small local firms' and Big Four auditors' clients seem to be most stable. Lastly, no significant mean difference in having interim auditing reports has been found among groups.

The means differences presented above indicate the existence of auditor selectivity, which is consistent with the finding in the last chapter. For instance, large, complex and high profitable companies would like to choose Big Four auditors relative to small local auditors. The selectivity will be taken into account in the fee models by adding the correction terms.

7.3.2. Multicollinearity

Bivariate correlations and VIFs are produced to see whether there is a problem of multicollinearity among independent variables in the fee models. Table 7.3 shows all correlation coefficients between the explanatory variables and VIFs of the independent variables. The significant correlation coefficients suggest that among all

Table 7.3. Bivariate correlation coefficients for Big Four firms, large local firms and small local firms

<i>Subgroup: Big Four firm</i>		Pearson Product-moment Bivariate Correlation Coefficients (two-tailed)																	
<i>LnTA</i>	<i>SqrSUB</i>	<i>SqrIND</i>	<i>ROA</i>	<i>Liquid</i>	<i>Pre_AO</i>	<i>NCF</i>	<i>Interim</i>	<i>Tenure</i>	<i>Year02</i>	<i>Mining</i>	<i>Manuf.</i>	<i>Utilities</i>	<i>Tech.</i>	<i>W&R</i>	<i>Estate</i>	<i>Services</i>	<i>Media</i>		
1	1																		
<i>SqrSUB</i>	.031	1																	
<i>SqrIND</i>	-.120	.343*	1																
<i>ROA</i>	.229*	-.014	-.151*	1															
<i>Liquid</i>	-.252*	-.089	-.040	-.076	1														
<i>Pre_AO</i>	-.056	.072	.099	-.082	-.031	1													
<i>NCF</i>	.557*	.018	.029	.076	-.109	-.028	1												
<i>Interim</i>	-.040	-.057	-.121	-.030	-.028	.317*	-.023	1											
<i>Tenure</i>	-.066	.094	.172*	-.067	-.013	.147*	-.119	-.115	1										
<i>Year02</i>	.112	.100	-.144	.142	.027	-.143	.131	-.039	.062	1									
<i>Mining</i>	-	-	-	-	-	-	-	-	-	-	1								
<i>Manuf.</i>	.009	-.109	.036	-.011	-.061	.150	.085	-.058	-.206*	-.005	-	1							
<i>Utilities</i>	.017*	-.004	-.116	.106	-.038	-.020	.006	-.020	.237*	.011	-	-.132	1						
<i>Tech</i>	-.094	.061	-.074	.051	.036	-.050	.046	-.050	.084	.028	-	-.336*	-.041	1					
<i>W&R</i>	-.093	.019	.052	-.108	-.128	-.035	-.041	-.035	.098	.019	-	-.232*	-.028	-.072	1				
<i>Estate</i>	.051	.042	-.050	-.081	.182*	-.046	-.060	-.046	.162*	-.033	-	-.304*	-.037	-.094	-.065	1			
<i>Service</i>	-.032	-.120	-.121	-.005	-.028	-.024	-.024	-.024	.317*	-.019	-	-.162*	-.020	-.050	-.035	-.046	1		
<i>Media</i>	-.087	.043	.116	-.082	.208*	-.020	-.022	.397*	-.152*	.011	-	-.132	-.016	-.041	.028	-.037	-.020	1	
<i>VIF</i>	1.83	1.25	1.41	1.14	1.24	1.29	1.60	1.65	1.29	1.13	-	1.80	1.20	1.43	1.24	1.40	1.30	1.50	

(to be continued)

(continued)

Table 7.3. Bivariate correlation coefficients for Big Four firms, large local firms and small local firms

<i>Subgroup: Large local firms</i>		Pearson Product-moment Bivariate Correlation Coefficients (two-tailed)																	
	<i>LntA</i>	<i>SqrsSUB</i>	<i>SqrlND</i>	<i>ROA</i>	<i>Liquid</i>	<i>Pre_AO</i>	<i>NCF</i>	<i>Interim</i>	<i>Tenure</i>	<i>Year02</i>	<i>Mining</i>	<i>Manuf</i>	<i>Utilities</i>	<i>Tech</i>	<i>W&R</i>	<i>Estate</i>	<i>Services</i>	<i>Media</i>	
<i>LntA</i>	1																		
<i>SqrsSUB</i>	.250*	1																	
<i>SqrlND</i>	-.035	.252*	1																
<i>ROA</i>	.291*	.118*	.082	1															
<i>Liquid</i>	-.166*	-.168*	-.084	.044	1														
<i>Pre_AO</i>	-.038	-.023	.072	-.243*	-.089	1													
<i>NCF</i>	.421*	.007	-.071	.049	-.053	-.062	1												
<i>Interim</i>	-.012	-.105	-.027	.018	-.016	-.056	-.029	1											
<i>Tenure</i>	.126*	.071	.116*	.081	-.034	-.147*	.073	.072	1										
<i>Year02</i>	.065	.132*	-.076	-.062	.042	-.027	.023	-.066	.160*	1									
<i>Mining</i>	.042	-.167*	.011	.016	-.025	-.030	.122*	.256*	.005	.005	1								
<i>Manuf.</i>	.063	.091	-.195*	.057	-.081	.036	.149*	-.065	.051	-.008	-.088	1							
<i>Utilities</i>	-.093	-.065	.053	.009	.608*	-.042	-.047	-.024	-.069	.008	-.013	-.125*	1						
<i>Tech</i>	-.093	-.071	.036	-.253*	-.060	.076	-.222*	-.052	-.009	-.048	-.027	-.274*	-.039	1					
<i>W&R</i>	-.137*	.051	.137*	.024	-.078	-.079	-.064	.006	.168*	.022	-.036	-.364*	-.052	-.113*	1				
<i>Estate</i>	.023	-.088	-.082	.030	.079	-.068	-.079	.086	.060	-.031	-.020	-.200*	-.029	-.062	-.083	1			
<i>Service</i>	.122*	.017	.105	.012	-.062	.137*	-.024	-.029	-.033	.009	-.015	-.153*	-.022	-.048	-.064	-.035	1		
<i>Media</i>	-.031	-.090	.066	.015	.008	-.042	.048	-.024	-.056	.008	-.013	-.125*	-.018	-.039	-.052	-.029	-.022	1	
<i>VIF</i>	1.61	1.31	1.26	1.30	1.75	1.15	1.39	1.11	1.19	1.10	1.15	1.85	1.68	1.44	1.55	1.22	1.15	1.09	

Note: * significance at less at 0.1 levels..

(continued)

Table 7.3. Bivariate correlation coefficients for Big Four firms, large local firms and small local firms

Pearson Product-moment Bivariate Correlation Coefficients (two-tailed)																			
<i>Subgroup: Small local firms</i>																			
	<i>LntA</i>	<i>SqrsSUB</i>	<i>SqrsIND</i>	<i>ROA</i>	<i>Liquid</i>	<i>Pre_AO</i>	<i>NCF</i>	<i>Interim</i>	<i>Tenure</i>	<i>Year02</i>	<i>Mining</i>	<i>Manuf.</i>	<i>Utilities</i>	<i>Tech.</i>	<i>W&R</i>	<i>Estate</i>	<i>Services</i>	<i>Media</i>	
<i>LntA</i>	1																		
<i>SqrsSUB</i>	.277*	1																	
<i>SqrsIND</i>	.000	.256*	1																
<i>ROA</i>	.244*	.050	-.091*	1															
<i>Liquid</i>	-.062	-.169*	-.048	.103*	1														
<i>Pre_AO</i>	-.214*	.013	.024	-.222*	-.107*	1													
<i>NCF</i>	.447*	-.005	-.107*	.071*	-.050	-.076*	1												
<i>Interim</i>	-.021	-.024	.082*	.024	.006	-.022	.031	1											
<i>Tenure</i>	.142*	.116*	.027*	.030	-.009	-.132*	-.040	.023	1										
<i>Year02</i>	.074*	.072*	-.176*	.038	-.006	.064	.013	-.147*	.090*	1									
<i>Mining</i>	.055	-.115*	-.029	.021	.031	.071*	.069*	-.026	-.080*	.001	1								
<i>Manuf.</i>	.003	-.264*	-.134*	.088*	.019	-.140*	.107*	.045	-.037	-.032	-.156*	1							
<i>Utilities</i>	.074*	-.058	-.104*	.009	.039	-.055	.029	.010	.089*	-.030	-.019	-.238*	1						
<i>Tech.</i>	-.007	.104*	.048	.010	-.005	.094*	-.054	-.013	-.077*	-.047	-.025	-.313*	-.037	1					
<i>W&R</i>	-.066	.134*	.026	.007	-.094*	-.043	-.075*	.031	.117*	-.001	-.030	-.385*	-.046	-.061	1				
<i>Estate</i>	.019	.095*	.022	.010	.049	.083*	-.058	-.032	.048	.031	-.015	-.196*	-.024	-.031	-.038	1			
<i>Service</i>	-.005	.067	.118*	.010	.024	-.052	.007	-.036	.087*	.014	-.018	-.222*	-.026	-.035	-.043	-.022	1		
<i>Media</i>	-.001	.153*	.013	-.013	-.020	-.046	.111*	-.027	-.079*	-.006	-.013	-.167*	-.002	-.026	-.032	-.017	-.019	1	
<i>VIF</i>	1.59	1.39	1.18	1.15	1.08	1.18	1.33	1.04	1.11	1.09	1.14	2.41	1.27	1.34	1.55	1.15	1.21	1.13	

Note: * significance at less at 0.1 levels.

three groups large companies have better profitability and more net cash flow, but poorer liquidity than small companies. The results also show that auditors for companies with a prior MAO have a shorter tenure. Comparing the two local firm groups, large companies tend to keep a longer relationship with auditors while company profitability is negatively associated with prior MAOs. The proxies for company risk, liquidity, ROA, and previous audit opinion, are not significantly correlated with each other in the Big Four firm group and large local firm group. It may imply the independence of these proxies. Only in the small local firm group, are the proxies for risk significantly correlated with each other, but the correlation coefficients are not high enough to substitution for each other. In general, there are no significant and highly correlated variables here because no coefficient is greater than 0.7 and no value of VIFs is above 2.5. In this sense, to include all these independent variables in the fee model do not cause a multicollinearity problem in the fee models.

7.4. Hypothesis test

7.4.1. The weighted least squares regression for heteroskedasticity

Bourguignon *et al.* (2001) and Ireland and Lennox (2002) pointed out that in the two-stage selection model, auditor selectivity would result in the heteroskedasticity in the second step fee model. Maddala (1983) argued that the selectivity adjustment was sensitive to departures from the assumption that residuals of the second-stage model are normally distributed. Ireland and Lennox (2002) employed rank-transformations for audit fees to get normally distributed residuals. However, this transformation is

different from most audit fee studies, which use log transformations.⁴⁸ The rank-transformation changes the regression relationship with the independent variables (Green, 2003).

In this study, to retain the usual regression relationship between the log-transformation of audit fee and the independent variables, I make use of an alternative remedy approach to dealing with the problem of heteroskedasticity. Bourguignon *et al.* (2001) suggested that the weighted least squares in the second regression can account for heteroskedasticity presented due to selectivity to achieve efficiency. The STATA package is used to compute the weights $(1/\sigma_j\sqrt{1+\Delta})$ ⁴⁹. The constant coefficients estimated by the WLS fee models, the computed sums of weight, F-test and R square are presented in Table 7.4. The results of the F-test show the significance of the three fee models because F-tests are all significant at the level of 0.01. Taylor and Simon (1999) summarised the adjusted R² of audit fee models that have been examined in twenty different countries. Studies in other countries, such as the US, the UK, Australia, Canada, produced models with the adjusted R²s in the range of 45% (Francis and Strokes, 1986) to 90% (Palmrose, 1986), which indicated a strong explanatory power of the fee models. Adjusted R²s of 0.3768, 0.4407, and 0.5835 in this study are low for fee models compared with those of studies in other markets. Particularly the strength of the fee model for Chinese small local firms is comparatively weak, even if the selectivity has been considered. It implied that only

⁴⁸ They adopt a single-equation and do not rely heavily on the normality assumption.

⁴⁹ Bourguignon *et al.* (2001) demonstrated the heteroskedastic term (Δ) that depends on the variables of the fee models and on the parameters of the MNL selection model.

Table 7.4. The estimated coefficients of the WLS fee models

	<i>Sign</i>	<u><i>SmallLnAF</i></u>		<u><i>LargeLnAF</i></u>		<u><i>Big4LnAF</i></u>		<u><i>Single-equation (OLS)</i></u>	
		Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Test variables									
<u><i>LnTA</i></u>	+	0.279***	.0237	0.177***	.0486	0.367***	.0511	0.299***	.0168
<u><i>SqrtSUB</i></u>	+	0.063***	.0138	0.144***	.0223	0.079***	.0239	0.087***	.0102
<u><i>SqrtIND</i></u>	+	-0.038	.0285	-0.069	.0593	-0.055	.0878	-0.038	.0259
<u><i>Liquid</i></u>	?	0.006	.0117	0.003	.0091	-0.015	.0284	0.001	.0006
<u><i>ROA</i></u>	-	-0.286**	.1300	-0.964*	.5587	0.954	.9680	-0.093***	.0332
<u><i>Pre AO</i></u>	+	-0.017	.0555	0.098	.1058	0.0002	.2856	0.076	.0472
<u><i>NCF</i></u>	+	2.2e-10***	6.4e-11	2.7e-10**	1.2e-10	-6.7e-12	6.7e-12	5.9e-12	5.8e-12
<u><i>Tenure</i></u>	?	-0.011**	.0054	0.012	.0108	-0.019	.0121	-0.012***	.0045
<u><i>CONS</i></u>		7.017***	.4915	8.929***	.9978	5.145***	1.2340	6.495***	.3571
Control variables									
<u><i>Interim</i></u>	+	0.157**	.0668	0.226*	.1614	0.180*	.3100	0.166***	.0632
<u><i>Year02</i></u>	?	0.001**	.0301	-0.001	.0565	-0.003	.0779	0.0007	.0265
<u><i>Mining</i></u>	?	-0.563***	.1652	0.537*	.2905	(dropped)	(dropped)	-0.066	.1333
<u><i>Manuf.</i></u>	?	-0.618	.0477	-0.075	.0763	0.349***	.1005	0.023	.0369
<u><i>Utilities</i></u>	?	-0.111	.0984	0.207	.2603	-0.868***	.3020	-0.091	.0911
<u><i>Tech</i></u>	?	0.005	.0791	0.317**	.1246	0.152	.1491	0.097	.0600
<u><i>W&R</i></u>	?	-0.069	.0707	-0.039	.0993	0.145	.1827	0.015	.0555
<u><i>Estate</i></u>	?	-0.099	.1131	-0.109	.1461	-0.055	.1575	-0.154**	.0765
<u><i>Service</i></u>	?	-0.209**	.1024	0.300*	.1683	0.025	.2713	-0.042	.0861
<u><i>Media</i></u>	?	0.228*	.1306	0.042	.2137	-0.195	.3644	0.087	.1074
Correction Integrals for selectivity bias in the two-stage model									
<u><i>m0</i></u>		0.198	.2587	-0.712	.5941	0.248	.2285	--	--
<u><i>m1</i></u>		-0.029	.1419	-0.490*	.2521	0.415	.3982	--	--
<u><i>m2</i></u>		0.026	.0928	-0.446	.5589	0.269	.4890	--	--
Dummy variables for auditors in the single-stage model									
<u><i>Big 4</i></u>		--	--	--	--	--	--	0.154***	.0394
<u><i>Large</i></u>		--	--	--	--	--	--	0.047	.0293
Sample		577		229		127		933	
F-test		17.47***		9.52***		9.83***		38.75***	
R ²		0.3997		0.4924		0.6496		0.4594	
Adj. R ²		0.3768		0.4407		0.5835		0.4475	
Sum of weight		1.9292e+02		8.4886e+01		4.4737e+01		--	

Note: 'Sign' means predicted sign.

*, **, *** significant at 0.1, 0.05, and 0.01 levels (two-tailed); (dropped), indicating that in the subgroup of Big Four firms, no observation is in the mining industry.

37.68% of fee determinants charged by small local firms have been explained by Simunic's theory (1980). The potential omitted factors in the model, such as Guanxi, commission, and so on, might have a great influence in audit fees charged by small local firms and need to be explored in the future study.

In order to make a contrast with the results reported after correcting auditor selection bias, Table 7.4 also presents the estimation results using the single-stage OLS model for audit fees, which does not consider the selectivity of auditors and the theory of auditor selection. Auditor choices in the single-stage OLS fee model are exogenous variables. The OLS model also ignores the different pricing among auditors by using the pooled sample. Through comparing the results of the OLS model with the results of those using the two-stage models, we can see that there are inconsistent results between the two-stage estimation and the single stage estimation concerning the ROA and fee premium of the Big Four firms, which will be discussed in the next section.

In order to take account of the nature of the two-stage estimator, Bourguignon *et al.* (2001) suggested that robust variances be estimated by a bootstrapping method, which was introduced by Efron (1979). The theory for the bootstrap distribution of robust estimates for heteroskedasticity has been considered by much research, such as Shorack (1982), Parr (1985), Yang (1985) and Singh (1998). By resampling the data, the bootstrap amounts to treating the data as if they were the population for the purpose of evaluating the distribution of interest (Horowitz, 1994, p.189). Horowitz

(1994) argued that bootstrapping was often more accurate in finite samples than first-order asymptotic approximations because the first-order asymptotic theory often gives a poor approximation of the distributions of test statistics with sample sizes available in applications. The bootstrap often provides a traceable way to reduce or eliminate finite-sample distortions of the levels of statistical test. The number of bootstrap replications had better be set as high as is practical (Johnston, 1997). Here, the test statistical tests are parametric standard errors. The number of replications is set as 200 times and the resample size is set as the size of the sample in use (see Table 7.5). The next section will discuss the estimated results.

7.4.2. Analysis of bootstrapped results

7.4.2.1. Correction terms controlling for selectivity effects

In the second-stage fee model, correction terms for selectivity of auditors are inserted, which are unbiased estimators of conditional expected values of the residual derived from the MNL model. Note that the coefficients on these correction variables, (m)s, are in function of (σ_p). So the coefficients include the covariance (ρ)s between the residuals in the audit fee regression model and the residuals from the MNL model. Table 7.5 (the bootstrapped results) shows that all the coefficients of the terms do not equal zero and the coefficient of one term is statistically significant at the level of 0.1 (two-tailed). This result can reject the null hypothesis that the equation of auditor selection and the equation of audit fee are independent from each other. So indeed it shows that it is appropriate to use the two-stage selection model to correct the selection bias in audit fees.

Table 7.5. Bootstrapped standard errors (200 replications)

	<i>SmallLnAF</i>		<i>LargeLnAF</i>		<i>Big4LnAF</i>	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Test variables						
<i>LnTA</i>	0.279***	.0241	0.177***	.0581	0.367***	.0648
<i>SqrtSUB</i>	0.063***	.0138	0.143***	.0230	0.078**	.0278
<i>SqrtIND</i>	-0.038	.0285	-0.069	.0624	-0.055	.0879
<i>Liquid</i>	0.006	.0179	0.003	.0208	-0.015	.0340
<i>ROA</i>	-0.286	.1995	-0.964	.7584	0.954	1.354
<i>Pre AO</i>	-0.017	.0532	0.098	.1147	0.0002	.3358
<i>NCF</i>	2.2e-10***	5.3e-11	2.7e-10**	1.1e-10	-6.6e-12	1.6e-11
<i>Tenure</i>	-0.011*	.0061	0.012	.0118	-0.019	.0152
<i>CONS</i>	7.017***	.4971	8.929***	1.0978	5.145***	1.2499
Control variables						
<i>Interim</i>	0.157**	.0672	0.226*	.2797	0.180*	.4348
<i>Year02</i>	0.001	.0304	-0.001	.0643	-0.002	.0764
<i>Mining</i>	-0.563	.4847	0.539**	.2233	(dropped)	(dropped)
<i>Manuf.</i>	-0.062	.0398	-0.075	.0812	0.349***	.0951
<i>Utilities</i>	-0.111	.1850	0.207	.4484	-0.868**	.3827
<i>Tech</i>	0.005	.0747	0.317**	.1282	0.152	.1588
<i>W&R</i>	-0.069	.0649	-0.039	.1181	0.145	.1284
<i>Estate</i>	-0.099	.0979	-0.109	.1382	-0.055	.1622
<i>Service</i>	-0.210	.1409	0.300	.2810	0.025	.3347
<i>Media</i>	0.228	.1129	0.418	.2164	-0.195	.3529
Correction Integrals						
<i>m0</i>	0.198	.2669	-0.712	.6334	0.245	.2525
<i>m1</i>	-0.029	.1875	-0.490*	.2528	0.415	.5030
<i>m2</i>	0.026	.1251	-0.446	.5698	0.269	.5796

Note: *, **, *** significant at 0.1, 0.05, and 0.01 levels.

The sign of coefficient of the correction term is consistent with the sign of ρ , which is constrained between -1 and 1. Theoretically speaking, the sign of ρ can be interpreted as follows. Generally, if ρ is negative, any omitted variables in the selection model that make the choice more likely make audit fee less. In Table 7.4, there is one coefficient on correction term significant at the 0.1 level. However, it is risky to interpret the coefficients here because the omitted variables in the selection

model are complex in the Chinese auditing market. Some factors are argued to be associated with auditor selection in prior studies and the interview findings; but they are hard to be observed and measured, such as the quality of the internal control system, manager's integrity and professional competence, and sophisticated Guanxi (personnel networking). Therefore, it is impossible to figure out the specific cause of correlation. In addition, the nature of ρ makes it very sensitive to model specification. Since ρ is the correlation between the errors in the selection and fee equations, errors are necessarily tied up with model specification. Alternative specifications change the errors, which in turn change ρ . Thus, whatever the cause of the correlation between the errors in the two equations is, it should be inherently immeasurable. In this sense, the function of the inserted correction terms is just to control for the selectivity in the audit fee and their coefficients have no analytical meanings.

7.4.2.2. Unbiased significant fee determinants for all groups of auditors

After controlling for the selectivity effects, the bootstrapped WLS regression models for audit fees charged by small local firms, large local firms and Big Four firms produce unbiased coefficients on the explanatory variables. Among these variables, only LnTA, SqrtSUB, and interim auditing are significant fee determinants for all auditors. Consistent with previous evidence in other auditing markets, LnTA and SqrtSUB are positively associated with LnAF at the level of 0.01 or 0.05 in this study (see Table 7.5). This result indicates that total assets and the number of subsidiaries

are important determinants of audit efforts and influence audit fees for all auditors. However, the other variable for company complexity, the number of industries, does not statistically significantly affect audit fees, suggesting that diversity in industry does not increase audit efforts for Chinese auditors. Audit fees are influenced by company complexity only in terms of the number of subsidiaries.

The other significant variable for all auditors is 'interim', which is a control variable to remove the bias of audit fees of interim reports in the collected fee data. Interim auditing results in an additional charge that is normally not separated from the annual auditing fee in the company disclosures. So it is not surprising that interim auditing is significantly positively associated with the disclosed audit fee in all three groups, significant at the level of 0.1 or 0.05 (see Table 7.5).

7.4.2.3. Pricing differences among the auditor groups

Except for company size, the number of subsidiaries and interim auditing, the estimated results of other explanatory variables in the fee models are not consistent among different subgroups of auditors. The effects of company risk, industry type, net cash flow and auditor tenure on audit fees charged by Big Four auditors, large local auditors and small local auditors are different.

Risk

Company risks have different effects on audit fees in the three groups of auditors. I

control for the selection bias and use three variables to measure the Chinese listed companies' risks, ROA, liquidity ratio, and previous modified audit opinion. As a result, the bootstrapped results show that no risk variables are significantly associated with audit fees charged by all firms. Interestingly, for Big Four firms, their fees are not sensitive to any risk variables. The result is consistent with a growing body of research on the influence of institutional factors on auditing practices (Choi and Tang, 2003) and the selectivity bias on audit fees (Chaney *et al.*, 2005). This Chinese evidence shows that Big Four auditors are less conservative in their treatment of clients in a country whose legal system provides weaker protection of investors. In contrast, the estimated results using the single-stage OLS model for audit fees show that ROA is a significant fee determinant for all auditors (see Table 7.4). Thus, the inconsistent estimated results suggest the importance of taking into account company self-selection in the fee studies.

Liquidity ratio and previous modified audit opinion are not significant fee determinants for any auditor group. Table 7.2 shows that the means of liquidity ratios of all groups are not significantly different and all are high (1.60, 2.02 and 1.76). It implies that the Chinese listed companies may not have serious liquidity problems and audit fees are not influenced by companies' liquidity. The hypothesis for previous modified audit opinion is also rejected by this sample. Therefore, the arguments about previous MAO are not supported by the Chinese dataset. The result perhaps can be explained by an interviewee's remark.

“...as recently the Chinese regulators pay attention to listed companies with MAOs, we (auditors) intend to avoid the fluctuation of audit fees. High audit fees will cause the regulator’s question on ‘buying audit opinion’, while low audit fees may imply to the public that we did not put in enough audit efforts and provide a low audit quality.”

Net cash flow

Net cash flow is a potential fee determinant discussed in the interview. The empirical result in Table 7.5 finds that the net cash flow is positively associated with audit fees charged by small local firms at the significance level of 0.01 and also with audit fees charged by large local firms at 0.05. It supports the hypothesis that the more net cash flow the company has, the more audit fee the company paid to all local firms and vice versa. It indicates that audit fees charged by local auditors are not only determined by the amount of audit efforts, but also depend on the payment ability of companies. However, the hypothesis is rejected by the estimated result of audit fees charged by Big Four firms (see Table 7.6). Table 7.2 shows that the average net cash flows of companies choosing Big Four firms are significantly higher than that of companies choosing local firms. For Big Four auditors, their clients have high net cash flows and thus their audit fees have fewer constraints on payment ability. It suggests that the effect of net cash flow on audit fees is not significant when the net cash flow is high. The significant effects of the net cash flow on audit fees are not revealed by the estimation using the single-stage OLS fee model.

Auditor tenure

The last explanatory variable, the tenure of the auditor, is found to be significantly

and negatively associated with audit fees charged by small local firms (see Table 7.5). The result supports the interview finding that ‘low-balling’ rarely happens in the Chinese market and is consistent with the argument of Gigler and Penno (1995) that an imperfectly competitive market makes low-balling on initial audits unnecessary. The negative association indicates that the audit efforts made by small local firms are being saved by increasing the tenure of the auditor (Simon and Francis, 1988; Walker and Casterella, 2000). It is also possible that small local firms adopt a high-balling pricing strategy in the Chinese auditing market because of asymmetry information on their audit quality. They charge high audit fees in the early years and then reduce renewal fees to prevent their clients from switching to other audit firms (Diacon *et al.*, 2002). Tenure of Big Four firms is negatively associated with their audit fees, but not found to be statistically significantly.

However, in contrast to small audit and Big Four firms, the tenure of large local firms is positively associated with their audit fees (see Table 7.5). To look into the potential reason for this difference, it is worth noting that the average tenure in the group of large local firms’ clients is significantly shorter than that in the group of small local firms’ and that in the group of Big Four firms’ (see Table 7.2). In this sense, large local firms are facing higher risk from auditor switching than small local firms and Big Four firms. So probably large local firms may be motivated to engage in low-balling pricing for attracting new clients. However, there is a need to undertake further studies on this issue because the positive effect of the tenure of large local

auditors on their audit fee has not satisfied statistical significance to draw a conclusion.

As to the control variables, the year of data and industry type, I do not find the year of data has biased the results, but industry type does differently influence audit pricing of auditors. Big Four firms would charge higher fees for companies in manufacturing but lower fees for the utilities industry, and large local firms would charge higher fees for companies in the mining industry and technology industry. Industry type does not have a significant effect on the audit fees of small local firms.

As for the first-stage estimation, I do a robustness test by replacing some variables with other proxies, such as LnTurnover and ROE. The new proxies do not produce significantly different results on test variables. But the R squares become slightly lower and one more correction term for selectivity bias is found to statistically significantly influence audit fees charged by large local firms at the level of 0.05. The alternative definition for large local firms is not tested in the fee study because the results of auditor selection are sensitive to the definition and the poor estimation of auditor choices affects the calculation of correction terms and the estimation of other fee determinants.

7.4.2.4. Fee premium

Audit fee studies (e.g. Craswell *et al.*, 1995; Palmrose, 1986; Simon and Francis,

1988) often find Big Four (large) auditors earn significantly higher fees than non-Big Four (small) auditors, holding other fee determinants constant. However, this fee premium is normally estimated by the single regression model, which treats auditor choice as an exogenous variable. Recent fee studies (Copley *et al.*, 1995; Ireland and Lennox, 2002; Chaney *et al.*, 2004 and 2005) argued that the inclusion of auditor choice as an exogenous variable in audit fee regression could be invalid because companies are not randomly assigned to their auditors. Ireland and Lennox (2002) reported that without considering selectivity of auditors the estimated fee premium was significantly underestimated. However, when considering the selectivity, Chaney *et al.* (2004 and 2005) did not document evidence of fee premium charged by large auditors and Big Four auditors in private company audits in the UK and in public and private company audits in the US. Motivated by the new studies, this work also controls for selectivity and examines the fee premium of Chinese auditors.

Table 7.5 provides the estimated constants of fee determinants controlling for the explanatory variables and correction terms for selectivity. Chaney *et al.* (2004) argued that the two-stage model allowed the constant in the audit fee regression to vary across different auditors. They found that as Big Four auditors invest more in technology, training, etc., the intercept in the fee regression of Big Four clients is larger, reflecting the Big Four auditors' compensation for their increased investments. However, in this study, the highest intercept is in the regression model of large local firms and the intercept in the regression model of Big Four firms is lowest. In line

with Chaney *et al.*'s (2004) argument about the intercept in audit fee models, the result implies that local Chinese firms, particularly large local firms, may invest more than Big Four firms and ask for more compensation for it. This result can be explained by interview findings as many interviewees said that large local firms paid more attention to maintaining a good relationship with their clients. They invested more effort, such as providing for free some NASs for which they would normally charge, maintaining frequent communication and so on. Therefore, they ask for higher compensation for their efforts.

Given the evidence of selectivity bias, I evaluate the existence of fee premium in my sample by comparing the differences between the actual audit fee paid and the fee that the company would have paid, on average, had the alternative choices on auditor-type been made. The fee premium results are shown in Table 7.6. I examine the fee premium between the three groups of auditees, first for companies actually choosing Big Four firms, second for companies actually choosing large local firms and then for companies choosing small local firms.

Actually, the results show that large local firms have a fee premium relative to small local firms. I found that if large local firms' auditees had chosen small local firms, their audit fees would have been smaller on average than the actual fee paid (mean difference=0.072, significant at 0.01 level), while if small local firms' auditees had chosen large local firms, their audit fees would have been larger (mean difference=

-0.046, significant at 0.01 level). Therefore, the results show that large local firms charge higher audit fees relative to small local firms given the characteristics of listed companies.

Also, the results indicate that Big Four firms probably have a fee premium relative to small local firms. The results support that if small local firms' auditees had chosen Big Four firms, their audit fees would have been higher than the actual fees (mean difference = -0.182, significant at the 0.01 level), and the actual fees paid by Big Four firms' auditees are higher than the alternative fees that Big Four firms' auditees would pay to small local firms, on average (mean difference = 0.156). But I do not find that Big Four firms have a fee premium relative to large local firms. The results show that if Big Four auditees had chosen large local firms, their audit fees would have been larger on average than the actual fees paid because the mean difference is negative (-0.030), though the difference is not statistically significant at the level of 0.1. It is also found that if large local firms' auditees had selected Big Four firms, their audit fees would also have been larger (mean difference = -0.117, significant at 0.01 level). Therefore, these results suggest that Big Four firms' and large local firms' clients, on average, self-select Big Four or large local firms that minimise their audit fees. My results using the Chinese data are consistent with those in Chaney *et al.* (2004), having not supported that on average, Big Four firms charge more than that which would have been charged by large local firms, given the companies' characteristics.

Table 7.6. Audit premium

<i>Panel A: Fee premium</i>	<i>Big Four firms group</i>		<i>Large local firms group</i>		<i>Small local firms group</i>	
	Mean Difference	t-statistic	Mean Difference	t-statistic	Mean Difference	t-statistic
<i>Actual Fees—E(All fees)</i>						
Actual Fees—E(large local)	-0.030	-0.331				
Actual Fees—E(small local)	0.156	0.146				
Actual Fees—E(Big Four)			-0.117	-3.280***		
Actual Fees—E(small local)			0.072	2.538***		
Actual Fees—E(Big Four)					-0.182	-9.002***
Actual Fees—E(large local)					-0.046	-3.006***

Note: Panel A reports fee premium. E(All fees) is computed by multiplying model parameters, estimated for alternative auditors samples, with averages of explanatory variables for auditees of actual auditors. The audit-fee model used to estimate the parameters (α) is the second-stage equation model considering selection bias $\ln AF = \alpha Z_1 + m_0 + m_1 + m_2 + \varepsilon$, where the Z_i defined in Table 7.1.

In summary, my sample provides evidence of a large local firm fee premium and Big Four firm fee premium relative to small local firms, but does not find a Big Four firm fee premium relative to large local firms in China. Consistent with Chaney *et al.* (2004 and 2005), my results about fees suggest the following:

- 1) Some Chinese listed companies avoid audit quality and are cost-minimisers because Chinese listed companies lack effectual internal motivation to demand high quality auditing. This may be the reason why Big Four firms have difficulty in charging a fee premium relative to large local firms who are their strongest competitors.
- 2) The results in this study support the argument of Chaney *et al.* (2005) that auditors structure their business in a manner appropriate for specific client segments. Big Four firms may attract companies who want to reduce political costs and legal costs, enabling them to carry out audits more efficiently for large or largely state-controlled companies. However, the services of Big Four firms may not normally be attractive to small companies and audit efficiency may be reduced when working for them.
- 3) Auditees of Big Four firms may have greater bargaining power than the auditors (Kim *et al.*, 2003). In China, most large listed companies choosing Big Four auditors are largely state-owned in important industries, such as oil, electricity, steel, energy sectors and telecommunications. The great 'political' intervention makes these companies' bargaining power even stronger. The interviewees from Big Four firms have mentioned that they greatly concern their relationship with

the Chinese government because their business in China relies heavily on the large number of SOEs and the government policy. In this sense, the power to affect pricing may, to some extent, lie in the hands of large listed companies. So Big Four firms in China have difficulty in charging a fee premium relative to large local firms.

Table 7.5 presents the estimation of fee premium based on the single-equation without considering a selectivity effect. Differently, it shows that Big Four firms have a significant fee premium. The results are quite similar to those in Chaney *et al.*, (2005) that the single-stage fee model produced the fee premium of Big Four auditors while the two-stage fee models did not. So it provides evidence of the advantageous (adverse) selection effects experienced by large (small) local auditors in the Chinese auditing market and the importance of controlling the selectivity bias. Therefore, in order to obtain an unbiased fee premium, not only do company characteristics have to be controlled for, but also the selectivity effect should be taken into account for the fact that we do not observe the fees companies would have paid if they had chosen an alternative auditor.

7.5. Conclusion

This chapter reports the results from the second-stage model for audit fee determinants and premium. Audit fees charged by Big Four firms, large local firms and small local firms are respectively estimated using the WLS models. By

controlling for the selectivity calculated from the first-stage in the fee models, the unbiased coefficients on the explanatory variables in the fee models indicate the following: 1) For all auditors, company size and the number of subsidiaries are basic significant fee determinants. They are positively associated with audit efforts and audit fees. 2) The weak legal protection for investors and strong government intervention in China have an impact on the risk effect of a company on audit fees. Audit fees charged by all Chinese auditors are not sensitive to company risk in terms of liquidity, profitability and previous qualified audit opinion. 3) Auditors price their services differently. For example, audit fees charged by Big Four auditors are not significantly influenced by their clients' net cash flow as audit fees charged by small and large local auditors do. 4) No 'low-balling' pricing strategy has been found in China. The tenures of small local auditors are negatively associated with their audit fees. It may be due to the imperfect market competition and information asymmetry of auditor quality. 5) Big Four firms in China do not charge a fee premium relative to large local firms in the listed company market based on the two-stage models. The findings emphasise the importance of controlling for selectivity in audit fee studies and reveal pricing differentiation between different groups of auditors in China. Auditor selection and audit fee determinants actually are interrelated and they should be studied jointly.

CHAPTER 8

SUMMARY AND CONCLUSIONS

8.1. Introduction

A good piece of research work has to make contributions to learning through the discovery of new knowledge, or the connection of previously unrelated facts, or the development of new theory or the revision of older views. This chapter summarises the contributions made by this study. Firstly, the chapter begins with a review of research objectives and empirical contributions. This is followed by a summary of significant theoretical and methodological contributions. Finally, this chapter discusses this study's implications for policy-making, limitations and scope for future research.

8.2. Summary of research objectives and empirical contributions

This work is motivated by the challenges of recent serious accounting and auditing scandals in the US and in China, which have exposed those auditors and their large clients who jointly manipulated their financial statements. The disclosed facts indicate that company demand is an essential factor affecting auditing practices, and traditional theories are insufficient to explain a company's motivation to demand auditing services. Therefore, this study considers institutional factors to jointly study auditor selection and audit fees in the Chinese context, which is characterised as a weak legal

environment and a strong government-intervention institution. The research objectives are to examine Chinese listed companies' demand motivations to select auditors, and audit fee determinants with considering company self-selection effect on fees in the Chinese auditing market.

By using a multi-strategy research method, the research objectives are fulfilled. This study finds that the Chinese institutions, i.e. the weak legal environment and strong government intervention, mitigate listed companies internal motivation to select high quality auditors, but meanwhile they impose political costs on companies and thus motivate a few of them not to avoid high quality auditors. In addition, the work demonstrates a selectivity bias in audit fees and identifies audit fee determinants and audit fee premiums in the Chinese auditing market. The results also show that Big Four firms, large local firms and small local firms in China have pricing differences and listed companies select auditors from between large local firms and Big Four firms who can minimise their audit fees, given other fee determinants. The next subsections summarise the findings according to the research objectives.

8.2.1. The Chinese listed companies' demand motivation to select high quality auditors

The first research objective of this work is to discover what motivates Chinese listed companies to select different types of auditors. This thesis presents a review of theories relating to company demand for auditing and auditor's supply of audit quality.

Chapter two discusses theories in the previous literature: agency theory, signalling theory and the theory in relation to institutional factors. Agency theory and signalling theory focus on the nature of companies and explains an inherent motivation of firms to safeguard reliable accounting information. The theory about institutions argues that external factors, a legal system and government intervention, impose additional legal costs and political costs on firms and auditors, and broaden the nature of auditing and a company's motivation to select auditors, such as sharing litigation liability with companies, reducing political costs, and substituting for poor legal protection.

According to the theories, chapter three analyses the Chinese institutional background. It discusses the conflicting roles of the Chinese government and its great intervention in the auditing market, and argues that China has a weak legal system for private investor protection and strong government control in terms of state ownership and administration. As a result, the functions of the Chinese stock markets are conflicting, greatly influenced by the conflicting missions of the government. State shareholders or state-controlled shareholders dominate the market and private investors.

Based on the theories and analysis of the Chinese institutional setting, I developed four hypotheses for auditor selection: agency cost hypothesis, signalling hypothesis, political cost hypothesis, and substitution hypothesis. The results reject agency cost hypothesis about the monitoring role of shareholders and creditors. Managerial ownership is also not found to mitigate agency conflict or to motivate all companies

to select high quality auditors when agency costs increase. It was not found that reputable auditors serve as a signalling device for the quality of IPO companies and highly profitable companies. Therefore, Chinese listed companies are not motivated by agency costs or signalling to demand high quality auditing. In contrast, the external motivations, to reduce political costs and to substitution for legal protection, have a significant impact on the choices of high quality auditors. Company size and the percentage of non-negotiable shares both significantly positively influence company choice of Big Four auditors in order to avoid political attention. Being a cross-listed company increases the odds ratio of choosing Big Four auditors relative to local auditors because the company seeks a reputable auditor as a substitution for poor legal protection in China.

The estimated results of auditor selection suggest the importance of the external political and legal factors on company demand motivation for auditing, particularly in the settings that a capital market and a managerial labour market are not mature and efficient. In such settings, the EMA relating to agency theory and signaling theory are not reliable and so the results show that the internal motivations (agency cost motivation and signalling motivation) of companies to demand high quality auditing is mitigated and then most Chinese listed companies 'flight from audit quality' (DeFond *et al.*, 1999). But this work is the first to find evidence of political cost motivation and substitution motivation to demand high quality auditing in the Chinese market. The results support the influence of legal environment and government

intervention on auditor selection and explain clearly why Big Four firms in China can have a larger turnover than local firms under the circumstance that most listed companies do not strongly demand high quality audits.

8.2.2. Audit fee determinants and selectivity bias in fees

This work argues for the weakness of previous studies on auditor selection and audit fee determinants, which normally are separate from each other and do not recognise the interrelationship between company self-selection and auditor pricing. The latent assumption of prior fee studies that auditors are randomly assigned to companies is not true (Ireland and Lennox, 2002). Actually we can only observe the fees companies have paid to their chosen auditors, but cannot observe the fees they would have paid to alternative auditors. Therefore it is important to take into account the self-selection of auditor into audit fee studies; otherwise the results are biased.

Following the recent studies of Ireland and Lennox (2002) and Chaney *et al.* (2004 and 2005), this study jointly examines auditor selection and audit fee determinants firstly using the Chinese dataset. The results show the significant effect of self-selection on audit fees because the coefficient of one correction term for the selectivity is statistically significantly different from zero. Moreover, I present estimated results of fee determinants without considering auditor selection and find inconsistent outcomes about company profitability ratio and fee premium compared with estimated result controlling for the self-selection bias. For example, the results

using the single-stage OLS regression for audit fees show that ROA is a significant fee determinant for all auditors, while the results using the two-stage selection model do not show significant influence. The estimation of the single equation suggests fee premium charged by Big Four firms, however, the estimation of the two-stage equation do not. The result regarding fee premium are consistent with Chaney *et al.* (2005) and indicate the importance of considering the selection effect on audit fees.

After controlling for the selection effect in audit fees, I find that company size and the number of subsidiaries are basic significant fee determinants for all auditors. They are positively correlated with audit fees. The weak legal protection for investors reduces the conservatism of auditors towards company risks and therefore, I find that company risks in terms of liquidity, profitability and previous qualified audit opinion are not fee determinants for all auditors. The two-stage design for audit fee study allows the slope coefficients and the constant in the audit fee regression to vary across different auditors' clients. I do find different pricing among Big Four firms, large local firms and small local firms. The intercept in the regression for large local firms is the highest while the intercept in the regression for Big Four firms is the lowest. According to Chaney *et al.* (2004) and the interview findings, this result may indicate that in the Chinese auditing market large local firms invest more in training and keeping frequent communication with their clients than Big Four firms. This result is interesting and inconsistent from Chaney *et al.*'s (2004) finding in the US market and deserves future focus on auditing cost comparison between Big Four firms and local

firms.

Audit fees charged by Big Four auditors are not significantly influenced by their clients' NCF as audit fees charged by small and large local auditors are. The potential reason why the fees charged by local firms are sensitive to NCF may be that their clients generally have lower net cash flow. In addition, tenure of small local auditors is negatively associated with their audit fees while tenure of Big Four firms and large local auditors has no significant effect on their audit fees. This suggests that no 'low-balling' pricing strategy happens in China. The potential reason is that audit quality is not strongly demanded by companies and imperfect competition exists among the auditors.

This study does not find a fee premium of Big Four auditors relative to large local firms in the Chinese auditing market when controlling for selectivity. Consistent with Chaney *et al.*'s findings (2004 and 2005) in the US and UK market, in China listed companies choosing Big Four auditors generally would have faced higher fees had they chosen large local firms, given their company-specific characteristics. Therefore, this work documents evidence in China that auditor selection of Big Four firms may instead be dictated by cost considerations and the audit market appears to be partly segmented along cost-efficient dimensions. Auditors structure their business in a manner appropriate for specific client segments. Big Four firms may attract companies who want to reduce political costs and legal costs, enabling them to carry

out audits more efficiently for large or largely state-controlled companies. However, the high quality of Big Four firms may not normally be attractive to small companies and audit efficiency may be reduced when working for the small companies so as to cause high audit fees. Large local firms are found to charge a fee premium relative to small local firms. In other words, companies who choose large local firms would have lower fees if they chose small local firms. Therefore, when companies choose large local firms relative to small local firms, cost-minimising is not a driver. This work is the first one that finds no Big Four firms' fee premium relative to large local firms in the Chinese auditing market when considering the self-selection bias, and discusses fee premiums among more than three types of auditors.

The above summary shows the empirical contributions made by this work, and in the next section, I discuss the contributions in the aspects of theory and methodology.

8.3. The contributions to theory

This work makes two significant theoretical contributions: 1) examining institutional perspective on auditor selection and audit fee determinants in the Chinese context and documenting evidence of the significant influence of political and legal forces on demand for high quality audits; 2) examining the differences of Chinese auditors in three groups, Big Four auditors, large local auditors and small local auditors; 3) Jointly considering auditor selection and audit fees in China and recognising the effect of auditor selectivity on audit fees and the pricing differences among the three types

of Chinese auditors. The theoretical contributions made by this work provide theory implication for future study.

Examining institutional perspective on auditor selection and audit fee determinants

The institutional perspective is derived from La Porta (1997 and 1998). Choi and Wong (2003) and Francis *et al.* (2003) investigated the demand for and the supply of audit quality across different legal environments. They mainly focused on the legal environment that protects public investors. They did not pay much attention to political influence. This study not only discusses the legal environment, but also takes into account government intervention. The results document an interesting finding, namely, that political costs motivate large state-owned listed companies to select Big Four firms.

Therefore, this study is different from most other auditing studies in China in that it studies auditor selection and audit fee determinants from the institutional perspective, and thus China is analysed as a case with a weak legal environment and strong government control compared with other markets. So this study provides evidence of influence of such institutional factors on auditor selection and audit pricing. The results not only make a contribution to literature relating to China but also are significant for comparative studies among different countries.

Examining three types of auditors

Most prior auditing studies differentiate auditors into two groups by either size (large/small) or brand name (Big Four/non-Big Four). A few works have tried to classify auditors into more groups and examine their differences. Actually, it is possible to go further by dividing non-Big Four firms into large and small groups. It is interesting and significant to investigate large non-Big Four firms, particularly in an emerging market, because they are strong competitors of Big Four firms who develop themselves without international brand names. Through studying companies' motivations to select large non-Big Four firms and their pricing determinants, we can observe product differentiation of large non-Big Four firms.

Some prior studies on auditor choices and audit fees in the Chinese auditing market exclude Big Four firms and only examine large and small non-Big Four firms, but no one has compared Big Four firms and large non-Big Four firms. This work on auditor selection and audit fees includes all Chinese auditors qualified for auditing listed companies and differentiates them into three groups for the first time in the Chinese market.

Jointly examine auditor selection and audit fees

In addition, this study extends the two-stage study relating to auditor selection and audit fees (Ireland and Lennox, 2002; and Chaney *et al.*, 2004) into the emerging Chinese market. The results support that auditor selection and audit fees are not

independent from each other using Chinese data. But the most important development to the two-stage studies on audit fees is to study the self-selection and pricing differences in three groups of auditors. The results show the different motivations to select the three groups of auditors and their pricing differences. Therefore, large non-Big Four firms had better be separated from other non-Big Four firms in future studies on the Chinese market.

8.4. Methodological contribution

Methodologically, this study adopts a multi-strategy research design. This study conducts interviews and makes qualitative analysis before undertaking a quantitative study using secondary-data. The interviews explore the perspectives of Chinese listed companies and auditors about auditor selection and audit fee determinants in China. The semi-structured interviews collect explorative data on auditor selection and audit fee determinants from twenty interviewees, ten CFOs and ten senior partners from different Chinese listed companies and Chinese accounting firms.

The interview results support the influence of institutional factors on auditing demand and thus help facilitate the subsequent formulation of political cost and legal cost motivations. The qualitative study also support the differentiation among Big Four auditors, large local auditors and small local auditors, and identify a few factors affecting auditor choice or audit fees that cannot be measured and included in subsequent quantitative studies, such as the Guanxi network (interpersonal

relationship), internal control system, and manager ethic. The interview findings are used in the formulation of hypotheses, selection of empirical models, and discussion of empirical results.

The quantitative study is a main focus in this study. In order to jointly consider auditor selection and audit fees in the Chinese context, this study is the first one that adopts the two-stage models (Bourguignon *et al.*, 2004) to examine more than two categories of auditor choices and audit fees jointly. The first stage equation is for auditor selection, based on the MNL model as three alternative auditor choices are identified based on the background and interviews, i.e. Big Four auditors, large local auditors and small local auditors. The results of Hausman test for independence of irrelevant alternatives assumption and Wald test for combining categorical choices suggests that significant differences exist in the three alternative auditor choices in China. Therefore, this study documents evidence of a classification of auditor type in the literature as most prior auditing studies use binary auditor choices. This study adopts advanced analytical methods to interpret the results of the MNL model, such as odds ratios and odds ratio plots. It is the first time that these methods are used in auditing literature.

In summary, the most significant methodological contribution this study makes is the use of advanced two-stage models counting for selection bias based on the MNL model. The models have not been introduced in the auditing and accounting literature

before. They are more sophisticated than the Heckman's two-stage selection models used by Ireland and Lennox (2002), and Chaney *et al.* (2004 and 2005) because they allow more than two categorical auditor choices and involve advanced interpretation techniques.

8.5. The policy implications of research results

The study results have implications for policy and practices. Firstly, the results suggest that the effect of government control of listed companies in China on demand for high quality auditing is negative, but non-monotonic. The government has conflicted policy missions as state asset owner and administrator of the market. The dominant role of state-controlled ownership in Chinese listed companies and state-owned creditors modifies agency problem and their monitoring incentive to reduce agency costs is not strong. Also state shareholders exert control over management appointments and compensation, and Chinese managerial labour market is undeveloped. As a result, a manager's signalling motivation to demand reputable auditors is weak. In this sense, to reduce the government control by cutting down the proportion of state-controlled ownership and opening the banking industry to non-state owned participants is probably helpful to strengthen internal agency cost motivation of Chinese listed companies to demand high quality auditing.

However, the government control can also have a positive influence on monitoring activities. My results support political cost motivation, which argues that companies

with a very high proportion of non-negotiable shares would demand high quality auditing to reducing political costs. Therefore, it is arbitrary to criticise government intervention in term of state ownership and appeal to rigorous privatisation, particularly, in a transition economy that does not have a mature market mechanism and a complete legal system to protect private property rights. The political force through state ownership could exert a good incentive to demand audit quality.

Secondly, a legal environment for investor protection is important for enhancing demand for high audit quality. As the first implication discussed, reducing state ownership does not necessarily strengthen companies' demand for high quality audits. We also need a sophisticated legal system to protect property rights. For example, we need to increase litigation risks for companies and auditors through improving legal enforcement without the threat of litigation liability; however, large amounts of earnings management, and false accounting and auditing activities cannot be avoided.

Thirdly, the weak demand for high quality auditing influences the supply of audit quality and audit fees. In order to enhance auditors' quality, the most important measure is to strengthen companies' demand motivations. Otherwise, even Big Four firms will lower their quality to grab clients. Actually, the quality of Big Four firms could be varied according to demand in different institutional settings. Therefore, the Chinese government should not make a fetish of the quality of Big Four firms and ignore Chinese companies' weak motivation for audit quality.

8.6. Research limitations and opportunities for future study

Any piece of research work cannot be perfect. Although this study has tried to cover a wide range of literature, adopt multi-strategy research methods, and undertake several robustness checks for quantitative estimations, it has some limitations, which gives scope for future study.

Firstly, the quantitative study in this work is a cross-sectional design because only two-years of reliable data were available for this study. Audit fees were required to be disclosed after 2002. So it is difficult to trace and control the change in individual cases over time on auditor selection and audit fees using the two-year dataset. Not including the time dimension is a limitation of this study. In the future, we may be able to collect a panel of data to do a time-series study and to control for individual changes.

Secondly, given time constraints, the sample of 933 observations is selected according to the modified cut-off sampling method, which is not a random sampling method. The reason for using the cut-off sampling method is that the population are highly skewed according to auditor choices. The numbers of companies choosing Big Four firms and large local firms are very small compared with the number of companies choosing small local firms. The non-random sampling may bring estimation errors, and so using a larger random sample or the population as the sample to re-examine the models is possible for future research.

Thirdly, I identified some factors affecting auditor selection and audit fees in the interviews, but have not included them in the quantitative study because it is difficult to measure them, for example, the Guanxi, company internal control system, manager ethics and capability, and the relationship between audit firms and securities companies. Some of these factors are related to theories in other disciplines. For example, the Guanxi is a heritage heavily influenced by the Chinese culture and social norms. Therefore, future study may gain from finding a reliable method to measure these factors and collect data about them, and examine theories relative to social science in auditing studies.

Fourthly, some results of this study are not consistent with the hypotheses and require future replications. For example, the percentage of independent directors in the Board is not found to influence auditor choices in this study. This result is influenced by the new CSRC requirement that by the mid of 2003 Chinese listed companies should have 1/3 independent directors in the Board. Therefore, the percentage of independent directors cannot indicate quality of corporate governance after it is restricted by the requirement in China. Future studies had better investigate other proxies for quality of corporate governance in China, such as the frequency of the board meetings, or personal profiles of independent directors. In addition, degree of ownership concentration is significantly positively associated with choice odds ratio of large local firms relative to small local firms and the number of industries is the opposite. It

is necessary to examine these unexpected results in future works.

APPENDIX

Introduction

Thank you for agreeing to see me. In this interview I would like to ask the following questions and try to collect in-depth information about the Chinese listed companies' selection of auditors and their audit fee determinants. All the information is just for research purposes. The identity of the interviewee and the company or the audit firm will not be revealed in my thesis and any subsequent publications.

The issues I am particularly interested in

1. the functions of independent auditing in the perceptions of listed companies and auditors;
2. the internal and external factors affecting companies' demand for independent auditing;
3. the differentiations among accounting firms in China;
4. the audit fee determinants.

Specific questions

Part A: Interviewees' Profile

A1: Listed company's profile

1. Listing date
2. The main business
3. Location
4. Total assets

A2: Audit firm's profile

1. Date of founding
2. Location
3. The number of CPA's

4. The income of auditing listed companies in 2002

Part B: Auditor Selection

A1: Listed company

1. Who is responsible for selecting the audit firm in the listed company?
2. What functions do you think independent auditing has?
3. What functions of independent auditing do your companies want from your auditors?
4. What factors could influence a listed company's choice of auditor?
 - a. internal factors (according to agency theory and signalling theory)⁵⁰
state shareholders, foreign shareholders and private shareholders, creditors, IPO, corporate governance and managers...
 - b. external factors (according to the theory in relation to institutional factors)
legal system for investor protection, government control, culture...

A2: Audit firm

1. How do you find new clients?
2. What functions do you think independent auditing has?
3. What function of independent auditing do your clients want from your services?
4. What considerations do you have when you accept a new client?
5. Do you think listed companies have differential demands for audit quality?
6. What factors you think will make a listed company have different demands for audit quality?

Part C: The Differences between Auditors

A1: Listed company

1. Is there any difference in audit quality among the Big Four joint venture auditors, large local auditors and small local auditors?

⁵⁰ These backing contents after the question are outlined based on the above literature review and background analysis. They are just to help me to structure and check interviewees' answers.

2. What kinds of audit firms have higher audit quality?

size, brand name, industry specialists

3. Why do those audit firms have higher audit quality?

4. Besides audit quality, are there any other differentiations among the auditors?

A2: *Audit firm*

1. Do you think an audit firm always keeps the quality of its audit services at a certain level?

2. Is there any difference in audit quality among Chinese audit firms?

3. What kinds of audit firms have higher audit quality?

size, brand name, industry specialist

4. Why do those audit firms have higher audit quality?

5. In your opinion, what other differentiations do auditors have?

Part D: Audit Fees

A1: *Listed company*

1. What auditors will charge a fee premium in China? Why?

2. How do you make an agreement on audit fees with audit firms?

4. What factors influence audit fees in China? What are the proxies for the factors?

auditee size (TA, turnover), auditee complexity (industry, subsidiary), auditee risk (ROA, prior audit opinion, leverage, liquidity), location, auditor's tenure and NAS.

A2: *Audit firm*

1. Are there any regulations or guidance on audit fees stipulated by the local government?

2. Which type of auditors charge a fee premium in China? Why?

3. What do you think about the quality of disclosure of audit fees in the annual reports of listed companies?

4. How do you reach an agreement on audit fees with listed companies?

5. Do you adopt audit time as a base to calculate audit fees?

6. What factors influence audit fees in China?

auditee size (TA, turnover), auditee complexity (industry, subsidiary), auditee risk (ROA, prior audit opinion, leverage, liquidity), location, auditor's tenure and NAS

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