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THE INFLUENCE OF AUDITOR CHOICE ON COST OF DEBT CAPITAL FOR LISTED COMPANIES

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Purpose: This study aims to examine the impact of auditor choice on debt pricing for listed companies by using the samples of listed companies in U.S. In this paper, Big 4 audit firms are considered to be “high-quality” auditors and consequently they provide a higher perceived and actual audit quality.

Design: The influence of auditor choice on cost of debt capital for listed companies is investigated by the differences in companies’ interest expenses when they hire Big 4/ non-Big 4 auditors.

Data: The sample is selected from all listed firms in United States. The data combines CRSP and COMPUSTAT databases and includes US listed companies from NYSE, AMEX, NASDAQ and ARCA EXCHANGE. The selected sample companies all have financial statements for six successive years from 2007 to 2011 and fiscal years with 12 months.

Findings: After controlling for other determinants of debt pricing, the results do not significantly support my hypothesis, as to say, the relationship between auditor choice and cost of debt capital cannot be drew in this paper.

Practical Implications: The relationship between auditor choice on Big 4/non-Big 4 and cost of debt capital is important when companies eager to find ways reducing their cost expenses. By hiring a higher quality auditor, the financial reports provided to outsiders will be more reliable and contain less information asymmetries. In that case, lenders will take less risk and thus, reduce the debt price.
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1 INTRODUCTION

1.1 Overview

Audit is a key contributor to financial stability and to re-establishing trust and market confidence. Auditors are entrusted by law with conducting statutory audits and fulfill an important role in offering an opinion on whether the financial statements are stated truly and fairly (Quick 2012). This assurance should reduce the risk of misstatement, subsequently, reduce the costs of business failures.

The accounting and auditing professions exist to serve the public interests. Starting in the late 1970s in the U.S., the leadership of the accounting and auditing profession, and the large audit firms in particular, became increasingly focused on the commercial aspects of their business in terms of growth and global expansion. There are oft-expressed concerns that these “business values” displaced “professional values” such as auditor independence and serving the public interest (Quick 2012). One of the forces that may have stimulated this change in attitude was the deregulation of the way in which auditors competed for clients when the traditional prohibitions against advertising and solicitation were removed in many countries. The removal of these prohibitions made it possible to aggressively court new clients and to design new (non-audit) services that could be aggressively marketed to clients and non-clients alike. Thus, there are multiple threats on the auditor independence which is perceived as the corner stone of audit profession.

The value of auditing is both internal and external. To the auditee, defined as the organization to be audited, audit assurance is supposed to decrease the risk of internal controls, misstatement and hence, decrease the possibility of business failure. To information users outside the organization, the assurance will reduce the risk of information asymmetry; optimize the allocation of resources, thus, improving the efficiency of capital markets. In this paper, the attention will be mainly paid on the influences on capital market.

Audit contributes to investor protection (Newman et al. 2005), reduces perceived investment risk and thus, cost of capital. A large body of studies examines auditing
in the context of its influences on a firms’ cost of capital. Theory posits that an audit by an independent party reduces the information asymmetries; subsequently, reduce the possibility of moral hazard and adverse selection problem between information providers and information users. In addition, audits may also play an ex post role which is considered to be a verification device in the event that a firm defaults on its loan (Townsend 1979).

Some believe that the value of auditing is influenced by the audit quality which defined as the as the joint possibility that an auditor both discovers and reports on material errors in a client's financial statements (DeAngelo 1981). Audit quality can be regarded as a theoretical domain ranging from low to high level of quality (Francis, 2004). At the start of the point or extremely low end, audit failure happens. Following that logic, audit quality and audit failure are negatively related: the higher the failure, the lower the quality. Accurate audit failures are hard to detect due to several factors including both auditors and auditee, such as auditor litigation, business failure, earnings restatement, auditor reputation.

It is, of course, highly desirable that audit quality reaches the level that is desired by market participants. However, it must also be kept in mind that true audit quality, defined as the extent to which an auditor reduces the risk that financial reports are materially misstated, is not observable (DeAngelo 1981). A considerable number of academic research shows that the level of audit quality achieved in practice depends on demand and supply factors, as well as institutional and contextual factors. Hence, it is difficult to both grasp the “general” level of audit quality in the market and to quantify an appropriate target level of audit quality (Pittman & Fortin 2004). What is clear is that shareholders, stakeholders and market participants must trust that the profession can deliver an acceptable level of audit quality.

Because of the variation in the presence of an audit is generally unavailable, Empirical literature examines the relationship between the quality of financial statement and the cost of capital by study the characteristics of auditors. DeAngelo (1981) points out that larger auditors will face bigger problems in the event of a misreporting, they will be more cautious when conducting audits, therefore, audit quality of big auditors is relatively higher. In another word, auditor size can be a
proxy for audit quality. Dopuch and Simunic (1980) argue that the market for audit services was characterized by quality differentiated suppliers, many studies have investigated the value of large (currently Big 4) audits versus non-Big 4 audits in various contexts, and prove that large auditors provide higher audit quality than non-Big 4 auditors. Besides, auditor tenure, non-audit services, litigation risks, industrial expertise also have attracted attentions. In addition, the factors from the auditee side can also proxy audit quality as well, for instance, ownership structure, earnings quality, the quality of financial reports, etc. Using the setting of initial public offerings, Beatty (1989), Willenborg (1999) and Weber and Willenborg (2003) find that initial public offerings associated with larger auditors have less underpricing and that the pre-IPO opinions of the auditors are more predictive of post-IPO stock performance. Mansi, Maxwell, and Miller (2004), Pittman and Fortin (2004), Mansi (2011) and Karjalainen (2011) also find that the cost of debt is lower for firms with a larger auditors in a setting of debt market.

Since financial reports are an important source of information for lenders in both markets. The quality of financial information influences the lenders’ expectations of future cash flow from where the debt repayments will be serviced. If auditor assurance reduces lenders’ monitoring costs (Watts & Zimmerman, 1986), competition will push banks to pass along these cost reductions to borrowers in the form of lower interest rates. In the context of debt contracting, audits may alleviate ex ante information uncertainty faced by lenders and reduce ex post debt renegotiation costs, thereby, facilitating debt contracting (Blackwell et al., 1998). To sum up, theory strongly suggests that the cost of debt is negatively related to audit quality and much of empirical evidence supports this.

The benefits of audits are multi-faceted and the value of these benefit vary from firm to firm. Although there is a large amount of researches focus on the relation of audit quality and cost of debt capital in private firms (Sundgren 1998; Karjalainen 2011) or in newly public firms (Pittman & Fortin 2004). Publicly listed companies is my emphasis in this paper, because the separation of ownership and the conflict between owners and agency in listed companies bring lights into the importance of independent external audit with respect to corporate governance and the oversight of those companies.
1.2 Prior research

The development of the corporate form of business and the expanding world economy over the last 200 years have given rise to an explosion in the demand for assurance provided by auditor. In financial accounting, an audit is defined as the independent assessment of the fairness by which a company's financial statements are prepared and presented to and by its management. This task is mainly performed by the skilled, competent, independent and objective persons, known as auditors.

There are several reasons to apply an external auditing. The separation of ownership and management give rise to agency problem (theory). Agency theory suggests that corporate managers or controlling shareholders act based on their own interests, at the expense of outside investors or minority shareholders (Jensen & Meckling 1976). Another major reason for firms to hire external auditing is institutional requirement. these may be imposed by organized stock exchanges, institutional investors or firms feel obliged to engage external auditing due to “political cost” (Watts & Zimmerman 1978).

Auditor independence is often referred to as the cornerstone of the auditing profession because it is the foundation for the public’s trust in the attest function. According to IFRS (2010), it distinguishes between independence of mind and independence in appearance. However, there are several threats which would impair the independence of auditors.

Audit quality is bound up with the credibility of financial statements. DeAngelo (1981b) defines audit quality as the joint possibility that an auditor both discovers and reports on material errors in a client's financial statements. Usually, auditors provide a reasonable assurance that the financial statements as a whole are free from material misstatements, whether due to errors or frauds. Specifically, reasonable assurance refers to a high but not absolute level of assurance. Thus, what the auditors aim at is to minimize the risk that the audited information is material misstated.

Shareholders, stakeholders and market participants have to rely on the acceptable level of audit quality delivered by the profession. In particular, the information users
should also make reasoning of audit quality based on observable indicators such as auditor-specific characteristics which include the size, reputation, Big 4 or non-Big 4 (DeAngelo 1980b; Francis & Wilson 1988). Nevertheless, some papers point out that Big 4 audits may also have related to higher audit fees (DeFond et al. 2000), lower auditor litigation rates (Palmrose 1988), increased likelihood to issue modified audit reports and more signals of financial distress. Empirical evidence on the role of accounting choice in auditor change decisions has been provided. Consistent with theory, some auditor changes are motivated by divergent beliefs among the auditor and management concerning the appropriate application of GAAP (Dye 1991; Antle & Nalebuff 1991).

Davis and Ashton (1997) report that auditors lower the decision threshold for the “substantial doubt” criterion when making a going concern assessment for highly financially distressed companies, in addition to assess financial distress as high. At the same time, the joint effect is to modify audit reports more often than if merely assessing financial distress as high. In the paper of DeFond et al. (2002), they find that negative discretionary accruals are concentrated among the sample partitions that are expected to pose the greatest client litigation risk threat to the auditor. Some studies also provide evidence on the relation between accruals and auditor litigation concerns; and results are consistent with litigation risk concerns inducing auditors to pressure managers into adopting conservative accounting choices that ultimately trigger auditor dismissal (Lys & Watts 1994). Chen and Church (1996) report that the firms have significantly “less negative” stock returns surrounding bankruptcy filings when the auditor had previously issued a modified audit report. In related research, Francis and Reynolds (1998) and DeFond and Subramanyam (1998a) also selectively screen out clients because of litigation risk, in addition to engaging in reporting conservatism.

Because the effect of the provision of non-audit services on independence in fact is difficult to observe, previous studies in this area are archival studies that used proxies for independence. Non-audit services were related to qualified or going concern opinions (Lennox 1999; Craswell et al. 2002; DeFond et al. 2002), the degree of earnings management (Frankel et al. 2002; Kanagaretnam et al. 2010; Quick & Sattler 2011), restatements (Raghunandan et al. 2003; Ferguson et al. 2004; Kinney
et al. 2004) and litigation (Bajaj et al. 2003). Most studies reported a negative effect on perceived independence but some failed to find any significant impact at all, and a few studies even found a positive impact. Previous research also used different types of consulting services, Quick and Warming-Rasmussen (2009) found that the degree to which perceived auditors’ independence is impaired depends on the type of non-audit service. Significant differences in these perceptions would require individual treatment of different services by regulators. Thus, a general prohibition of non-audit services would not be necessary.

As mentioned above, the choice of auditor has played an important proxy of difficult-to-observe audit quality in different aspects. Previous theoretical and empirical research has generally established that audit has economic value, even in the absence of a mandated audit requirement (Sundem et al. 1996). The decision to have an auditor, the selection between different auditors, and the decision to switch auditors are complex choices. Prior research has partially explained auditor choice by using agency theory (DeFond 1992; Carey et al. 2000).

Dopuch and Smunic (1982) hypothesized that different auditing firms provide auditing services which are perceived by investors to be different in quality and, specifically, that the Big 8 auditors are perceived as being more credible than non-Big 4 auditors. In that case, auditors of big audit firms are supposed to provide a better product/service. Arguing from different perspectives, DeAngelo (1981) also made a conclusion that a positive relationship exists between audit size and audit quality. The author assumes that if an auditor use unethical ways to retain a client have been discovered, the audit firm is less likely to be retained by other existing clients or the future audit fees from such clients will be reduced. Thus, if auditors earn client-specific quasi-rents, large audit firms have greater incentive to be keep honesty and provide more credible services to their clients. That is, their audits will be of higher quality. Nichols and Smith (1983) supported the results that the market appeared to react generally positively to a change from a non-Big 8 to a Big 8 auditor and vice versa. However, the magnitude of the difference in the reactions was not statistically significant.
Hughes (1986) and Datar et al. (1991) develop analytical models in which reporting characteristics (disclosure and auditor choice) are used to signal the entrepreneur’s private information. Datar et al. (1991) argue that engaging a high-quality auditor reduces the likelihood of material misrepresentation in the information provided by the entrepreneur. The audited information is used to discriminate between firms with differing prospects (Clarkson & Simunic 1994). In contrast to Datar et al. (1991), Titman and Trueman (1986) predict that entrepreneurs of riskier firms choose lower-quality auditors. Their prediction follows from the argument that the effect of information on the market value of an IPO increases with the precision of the information. According to Titman and Trueman (1986), high-quality auditors provide more precise information, but are more costly. In the study of Teoh and Wong (1993), their findings show that ERCs of Big 8 clients are statistically significantly higher than for non-Big8 clients. Furthermore, the result is robust with respect to the inclusion of other explanatory factors for ERC that have been suggested by previous studies: growth and persistence, risk, firm size, and pre-disclosure information environment.

Prior studies have investigated the relation between audit firm tenure and earnings quality or audit quality. Some studies use discretionary accruals (Johnson, Khurana, & Reynolds 2002; Myers, Myers, & Omer 2003) or restatements of financial statements (Myers, Myers, Palmrose, & Scholz 2004) as a proxy for earnings quality. Some studies use alleged fraudulent financial reporting (Carcello & Nagy 2004) or the likelihood of issuing a going-concern opinion (Geiger & Raghunandan 2002) as a proxy for audit quality. Johnson et al. (2002) investigate the relation between audit firm tenure and absolute discretionary accruals. A study by Carey and Simnett (2006) investigates the relation between audit partner tenure and audit quality. With regard to long partner tenure, the authors find (a) a lower propensity for the partners to issue a going-concern opinion, (b) some evidence of lower likelihood of just missing earnings benchmarks, and (c) no evidence of an association of long partner tenure with abnormal working capital accruals. In the research of Chen, Lin and Lin (2008), authors find a relation between longer audit firm tenure and higher earnings quality (when partner tenure is not considered), which is consistent with the findings in prior studies that use U.S. data. Chi and Huang (2005) investigate the relation between audit partner tenure and earnings quality using Taiwanese companies. They find that
discretionary accruals are initially negatively associated with audit partner tenure and audit firm tenure, but the associations become positive when tenure exceeds five years.

Prior research documents that auditor industry specialization enhances financial reporting quality and mitigates fraudulent financial reporting (Johnson, Jamal, & Berryman 1991; Carcello & Nagy 2003; Krishnan 2003b, 2005). For the sake of the truth that fundamental differences in error characteristics and methods of detection across industries (Maletta & Wright, 1996), auditors who have a more comprehensive understanding of an industry’s characteristics and trends will be more effective in auditing than auditors without such industry knowledge. The purpose of Craswell et al. (1995)’s study is to infer the existence of Big 8 reputations for both industry specialization and general brand name based on empirical audit fee models. The result shows that industry specialization will increase a Big 8 auditor’s reputation (within that industry) but will special expertise development besides the general expertise of the firm. This result may also mean that it is supportive that the audit fees of Big 8 auditors contain premia relating to both general brand name and industry specialization. Using data from the pre-crisis period and three measures of audit quality, auditor type (i.e., Big 5 versus non–Big 5), auditor industry specialization /expertise, and audit and non-audit fees paid to auditors, Kanagarenam et al. (2011) examine the effect of audit quality on the market valuation of the discretionary component of the allowance for loan losses. The results show that, relative to the nondiscretionary component, the market valuation of the discretionary component of loan loss allowance is higher for banks audited by Big 5 auditors than for banks audited by non–Big 5 auditors.

Prior researches have examined the impact of auditor choice on the cost of equity capital, especially the IPO market. The market for initial public offerings (IPOs) is characterized by information asymmetries between the entrepreneur and investors regarding the value of the firm. There is a demand for a high quality auditor in an IPO setting to reveal information to investors about firm value (Simunic and Stein 1987; Datar et al. 1991) and to reduce underpricing (Beatty 1989; Balvers et al. 1988). According to those studies, as firm-specific risk increases, high quality auditors provide marginal benefits beyond those provided by low quality auditors.
Researchers continue searching for relations between information quality and cost of debt capital to find a way to reduce interest expense for companies. Choosing a Big 4 auditor may lead to more credible financial statements by, for example, improving the precision in firms’ earnings (DeAngelo 1981b; Balvers, McDonald, & Miller 1988), which in competitive debt markets reduces contracting costs because lenders will not have to resort to expending resources on gathering this information from other sources.

The Report of the AICPA (2004), identifies a lower cost of equity capital as an important benefit of greater disclosure. If auditor assurance reduces lenders’ monitoring costs (Watts & Zimmerman 1986), competition will push banks to pass along these cost reductions to borrowers in the form of lower interest rates. However, the evidence on the relation between auditor assurance and loan interest rate is inconclusive. Rajan and Zingales (1998) report evidence of a life cycle in the pattern of corporate financing, with firms more dependent on external financing in their early years. However, that can only be fulfilled when there is no/less information asymmetries in the financial statements of listed companies.

Lenders may prefer young firms, which are just forming their reputations for debt servicing, have higher-quality audits. This implies that the marginal benefit that a higher-quality audit provides through lowering firms’ borrowing costs will be decreasing in age. Pittman and Fortin (2004) pay attention to the firm’s early public years and find it an opportune setting for studying the influences of auditor choice on their interest of debt. Consist with their assumptions, engaging a Big 6 auditor, which has a good reputation for providing a higher-quality audit that enhances the credibility of financial statements.

The traditional banking literature (e.g., Freixas and Rochet 1997) suggests that credit risk is the major lending risk faced by banks and is one of the primary determinants of loan pricing. Greater lending risk leads to higher loan interest rates. In addition, the theoretical findings in Barry and Brown (1984), Easley, Hvidkjaer, and O’Hara (2002) suggest that the systematic risk of securities is affected by the amount of available information, and limited information is a source of non-diversifiable risk
that should be priced in securities. As a result, this literature argues that information disclosure lowers information risk and reduces the cost of capital.

Petersen and Rajan (1994) suggest that loan officers view firm size as a proxy for risk and a significantly negative relation between loan interest rates and firm size. Similarly, Blackwell and Winters (1997) find that the interest rates are negatively related to both firm size and the frequency of monitoring by loan officers. Bamber and Stratton (1997) find that loan officers in an experimental setting associate uncertainty-modified audit reports with a greater likelihood of loan rejection, higher risk assessments, and higher interest rates.

In the study of Kim et al. (2006), they find that the loan spread charged by banks is significantly lower for borrowers with prestigious Big 4 auditors than for borrowers with non-Big 4 auditors and the spread difference are about 32 basis points for the full sample. Minnis (2011) has a deeper looking into the lenders’ pricing decisions further, he finds verification of financial statements not only influence the average level of debt pricing; lenders use audited financial statements more intensively in establishing the interest rate. Specifically, lenders’ pricing decisions are more sensitive to financial statement variables commonly used in credit analysis including interest coverage, current ration, etc. From this point, the value of auditing, besides the simply costly signal, is more influential in lending decisions.
1.3 The purpose and structure of this thesis

The purpose of this study is to examine the impact of auditor choice on debt pricing for listed companies by using the samples of listed companies in U.S. In this paper, Big 4 audit firms are considered to be “high-quality” auditors and consequently they provide a higher perceived and actual audit quality. The value relevance of Big 4 auditors to investors of U.S-listed companies can be attributed to information and/or insurance value (Dye, 1993). Especially in common law environments, such as in the U.S., Big 4 auditors play an essential role in capital market to provide credible financial information to the investors. The auditor’s opinion can, to some extent, influent stock prices and cost of debt when it conveys information for future cash flows and expectation of firms’ viability.

The increasing need of auditing in modern firms provides more opportunities for researchers to take a closer look into differentiate auditors and, accordingly, different audit quality. There are several proxies for audit quality which includes Big 4/non-Big 4, audit fee, non-audit service, litigation, industrial expertise, audit tenure, etc. In those proxies, I choose auditor choice as the surrogate which is more complex and directly reflects the characteristics of chosen auditors.

For newly listed companies, they need more external financing in early years. Although previous studies extensively examine the role of auditor choice on the cost of equity capital for young public firms, there is virtually no evidence on its effect on debt pricing for these firms. This paper will extend our understanding by estimating the influence of auditor reputation on moderating costly information problems in debt markets.

In this work, I apply the model following Karjalainen (2011) using the data from annual CCM database (the CRSP/Compustat Merged Database) which is supported by the Center for Research in Security Prices (CRSP) which contains a final sample of 398 firms and 1,990 firm-year observations from 2007 to 2011.

The rest of the paper will be presented as follow. Section 2 will describe the role of auditing, audit quality and related research results on relations between audit quality
and report quality and proxies for audit quality. Section 3 mainly explains auditor characteristics as proxies for audit quality. Section 4 summarizes studies on relationship between auditor choice (Big 4 v.s non-Big 4) and cost of debt capital. Subsequently, section five develops the hypothesis of inversely correlated relation between the choice of Big 4 auditor and cost of debt capital. The selected sample and research design are also included in this part. Empirical results and discussion are presented in section 6. In the last section, it concludes the main findings and limitations of this paper.
2 AUDITING AND AUDIT QUALITY

2.1 The need of auditing

“Whenever the advance of civilization brought about the necessity of one man being entrusted to some extent with the property of another the advisability of some kind of check upon the fidelity of the former would become apparent.” (Richard Brown, A History of Accounting and Accountants, T.T. and E.C. Jack, 1905, page 75) As noted in the above alluded statement the demand for auditing existed long before any mandatory requirements. In fact, some forms of auditing dates back to Greece as early as 500 BC. The development of the corporate form of business and the expanding world economy over the last 200 years have given rise to an explosion in the demand for assurance provided by auditor.

There are mainly two kinds of auditors: external auditor and internal auditor. External auditors are called from outside the company to access and evaluate financial statements of their clients or to perform necessary evaluation than required. An internal auditor is the employee who is hired by company to access and evaluate
the internal control required by the company and is responsible to have a thorough view related to the frauds and misstatements that exist in the company. In this paper, auditor refers to external auditor, audit refers to the audit performed by the audit firm outside the company and auditing work refers to an external auditing work.

Audit product is unique among all professional services due to at least two reasons. First, auditors are hired and paid by the client, but their product is really used by third-parties (e.g., investors), to whom they owe a standard of care. Secondly, the quality of an audit cannot be directly observed prior contracting and, in general, not even after the audit is performed (Quick 2012).

In financial accounting, an audit is defined as the independent assessment of the fairness by which a company's financial statements are prepared and presented to and by its management. This task is mainly performed by the skilled, competent, independent and objective persons, known as auditors. The auditing profession has been one of the most strictly regulated professions in the world before the economic crisis, not only being guided by the authoritative standards, but also being subject to national and international regulations.

Auditors submit opinions in the form of written reports. The report describes the nature and scope of the examination (audit) made and includes a statement (opinion) as to whether the financial statements fairly represent the financial position of the audited firm in accordance with accepted accounting principles. If the auditor is unable to endorse a financial statement wholeheartedly, he must quality his opinion, or states that he is unable to express an opinion, or express an adverse opinion.

The auditor’s report is of interest to three groups: (1) the management of the audited firm; (2) the shareholders of this firm; and (3) “Third Parties” or outsiders such as potential investors, creditors and suppliers.

The auditing professions provide services to satisfy public interest. Audit is a crucial determinant of financial stability, trust re-building and market confidence. By offering an opinion on whether the financial statements issued by the company has provided a fair and true description of the operating process, auditors play an vital
role in fulfilling audits in accordance with law. To auditee companies, this assurance is supposed to decrease the risk of misstatement and hence, decrease the possibility of business failure. To investors in both debt markets and capital markets, audit enables investors to make effective decisions, improves the efficiency of capital market and provides protection, lowers the potential investment risks and thus, cost of capital (Piot & Janin 2005).

The reasons for firms to hire external auditing may be related to: 1) the manager-shareholder contracting; 2) institutional requirements; 3) operational efficiencies; 4) industry characteristics.

The separation of ownership and management give rise to agency problem (theory). Agency theory suggests that corporate managers or controlling shareholders act based on their own interests, at the expense of outside investors or minority shareholders (Jensen & Meckling 1976). They provide evidences of monitoring/bonking contracts which include executive compensation based on financial performance and controlling over resources allocation that mitigate the manager-shareholder conflict of interests. Because the managers typically own small portion of his firm’s equity shares, they have incentives to allocate the firm’s resources in ways that are not necessarily consistent with the interests of non-managing shareholders. These include making investments with risk characteristics not in line with shareholders’ preferences, and on-the-job consumption of perquisites like leisure, lavish offices, and the pursuit of other objectives (e.g, growth) that may not be in the shareholders’ best interests (Jensen & Meckling 1976; Fama 1980). Given that the principals may lack trust in their agents, they need to establish some mechanisms to make sure that principals are doing what they are hired to do.

Another major reason for firms to hire external auditing is institutional requirement. these may be imposed by organized stock exchanges, institutional investors or firms feel obliged to engage external auditing due to “political cost” (Watts and Zimmerman 1978). In most cases, internal value of audits refers to an audit can provide a number of benefits that are internal to a company such as improved process effectiveness and efficiency, increased compliance with legislations and regulations and reduced internal information asymmetries. However, it just benefits firms when
they grow larger and become more complex and difficult to control (Kinney & McDaniel 1989). In small companies, the manager can control the operation by direct supervision. At some point, most small companies have to take on external financing in order to grow. The credibility and reliability of their financial reports which are audited by high quality auditors become the key points to get lower-cost capital.

Due to economics of scale, external auditors may be able to perform a given task more efficiently than internal auditors. In addition, external auditors may also be capable to supply a wider range of services besides auditing, including management consulting and other non-audit services. If the external auditors were considered less likely to collude with the manager’s subordinates, they are preferred for internal control purposes (Chow 1982).

For the sake of the differences in industry characteristics, firms need different external auditing. For some complex industries, it may be difficult and costly to audit. Mautz and May (1978) find that some industries may be competitive, firms find it furnish important firm details and create disadvantages in the competition. To meet the requirements of auditees, audit firms provide some industrial specified services. The choice of industrial expertise may influence the quality of auditing.

In the late 1970s in the U.S., the professions in accounting and auditing, especially the large audit firms, began to pay more attention in the commercial benefits in their business and tried all ways leading to growth and expansion worldwide (Zeff 2005a,b). Business values have replaced the professional values. One of the reasons is that the traditional prohibitions against advertising and publicity has been deregulated and that resulted in the increasing competitions among firms (Hay and Knechel 2010).

Except auditing services, audit firms provide non-audit services as well. Other services provided by auditors, such as management advisory services, tax consulting, data processing, handling of mergers, and the like, are considered as supplementary functions.
2.2 Audit independence

Auditor independence is often referred to as the cornerstone of the auditing profession because it is the foundation for the public’s trust in the attest function. Therefore, reinforcing the independence of auditors and addressing the conflicts of interest that are inherent in the current landscape, which is characterized by features such as the appointment and remuneration of the auditors by the audited firm, low levels of audit firm rotation or the provision of non-audit services by audit firms.

The IFAC distinguishes between independence of mind and independence in appearance (IFAC, 2010, Sec. 290.6). Independence of mind is defined as the state of mind that permits the provision of an opinion without being affected by influences that compromise professional judgment, allowing an individual to act with integrity, and exercise objectivity and professional skepticism. Independence in appearance is defined as the avoidance of facts and circumstances that are so significant that a reasonable and informed third party would reasonably conclude that a firm’s integrity, objectivity or professional skepticism had been compromised.

According to agency theory, it postulates that firms demand external auditing due to the manager’s and investors’ efforts to control their conflict of interests (Jensen & Meckling 1976). Moreover, regardless of who nominally makes the external auditing decision, this choice is guided by the expected effects of external auditing on the resource allocation activities of the various parties. Since in the modern society, the firms are characterized by a separation of ownership and management. Managers typically owns no more than a small portion of his firm’s equity shares, they have incentives to allocate the firm’s resources in ways that are not necessarily consistent with the interests of non-managing shareholders.

Jensen and Meckling (1976) and Fama (1980) point out that in a competitive market, shareholders anticipate the manager’s wealth transfer activities and are able to allow for this expected cost in setting executive compensation. As a result, the manager bears the expected cost of his wealth transfer from shareholders. If a manager could guarantee to external shareholders to restrict his departure from maximizing shareholder wealth (firm value), he would receive an increase in pay equal to
shareholders’ reduction in expected losses. However, the manager bears the expected cost of negotiating and executing such contracts.

Jensen and Meckling (1976) and Watts (1977) postulate that the manager probably already produces much of the desired information for his internal decision making purposes. If he were to provide this information to outside users, the marginal cost would likely be lower than for other alternatives. Meanwhile, since the information will be used to evaluate his performance under the contracts, the manager has incentives to falsify the reports in his own favor. As a result, unless there are controls on the manager’s reporting procedures, his reports would be heavily discounted by external shareholders. In this case, shareholders may desire to generate the desired accounting information on their own. Compared to this, the manager may find it less costly to agree in advance to have the accuracy of his reports testified to by an independent outside auditor.

Since the auditor’s report is of interest to three groups: the management of the audited firm, the shareholders of this firm and third parties or outsiders, such as potential investors, creditors, and suppliers. An understanding towards those relationships between these groups and the auditor is basic to the problem of independence. Occasionally, management may make some use of the auditor’s evaluation of the quality of internal control or benefit from the uncovering of errors or frauds. It can be safely assumed that management knows the firm’s true financial position and is likely to detect irregularities without reference to the report. However, the shareholders and third parties are the main users of information in the report, from which they evaluate the firm’s financial position and managements’ performance. As a result, management is highly concerned with the way the report reflects on the firm.

There are several threats auditors may face when they conduct auditing and may ruin auditors’ independence, in appearance and actual. Threats include self-interest threats, self-review threats, advocacy threats, familiarity threats and intimidation threats. To simplify, if auditors are more closely related to clients and bonding more in interests, it is harder for them to remain independence. Since auditors provide an independent opinion on the financial situation of companies, they ideally should not
have any business interest in the client. In recent years, the provision of non-audit services has been a topic among researchers.

If non-audit services impair auditor independence, a lower or no incremental market valuation of the discretionary loan loss allowance for firms with high non-audit fees should be observed. The Securities and Exchange Commission takes the position that non-audit services impair auditor independence. The Sarbanes-Oxley Act (SOX) bans most non-audit services. This is consistent with the notion that even the provision of an immaterial amount of certain non-audit services could potentially impair auditor independence. Brandon, Crabtree, and Maher (2004) examine the perception of the bond market to auditor-provided non-audit services and find a negative relation between non-audit services and clients’ bond ratings. Krishnan, Sami, and Zhang (2005) investigate whether investors perceive auditor independence as being impaired when auditors supply non-audit services. They find a negative relation between non-audit fees and earnings response coefficients. The results of these studies are consistent with the notion that investors perceive non-audit services as impairing auditor independence.

However, the evidence that non-audit fees impair auditor independence is mixed. That is, it is unclear whether or not the economic link between auditors and their clients impairs the independence of the auditor. For example, Davis, Ricchiute, and Trompeter (1993) examine the financial data of one audit firm and provide evidence that the purchase of non-audit fees is associated with higher audit fees than otherwise. Furthermore, they document that these higher audit fees are related to increased audit effort. Ashbaugh, LaFond, and Mayhew (2003) provide evidence that some of the results documenting impairment of auditor independence are sensitive to design choices. In fact, they report no evidence that auditor independence is violated due to the purchase of both audit and non-audit service. Chung and Kallapur (2003) do not find evidence of a significant association between abnormal accruals and the purchase of audit both audit and non-audit service.
3 AUDIT QUALITY

Audit quality is bound up with the credibility of financial statements. DeAngelo (1981b) defines audit quality as the joint possibility that an auditor both discovers and reports on material errors in a client's financial statements. Specifically, the auditor's professional competence and independence from an auditee as well as other resources, such as audit time period and audit compositions, devoted to an audit. In fact, audit quality to large extent is unobservable due to the level of assurance that all material errors are considered is hard to measure. Bias can be produced between the perception of audit quality by third parties and actual audit quality. Shareholders, stakeholders and market participants have to rely on the acceptable level of audit quality delivered by the profession. In particular, the information users should also make reasoning of audit quality based on observable indicators such as auditor-specific characteristics which include the size, reputation, Big 4 or non-Big 4 (DeAngelo 1980b; Francis & Wilson 1988). Nevertheless, some papers point out that Big 4 audits may also have related to higher audit fees (DeFond et al. 2000), lower auditor litigation rates (Palmrose 1988), increased likelihood to issue modified audit reports and more signals of financial distress.

Audit quality, to some extent, is related to the ability of auditors to discover the misstatements in the financial reports and the auditor's willingness to issue a proper audit report based on sufficient detections and tests (DeAngelo 1981b). Whereas, auditors are not responsible to make sure that audited financial statements are totally free from misstatements. Usually, auditors provide a reasonable assurance that the financial statements as a whole are free from material misstatements, whether due to errors or frauds. Specifically, reasonable assurance refers to a high but not absolute level of assurance. Thus, what the auditors aim at is to minimize the risk that the audited information is material misstated.
3.1 Relationship between audit quality and quality of financial statements

Accruals increase inherent audit risk. SAS 47 defines inherent risk as the risk that financial statements contain material misstatements before considering the effect of internal controls, and explicitly states that “accounts consisting of amounts derived from accounting estimates pose greater risk than do accounts consisting of relatively routine, factual data.” Misstatements occur from generally accepted accounting principles (GAAP) violations, including the misestimating of accruals, and the auditor is required to issue a qualified or adverse opinion in these circumstances. More importantly, misstatements also include the situation that auditors fail to report the material uncertainties and going concern problem in their audit report. If other circumstances remain the same, a modified report is more likely to be proper for high-accrual firms because they have greater potential for asset realization problems and, in a more extensive case, going concern problem. The reason accounts for this may be that accrual accounting policies give recognition to the kinds of assets that always develop realization problems, such as the un-collectability of accounts receivables or cost un-recoverability in assets such as inventories and fixed assets because of asset impairment (Quick 2012). In other words, estimation error in accruals can lead to the overstatement of assets, which in turn result in potential asset realization problems. High-accrual firms are also more likely to have undetected going concern problems because of the divergence between cash flows and reported earnings. Accrual policies can overstate earnings and distort financial ratios, thus masking the deteriorating operating performance that signals potential going concern problems.

Given that it is impossible for auditors to objectively verify accrual estimations, and therefore, that it is not possible to know with certainty if asset realization or going concern, reporting conservatism is argued to be a rational mechanism through which auditors can achieve a desired level of audit risk for high-accrual clients (Davis & Ashton 1997). In another word, by lowering their threshold for issuing modified reports, auditors can compensate for the intrinsic uncertainties of high-accrual situations. The strategy will result in more modified reports for asset realization and going concern problems, lessening the likelihood of failing to issue modified report
when appropriate to do so. Some studies demonstrate that kind of auditor reporting conservatism described above.

Davis and Ashton (1997) report that auditors lower the decision threshold for the “substantial doubt” criterion when making a going concern assessment for highly financially distressed companies, in addition to assess financial distress as high. At the same time, the joint effect is to modify audit reports more often than if merely assessing financial distress as high. They suggest that conservative thresholds are a way for auditors to be prudent and play it safe. The finding in their work is analogous to the argument that there is a greater conditional probability that auditors will issue modified audit reports for high-accrual firms, even after considering the effects of other factors associated with modified reports. A conservative threshold effect is also evident in Hackenbrack and Nelson (1996), in which auditors accepted footnote disclosures as adequate for a potentially uncollectible accounting receivable if the engagement risk was moderate, but preferred booking the estimate if it was a high-risk engagement. Similarly, Kinney and Nelson (1996) find that auditors are more inclined to disclose a contingent loss in a modified audit report in the absence of outcome information, as if they expected the worst ex ante.

There are other ways a rational auditor might respond to the uncertainties posed by accruals in addition to reporting conservatism. First of all, more effort could be paid to verify accruals. But, given the inherent subjectivity of accruals, there are practical limits to what an auditor can do with respect to verification. This is consistent with Mock and Wright (1993), who find that there is little variation in audit programs as a function of inherent risk and control risk, and that audit programs tend to be fairly generic irrespective of these assessed risk levels. In similar researches, Thoman (1996) models auditor effort and demonstrates that auditor reporting conservatism is a more effective strategy for reducing legal exposure than expending more effort. Secondly, another effective way to manage audit risk would be for auditors to screen out high-accrual clients (Siliciano 1988). While client screening occurs for a segment of the market (Krishnan and Krishnan, 1997), there is no evidence of its occurrence on a widespread scale (Francis & Grimlund 1998). Moreover, auditors could charge a premium for high-accrual clients to compensate for risk, though the empirical evidence to date suggests there is not a significant risk premium in audit fees.
(Simunic & Stein 1996). Finally, auditors may negotiate with companies, leading to the adjustment of accruals-related accounts through asset write-downs.

In the paper of DeFond et al. (2002), they find that negative discretionary accruals are concentrated among the sample partitions that are expected to pose the greatest client litigation risk threat to the auditor. Specifically, they find discretionary accruals in the last year with the predecessor are more negative for clients that receive a modified opinion from the predecessor auditor, have a Big 6 predecessor auditor, change to a non-Big 6 successor auditor, or report a disagreement or auditor resignation in the auditor-change 8K of reports. Their findings present evidence on the role of discretionary accruals in auditor change decisions.

According to previous researches, auditor changes are likely to be preceded by a year in which discretionary accounting choices are income-decreasing. If the auditor’s conservatism is a response to client litigation risk, an association between income-decreasing discretionary accruals and the client firms most likely to pose litigation risk threat to the auditor. Finally, if management expectations are rational, the successor auditors are supposed to be less conservative on average with respect to accounting choice preferences. Thus, discretionary accruals in the first year with the successor are assumed to be less negative than those in the last year with the predecessor. These implications are explored by examining discretionary accruals and changes in factors expected to impact client litigation risk and discretionary accruals among a sample of auditor change firms.

In the study of DeFond et al. (2002), they find that discretionary accruals are significantly income decreasing during the last year with the predecessor auditor and, after controlling for financial distress, are generally insignificant during the first year with the successor auditor. They also find that the firms subject to the greatest litigation risk tend to report relatively larger magnitudes of negative discretionary accruals. Together, these findings suggest that income-decreasing accounting choice preferences by the incumbent auditor, triggered by concerns about litigation risk, are an important factor explaining auditor changes. However, while their findings are robust to several tests that control for financial performance, and while they find
evidence from examining specific accounting choices that corroborate findings, they cannot be sure that financial distress does not at least partially explain those results.

Empirical evidence on the role of accounting choice in auditor change decisions has been provided. Consistent with theory, some auditor changes are motivated by divergent beliefs among the auditor and management concerning the appropriate application of GAAP (Dye 1991; Antle & Nalebuff 1991).

Some studies also provide evidence on the relation between accruals and auditor litigation concerns (Lys & Watts 1994). Specifically, those results are consistent with litigation risk concerns inducing auditors to pressure managers into adopting conservative accounting choices that ultimately trigger auditor dismissal. Their finding contributes to the earnings management literature by characterizing the external auditor as a constraint to managerial discretion. This contrasts with most earnings management studies that tend to focus exclusively on management incentives. Instead, their framework recognizes that reported earnings are the joint outcome of both management and the auditor’s preferences.

3.2 Audit failure

Supervisions from the public can play an important role in improving probability that the audit profession delivers an appropriate level of audit quality. Although it must be realized that it is substantially impossible to eliminate the probability of failed audits.

Following Francis (2004), "an audit failure occurs in two circumstances: (1) when the general accepted accounting principles are not enforced by the auditor, or GAAP failure, which can be concluded as the failure for auditors to deliver the implicit auditor quality set by auditing standards and regulations; (2) when an auditor fails to issue a modified or qualified audit report in the appropriate circumstances, or audit report failure, which means that the audits fail to implicate all material misstatements in financial statements even though they have complied with standards and regulations. The first condition indicates a failure to meet market expectation of auditor's compliance with auditing standards and regulations, but the second
condition reveals a breakdown in the audit procedure. Even though they suggest an improvement of regulations and standards, the requirements are quite different from each other. To some extent, the rules should be better in safeguarding auditor independence with stricter monitoring and enforcement. The audit process should be improved to meet the expectations of the market and ensured by the developed rules. However, in both of the cases, regulators should pay attention to the trap that they are required to specify implicit audit quality. A single standardized approach to conduct an audit is applied to all audits which are unique and unforeseen. To meet that requirement, the rules have to specifically provide the auditors flexibility and restriction to address different audits. Considered that the audit procedure is observable whereas the outcome, or audit quality, is not, an inadequate regulation may increase the observable audit process without any improvement in audit quality in the end (Quick 2012).

What we have learned from the financial crisis suggests that the corruption of auditing may more related to the second type of failure, the audit report failure. It cannot be concluded whether the auditors have a comprehensive knowledge of the risks that banks were noticing. According to the internal risk officers in banks admitted that they did not comprehend their risks when the systemic downturn happened in real estate markets. That may provide a reason why auditors lacked such an understanding. The reality also indicated that the auditors failed to detect risks in certain areas in which poor performance, unreal operating numbers and credit default swaps exist. Relying too much on the rating agencies to provide pricing information may be another reason to explain the failures happened during the auditor's evaluation of company's internal information.

With regard to the rules and regulations, the auditors may possibly complete their assessment of firms and give warnings about the risks. The technically fulfilled responsibility cannot get the market well informed as the nature of the risks developing in many sizable financial institutions. What specifically can society expect from an auditor? Basically, auditors should be capable to understand the complexity of activities and risk exposures and then report such risks. The extreme requirement is that auditor is able to issue a going concern opinion once the risks become higher.
Audit procedures should be another important area that paid attention to. The increased focus on substantive audit procedure has been questionable. Large audit firms usually apply the business risk audit approach, which follows a top-down approach. The basic idea is that the better understanding of client's business risks will bring in the better understanding of audit risk and more chances to detect material misstatements. Business risk means that the risks exist in business when the firm fails to meet the operating objectives. The risk audit procedure includes three steps. First, the auditor performs risk assessment procedures to obtain an understanding of the entity, the industrial environment and overview of the internal control. This provides information to the auditor about the potential business risks. Second, auditors evaluate the entity's responses to the business risk and collect evidences of their implementation. Third, auditors will assess the risk of material misstatement and design specific audit procedures which is based on the risk assessment. An increase focus on substantive audit procedure, in another word, is to give up some parts of business risk approach or to increase the level of assurance.

According to legitimacy theory, firms seek to establish congruence between the social values associated with or implied by their activities and the norms of acceptable behavior within the larger social system of which they are part (Suchman, 1995). As a result, the auditing profession should prefer applying an audit approach that ensures a higher audit quality. The business risk approach is proper to legitimize external audits (MacLullich 2003).

Regarding the effectiveness of business risk audit approach, prior researches provide different outcomes. Some papers reported a positive relationship between the business risk audit approach and audit quality. Blokdijk et al. (2006) pointed out that large audit firms produce a higher audit quality level which is due to how audit hours are deployed in a more contextual and less procedural audit approach. But on the other hand, there are evidences suggesting that auditors may overlook the internal control deficiencies once they rely on a single format to assess the risks (Ballou et al. 2004).
3.3 Proxies for audit quality

3.3.1 Non-audit services

Since auditors provide an independent opinion on the financial situation of companies, they ideally should not have any business interest in the client. If the statutory auditor provides consulting services to the audit client, the information gained as a consultant can be used to reduce audit costs (knowledge spillovers). As a result, the economic bond between the auditor and the client is strengthened since quasi-rents from auditing services increase. Thus, the risk that the auditor’s independence may become impaired increases (Beck et al. 1988). The provision of non-audit services also increases other threats to auditor independence. Consulting is based on a special bond of trust between consultant and client’s management (familiarity threat), and the auditor might have to review facts that were influenced by his or her own consulting recommendations (self-review threat). The more significant the non-audit services provided are, the higher is the risk that the auditor identifies with the client’s interest (advocacy threat) and the greater the economic loss for the auditor in case of dismissal or replacement (intimidation threat).

Because the effect of the provision of non-audit services on independence in fact is difficult to observe, previous studies in this area are archival studies that used proxies for independence. Non-audit services were related to qualified or going concern opinions (Lennox 1999; Craswell et al. 2002; DeFond et al. 2002), the degree of earnings management (Frankel et al. 2002; Kanagaretnam et al. 2010; Quick & Sattler 2011), restatements (Raghunandan et al. 2003; Ferguson et al. 2004; Kinney et al. 2004) and litigation (Bajaj et al. 2003).

Most studies reported a negative effect on perceived independence but some failed to find any significant impact at all, and a few studies even found a positive impact. These conflicting research findings could be the result of different research designs applied. Results from different subject groups were analyzed, for example, bank loan officers, financial analysts, shareholders, board members, financial executives and
auditors, and it is not surprising that differences in perceived independence exist given the fact that the interests of these groups vary. Previous research also used different types of consulting services, for example, bookkeeping, IT services, design and installation of financial and cost accounting systems, tax planning and preparation, purchase acquisition assistance, human resource management, actuarial services and outsourcing of the internal audit function. The likely impact of these different advisory services on perceived auditor independence seems to vary. For example, Quick and Warming-Rasmussen (2009) found that the degree to which perceived auditors’ independence is impaired depends on the type of non-audit service. Significant differences in these perceptions would require individual treatment of different services by regulators. Thus, a general prohibition of non-audit services would not be necessary.

3.3.2 Litigation risks

Reporting conservatism can protect auditors in the following way. The majority of litigation against auditors occurs with respect to bankruptcies (Palmrose 1987). Carcello and Palmrose (1994) find that modified audit reports issued prior to bankruptcy reduce both the incidence and magnitude of litigation if bankruptcy subsequently occurs. The main reason may be that a modified audit report reduces investor surprise if there is a subsequent bankruptcy, and surprises are more likely to trigger the kind of stock price drop that leads to third-party litigation against auditors. Consistent with this argument, Chen and Church (1996) report that the firms have significantly “less negative” stock returns surrounding bankruptcy filings when the auditor had previously issued a modified audit report. In related research, Francis and Reynolds (1998) and DeFond and Subramanyam (1998a) also selectively screen out clients because of litigation risk, in addition to engaging in reporting conservatism.

In the audit market nowadays, the four largest auditing firms in the world (the Big Four) are overwhelmingly the major suppliers of audit services to the largest corporations around the world. The monopolistic practices by the Big 4 have led to a two-tier structure in the audit industry—one tier consisting of the four largest auditors and the second consisting other audit firms, with the Big 4 dominating the industry.
Dopuch and Smunic (1980) examined a wide variety of evidence that seem to support or refute allegations of a lack of competition in the auditing profession market. As they concluded that the industry was competitive, their subsequent paper in 1982 hypothesized that different auditing firms provide auditing services which are perceived by investors to be different in quality and, specifically, that the Big 8 auditors are perceived as being more credible than non-Big 4 auditors. In that case, the auditors of big audit firms are supposed to provide a better product/service.

Arguing from different perspectives, DeAngelo (1981) also made a conclusion that a positive relationship exists between audit size and audit quality. The author assumes that if an auditor use unethical ways to retain a client have been discovered, the audit firm is less likely to be retained by other existing clients or the future audit fees from such clients will be reduced. Thus, if auditors earn client-specific quasi-rents, large audit firms have greater incentive to be keep honesty and provide more credible services to their clients. That is, their audits will be of higher quality. According to their models, different auditor choice or auditor change could lead to a change in credibility levels and produce an observable market reaction. Nichols and Smith (1983) supported their results (i.e., the market appeared to react generally positively to a change from a non-Big 8 to a Big 8 auditor and vice versa). However, in both papers, the magnitude of the difference in the reactions was not statistically significant. This may due to that the model is valid, or the tests simply were not precise enough to detect the phenomenon, for example, a significant part of the “benefits” for a more credible audit may accrue to the new auditing firm in the form of higher audit fees. Then the revaluation of the firm from a change in credibility level could be biased. Another explanation might be that the credibility level is relatively more important for small companies which need to finance themselves from the market. The clients’ size and characteristics determined their specific requirements for auditor firms, for example, auditor changes for over-the-counter companies are quite common.

Analytical models by Hughes (1986) and Datar, Feltham, and Hughes (1991) depict market settings in which entrepreneurs signal firm value through direct disclosures and choice of auditor. An important aspect of Datar et al. (1991)’s model is that the incentive to engage a high quality auditor is positively related to firm risk. Empirical
tests of Hughes (1986)’s model have not been forthcoming and previous investigations of auditor choice within the U.S. market do not support the predictions of Datar et al. (1991). A following research which was made by Copley and Douthett (2002) tested the prediction of Hughes (1986) between direct disclosures and retained ownership and the predictions of Datar et al. (1991) between auditor choice, firm risk, and retained ownership within a comprehensive empirical framework.

Hughes (1986) and Datar et al. (1991) develop analytical models in which reporting characteristics (disclosure and auditor choice) are used to signal the entrepreneur’s private information. Hughes (1986) models a market setting in which entrepreneurs communicate inside information to investors through direct disclosure of information about firm value. Signals such as reported earnings or forecasts of earnings are both useful in analyzing the firm and perceived to be credible because penalties are imposed ex post for false disclosure. A second signal, retained ownership, is necessary to unambiguously communicate firm value. Datar et al. (1991) argue that engaging a high-quality auditor reduces the likelihood of material misrepresentation in the information provided by the entrepreneur. The audited information is used to discriminate between firms with differing prospects (Clarkson and Simunic 1994). While auditor choice may not perfectly reveal the entrepreneur’s private information, it does reduce the set of outcomes to which the outside investor assigns a positive probability. Datar et al., like Hughes 1986, posit that the remaining uncertainty is resolved by the entrepreneur’s retained ownership in the IPO. The greater the uncertainty surrounding firm value, the more costly it is for the entrepreneur to use retained ownership as a signal. Therefore, entrepreneurs of riskier firms choose higher-quality auditors, provided that the increased risk does not have an offsetting effect on the supply-side cost of high-quality auditors. In contrast to Datar et al. 1991, Titman and Trueman (1986) predict that entrepreneurs of riskier firms choose lower-quality auditors. Their prediction follows from the argument that the effect of information on the market value of an IPO increases with the precision of the information. According to Titman and Trueman (1986), high-quality auditors provide more precise information, but are more costly. The auditor’s information will be more favorable for IPOs with better private information, so they have more to gain by bearing the cost of a high-reputation auditor. Thus, Titman and Trueman (1986) predict that the quality of the auditor hired is directly related to the quality of the
entrepreneur’s private information. An IPO with low quality private information (i.e., higher risk) finds less benefit in hiring a high-quality auditor.

Thus, the models provided by Titman and Trueman (1986) and Datar et al. (1991) yield contrasting predictions regarding the relation of firm-specific risk and auditor choice. These differences in outcome are attributable to differences in the underlying assumption regarding the function of retained ownership. Unlike Datar et al. (1991), Titman and Trueman (1986) assume retained ownership is exogenously determined. However, Titman and Trueman (1986) suggest a possible extension of their analysis by allowing the entrepreneur’s shareholding level to be determined endogenously: “In such a model it would be possible to explore the entrepreneur’s trade-offs in his choice between these two signals. Increasing his shareholdings would increase the risk of his portfolio while increasing auditor quality would increase the auditing costs” (pp: 169). In section 3 we present a model of auditor choice and retained ownership that explicitly provides for the endogeneity of these two signals and affords an opportunity to empirically examine the relations of auditor choice, firm risk, and retained ownership.

Titman and Trueman (1986) and Datar et al. (1991) provide conflicting predictions of the effect of firm risk on audit demand. The Datar et al. (1991) model is a more comprehensive interpretation of auditor choice because it incorporates retained ownership as an endogenous decision. However, their demand-side predictions of the effects of risk on auditor choice have not been documented directly in U.S. markets. Failure to do so may be due to the difficulty in estimating the empirically demanding specification and controlling for the supply-side effects of risk on the cost of audits. A more comprehensive analysis of auditor choice, explicitly considering the endogeneity of retained ownership and audit fees (supply) and based on a representative sample drawn from U.S. capital markets should, therefore, help resolve existing empirical ambiguities.
4 AUDITOR CHOICE

What factors influence a company to choose one auditor over another? Previous theoretical and empirical research has generally established that audit has economic value, even in the absence of a mandated audit requirement (Sundem et al., 1996). The decision to have an auditor, the selection between different auditors, and the decision to switch auditors are complex choices. Prior research has partially explained auditor choice by using agency theory (DeFond, 1992; Carey et al., 2000).

Compare to the mentioned proxies for audit quality, auditor choice is a more complex and determined surrogate. The size, reputation, brand name, tenure, and industrial-expertise of audit firms have influences on audit quality. Especially, the two-tier auditing industry provides chances to analyze the differences between services provided by Big N and non-Big N firms. As an essential source of financing, debt plays an important role in companies’ operation, the effect on cost of debt capital is an interesting topic that worth studying.

4.1 Competition in auditing market

A large body of empirical research documents that higher audit quality is associated with Big N auditors. Relative to non-Big N auditors, Big N auditors have greater expertise, resources, and, more importantly, market-based incentives to constrain the tendency of their audit clients to engage in aggressive reporting.

In the audit market nowadays, the four largest auditing firms in the world (the Big Four) are overwhelmingly the major suppliers of audit services to the largest corporations around the world. The monopolistic practices by the Big 4 have led to a two-tier structure in the audit industry-one tier consisting of the four largest auditors and the second consisting other audit firms, with the Big 4 dominating the industry.

Dopuch and Smunic (1980) examined a wide variety of evidence that seem to support or refute allegations of a lack of competition in the auditing profession market. As they concluded that the industry was competitive, Dopuch and Smunic (1982) hypothesized that different auditing firms provide auditing services which are
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Arguing from different perspectives, DeAngelo (1981) also made a conclusion that a positive relationship exists between audit size and audit quality. The author assumes that if an auditor use unethical ways to retain a client have been discovered, the audit firm is less likely to be retained by other existing clients or the future audit fees from such clients will be reduced. Thus, if auditors earn client-specific quasi-rents, large audit firms have greater incentive to keep honesty and provide more credible services to their clients. That is, their audits will be of higher quality. According to their models, different auditor choice or auditor change could lead to a change in credibility levels and produce an observable market reaction.

Nichols and Smith (1983) supported the results that the market appeared to react generally positively to a change from a non-Big 8 to a Big 8 auditor and vice versa. However, the magnitude of the difference in the reactions was not statistically significant. This may due to that the model is valid, or the tests simply were not precise enough to detect the phenomenon, for example, a significant part of the “benefits” for a more credible audit may accrue to the new auditing firm in the form of higher audit fees. Then the revaluation of the firm from a change in credibility level could be biased. Another explanation might be that the credibility level is relatively more important for small companies which need to finance themselves from the market. The clients’ size and characteristics determined their specific requirements for auditor firms, for example, auditor changes for over-the-counter companies are quite common.

An auditor’s reputation lends credibility to the earnings report that he audits. An unresolved issue is whether auditor size is correlated with auditor quality, where a high-quality auditor is defined as one who brings about more credible earnings reports. In some studies, auditor size is considered as a proxy for auditor credibility and of the modified H-V model (Holthausen-Verrecchia model 1988). Based on H-V model and basic intuition, investors’ response to an earnings surprise will depend on the perceived credibility of the earnings report.
In the study of Teoh and Wong (1993), their findings show that ERCs of Big 8 clients are statistically significantly higher than for non-Big8 clients. Furthermore, the result is robust with respect to the inclusion of other explanatory factors for ERC that have been suggested by previous studies: growth and persistence, risk, firm size, and pre-disclosure information environment.

Analytical models by Hughes (1986) and Datar, Feltham, and Hughes (1991) depict market settings in which entrepreneurs signal firm value through direct disclosures and choice of auditor. An important aspect of Datar et al. (1991)’s model is that the incentive to engage a high quality auditor is positively related to firm risk. Empirical tests of Hughes (1986)’s model have not been forthcoming and previous investigations of auditor choice within the U.S. market do not support the predictions of Datar et al. (1991). A following research which was made by Copley and Douthett (2002) tested the prediction of Hughes (1986) between direct disclosures and retained ownership and the predictions of Datar et al. (1991) between auditor choice, firm risk, and retained ownership within a comprehensive empirical framework.

Hughes (1986) and Datar et al. (1991) develop analytical models in which reporting characteristics (disclosure and auditor choice) are used to signal the entrepreneur’s private information. Hughes (1986) models a market setting in which entrepreneurs communicate inside information to investors through direct disclosure of information about firm value. Signals such as reported earnings or forecasts of earnings are both useful in analyzing the firm and perceived to be credible because penalties are imposed ex post for false disclosure. A second signal, retained ownership, is necessary to unambiguously communicate firm value.

Datar et al. (1991) argue that engaging a high-quality auditor reduces the likelihood of material misrepresentation in the information provided by the entrepreneur. The audited information is used to discriminate between firms with differing prospects (Clarkson & Simunic 1994). While auditor choice may not perfectly reveal the entrepreneur’s private information, it does reduce the set of outcomes to which the outside investor assigns a positive probability. Datar et al. (1991), like Hughes (1986), posit that the remaining uncertainty is resolved by the entrepreneur’s retained ownership in the IPO. The greater the uncertainty surrounding firm value, the more
costly it is for the entrepreneur to use retained ownership as a signal. Therefore, entrepreneurs of riskier firms choose higher-quality auditors, provided that the increased risk does not have an offsetting effect on the supply-side cost of high-quality auditors.

In contrast to Datar et al. (1991), Titman and Trueman (1986) predict that entrepreneurs of riskier firms choose lower-quality auditors. Their prediction follows from the argument that the effect of information on the market value of an IPO increases with the precision of the information. According to Titman and Trueman (1986), high-quality auditors provide more precise information, but are more costly. The auditor’s information will be more favorable for IPOs with better private information, so they have more to gain by bearing the cost of a high-reputation auditor. Thus, Titman and Trueman (1986) predict that the quality of the auditor hired is directly related to the quality of the entrepreneur’s private information. An IPO with low quality private information (i.e., higher risk) finds less benefit in hiring a high-quality auditor.

Thus, the models provided by Titman and Trueman (1986) and Datar et al. (1991) yield contrasting predictions regarding the relation of firm-specific risk and auditor choice. These differences in outcome are attributable to differences in the underlying assumption regarding the function of retained ownership. Unlike Datar et al. (1991), Titman and Trueman (1986) assume retained ownership is exogenously determined. However, Titman and Trueman (1986) suggest a possible extension of their analysis by allowing the entrepreneur’s shareholding level to be determined endogenously: “In such a model it would be possible to explore the entrepreneur’s trade-offs in his choice between these two signals. Increasing his shareholdings would increase the risk of his portfolio while increasing auditor quality would increase the auditing costs”.

Titman and Trueman (1986) and Datar et al. (1991) provide conflicting predictions of the effect of firm risk on audit demand. The Datar et al. (1991) model is a more comprehensive interpretation of auditor choice because it incorporates retained ownership as an endogenous decision. However, their demand-side predictions of the effects of risk on auditor choice have not been documented directly in U.S. markets.
Failure to do so may be due to the difficulty in estimating the empirically demanding specification and controlling for the supply-side effects of risk on the cost of audits. A more comprehensive analysis of auditor choice, explicitly considering the endogeneity of retained ownership and audit fees (supply) and based on a representative sample drawn from U.S. capital markets should, therefore, help resolve existing empirical ambiguities.

### 4.2 Auditor tenure

Prior studies have investigated the relation between audit firm tenure and earnings quality or audit quality. Some studies use discretionary accruals (Johnson, Khurana, & Reynolds 2002; Myers, Myers, & Omer 2003) or restatements of financial statements (Myers, Myers, Palmrose, & Scholz 2004) as a proxy for earnings quality. Some studies use alleged fraudulent financial reporting (Carcello & Nagy 2004) or the likelihood of issuing a going-concern opinion (Geiger & Raghunandan 2002) as a proxy for audit quality. Johnson et al. (2002) investigate the relation between audit firm tenure and absolute discretionary accruals. They classify audit firm tenure into three categories: short (two to three years), medium (four to eight years), and long (nine or more years). Using medium tenure as a benchmark, they find that short tenure is associated with larger absolute discretionary accruals but long tenure is not, which suggests that long audit firm tenures are not associated with a decline in earnings quality.

Myers et al. (2003) investigate the relation between audit firm tenure and two measures of accruals: discretionary accruals and current accruals. They find that the magnitude of both measures of accruals declines with longer audit firm tenure. Another finding is that longer audit firm tenure is associated with both less extreme income-increasing and less extreme income-decreasing accruals, which suggests that earnings management becomes more limited as audit firm tenure grows longer. Overall, they find no evidence that longer audit firm tenure is associated with lower earnings quality.

Some studies use a proxy other than accruals. Myers et al. (2004) use restatements as a proxy for financial reporting quality and find that audit firm tenure is not associated
with the probability of restating annual financial statements. When they focus on the restatement sample, they find no evidence that changing audit firms affects the likelihood that the auditor identifies the need for the restatement. Carcello and Nagy (2004) use cited fraudulent financial reporting as a proxy for audit quality. They find that fraudulent financial reporting is more likely to occur in the first three years of audit firm tenure, but they fail to find evidence that fraudulent financial reporting is more likely given long audit firm tenure. Ghosh and Moon (2005) use earnings response coefficients from returns–earnings regressions as a proxy for investor perceptions of earnings quality, and they find a positive association between this proxy and audit firm tenure. They also find that the influence of reported earnings on stock rankings becomes larger with extended tenure. Mansi, Maxwell, and Miller (2004) find a significantly negative relation between audit firm tenure and the cost of corporate bonds. Overall, prior studies have not found evidence consistent with the argument that earnings quality deteriorates (or is perceived by investors and bondholders to deteriorate) with extended audit firm tenure.

A recent study by Carey and Simnett (2006) investigates the relation between audit partner tenure and audit quality. With regard to long partner tenure, the authors find (a) a lower propensity for the partners to issue a going-concern opinion, (b) some evidence of lower likelihood of just missing earnings benchmarks, and (c) no evidence of an association of long partner tenure with abnormal working capital accruals. Their evidence in (a) and (b) is consistent with the argument that audit quality is lower when partner tenure is long. In their long tenure observations, the authors find a lower propensity to issue a going-concern opinion and weak evidence of a lower likelihood of just missing earnings benchmarks. This is consistent with deterioration in audit quality when partner tenure is longer. However, the authors find no evidence of an association between partner tenure and abnormal working capital accruals.

In the research of Chen, Lin and Lin (2008), authors find a relation between longer audit firm tenure and higher earnings quality (when partner tenure is not considered), which is consistent with the findings in prior studies that use U.S. data, but the relation between audit firm tenure and audit quality is not examined by Carey and Simnett (2006).
Chi and Huang (2005) investigate the relation between audit partner tenure and earnings quality using Taiwanese companies. They find that discretionary accruals are initially negatively associated with audit partner tenure and audit firm tenure, but the associations become positive when tenure exceeds five years. They interpret this result as suggesting lower earnings quality when the partner is “excessively familiar” with the client. However, the empirical tests in Chi and Huang (2005) do not include absolute discretionary accruals and do not separate positive and negative discretionary accruals.

4.3 Industrial specialization

Prior research documents that auditor industry specialization enhances financial reporting quality and mitigates fraudulent financial reporting (Johnson, Jamal, & Berryman 1991; Carcello & Nagy 2003; Krishnan 2003b 2005).

For the sake of the truth that fundamental differences in error characteristics and methods of detection across industries (Maletta & Wright 1996), auditors who have a more comprehensive understanding of an industry’s characteristics and trends will be more effective in auditing than auditors without such industry knowledge.

Auditors who specialize in the banking industry can assess the adequacy of loan loss provisions better than non-specialist auditors and, therefore, may improve the credibility of reported earnings. In addition, auditors with expertise in manufacturing can evaluate whether the client’s provision for warranty obligations is in consistent with industry standards better than an auditor without this expertise. Databases detailing industry-specific best practices, industry-specific risks and errors, and unusual transactions, all of which serve to enhance overall audit effectiveness are developed by specialist auditors.

The purpose of Craswell et al. (1995)’s study is to infer the existence of Big 8 reputations for both industry specialization and general brand name based on empirical audit fee models. In the paper, agency theory is used to explain the economic demand for costlier quality-differentiated Big 8 audits. The result shows that industry specialization will increase a Big 8 auditor’s reputation (within that
industry) but will special expertise development besides the general expertise of the firm. This result may also mean that it is supportive that the audit fees of Big 8 auditors contain premia relating to both general brand name and industry specialization. Though specialization may lead to auditor production economies, the evidence here is that positive returns to investment in specialization dominate potential production economies and lead to higher average audit fees.

Using data from the pre-crisis period and three measures of audit quality, auditor type (i.e., Big 5 versus non–Big 5), auditor industry specialization /expertise, and audit and non-audit fees paid to auditors, Kanagarenam et al. (2011) examine the effect of audit quality on the market valuation of the discretionary component of the allowance for loan losses. The results show that, relative to the nondiscretionary component, the market valuation of the discretionary component of loan loss allowance is higher for banks audited by Big 5 auditors than for banks audited by non–Big 5 auditors. It has also been found that the relative market valuation of the discretionary component of loan loss allowance is increasing in auditor expertise. Regarding the impact of fees paid to auditors, findings imply that banks paying higher audit fees have higher relative market valuation of the discretionary component of the allowance for loan losses, but banks that pay higher non-audit fees do not.

The study by Balsam et al. (2003) examines the association between measures of earnings quality and auditor industry specialization. Prior work has examined the association between auditor brand name and earnings quality, using auditor brand name to proxy for audit quality. Recent work has hypothesized that auditor industry specialization also contributes to audit quality. They compare the absolute level of discretionary accruals (DAC) and earnings response coefficients (ERC) of firms audited by industry specialists with those of firms not audited by industry specialists. Because industry specialization is unobservable, multiple proxies are used for measuring it. After controlling for variables established in prior work to be related to DAC and the ERC, the results show that clients of industry specialist auditors have lower DAC and higher ERC than clients of non-specialist auditors. This finding is consistent with clients of industry specialists having higher earnings quality than clients of non-specialists.
Krishnan (2003) examines the association between auditor industry expertise, measured in terms of both auditor market share in an industry and an industry’s share in the auditor’s portfolio of client industries, and a client’s level of absolute discretionary accruals, a common proxy for earnings management. The results show that specialist auditors mitigate accruals-based earnings management more than non-specialist auditors and then influence the quality of earnings.
5 COST OF DEBT CAPITAL FOR PUBLIC FIRMS

For U.S public companies, there are multiple researches about the relationship between auditor choice and cost of capital.

Prior researches have examined the impact of auditor choice on the cost of equity capital, especially the IPO market. The market for initial public offerings (IPOs) is characterized by information asymmetries between the entrepreneur and investors regarding the value of the firm. Entrepreneurs are motivated to communicate their private information in a manner that ensures that the firm’s securities are not undervalued. To do so, entrepreneurs can choose from a variety of signaling mechanisms. There is a demand for a high quality auditor in an IPO setting to reveal information to investors about firm value (Simunic & Stein 1987; Datar et al. 1991) and to reduce underpricing (Beatty 1989; Balvers et al. 1988). According to those studies, as firm-specific risk increases, high quality auditors provide marginal benefits beyond those provided by low quality auditors.

The market for initial public offerings (IPOs) is characterized by information asymmetries between the entrepreneur and investors regarding the value of the firm. Entrepreneurs are motivated to communicate their private information in a manner that ensures that the firm’s securities are not undervalued. To do so, entrepreneurs can choose from a variety of signaling mechanisms. There is a demand for a high quality auditor in an IPO setting to reveal information to investors about firm value (Simunic and Stein, 1987; Datar et al., 1991) and to reduce underpricing (Beatty, 1989; Balvers et al., 1988). According to those studies, as firm-specific risk increases, high quality auditors provide marginal benefits beyond those provided by low quality auditors.

The information asymmetry not only exists in the equity capital market, but also causes big problems in debt capital markets. That explains the reason why researchers continue searching for relations between information quality and cost of debt capital to find a way to reduce interest expense for companies.
Choosing a Big 4 auditor may lead to more credible financial statements by, for example, improving the precision in firms’ earnings (DeAngelo 1981b; Balvers, McDonald, & Miller 1988), which in competitive debt markets reduces contracting costs because lenders will not have to resort to expending resources on gathering this information from other sources. Given the importance of accounting transparency to lenders, debt markets continue examining the role of auditor choice in reducing uncertainty about firms. Smith and Warner (1979) document that bond covenant, which frequently depend on reported accounting numbers, improves contracting by restricting wealth transfers to borrowers.

Whether firms receive cost of capital benefits from greater disclosure is an important and controversial question for managers, capital market participants, and standard setters. The Report of the AICPA (2004) identifies a lower cost of equity capital as an important benefit of greater disclosure. If auditor assurance reduces lenders’ monitoring costs (Watts & Zimmerman, 1986), competition will push banks to pass along these cost reductions to borrowers in the form of lower interest rates. However, the evidence on the relation between auditor assurance and loan interest rate is inconclusive.

If a company wants to loan capital from banks or other lenders, it must provide a prospectus that includes a description of its present and future operations and audited financial statements. With the information, investors are more able to have an overall understanding of the operational situation of the firm. It is common knowledge that hiring a “well-known firm” is necessary to lower the cost of debt capital.

Rajan and Zingales (1998) report evidence of a life cycle in the pattern of corporate financing, with firms more dependent on external financing in their early years. However, that can only be fulfilled when there is no/less information asymmetries in the financial statements of listed companies.

Lenders may prefer young firms, which are just forming their reputations for debt servicing, have higher-quality audits. This implies that the marginal benefit that a higher-quality audit provides through lowering firms’ borrowing costs will be decreasing in age. Pittman and Fortin (2004) pay attention to the firm’s early public
years and find it an opportune setting for studying the influences of auditor choice on their interest of debt. Consist with their assumptions, engaging a Big 6 auditor, which has a good reputation for providing a higher-quality audit that enhances the credibility of financial statements. In addition, the results imply that the information asymmetry has a negative relationship with the age of the firm.

Diamond and Verrecchia (1991) summarize that studies focus on a firm's debt contracting for two primary reasons. First, debt is an essential source of corporate financing. The flow of funds data from the Federal Reserve System indicates that over the past decade, there have been $780 billion in net debt security issuances and only $2 billion for equities. Given the significance of debt as well as the growing number of financial restatements, it is important to understand how the structure and pricing of private debt change after a firm discloses financial misreporting.

The traditional banking literature (e.g., Freixas & Rochet 1997) suggests that credit risk is the major lending risk faced by banks and is one of the primary determinants of loan pricing. Greater lending risk leads to higher loan interest rates. In addition, the theoretical findings in Barry and Brown (1984), Easley, Hvidkjaer, and O’Hara (2002) suggest that the systematic risk of securities is affected by the amount of available information, and limited information is a source of non-diversifiable risk that should be priced in securities. As a result, this literature argues that information disclosure lowers information risk and reduces the cost of capital.

From a different angle, Diamond and Verrecchia (1991) show that information transparency can reduce a firm's cost of capital because a firm with less information asymmetry attracts increased demand from investors and thus increases the liquidity of its securities. Diamond and Verrecchia (1991) documents that information opacity of borrowing firms increases loan spreads.

In the study of Kim et al. (2006), they find that the loan spread charged by banks is significantly lower for borrowers with prestigious Big 4 auditors than for borrowers with non-Big 4 auditors and the spread difference are about 32 basis points for the full sample. In addition, the auditor switch can cause a higher loan spread. Long auditor tenure is considered as a credit risk reducing factor. Kim et al. (2011) use a
sample of privately-held firms in South Korea which are require to report their financial results publicly and find that audited firms have a 60 basis point lower interest rate on average.

Minnis (2011) has a deeper looking into the lenders’ pricing decisions further, he finds verification of financial statements not only influence the average level of debt pricing; lenders use audited financial statements more intensively in establishing the interest rate. Specifically, lenders’ pricing decisions are more sensitive to financial statement variables commonly used in credit analysis including interest coverage, current ration, etc. From this point, the value of auditing, besides the simply costly signal, is more influential in lending decisions.

However, not all studies in this setting find a negative relation between the presence of an audit (or audit quality) and the cost of debt capital.

Fortin and Pittman (2007) fail to find that larger auditors are associated with a lower cost of debt in a sample of large privately-held firms issuing debt to institutional investors. In addition, Allee and Yohn (2009) examines the survey evidence of the Federal Reserve’s National Survey of Small Business Finances and do not find that an audit is associated with a lower interest rate in small privately-held firms. In fact, extant research on public firms implies that the presence of a Big 4 auditor constrains earnings management (e.g., Becker, DeFond, Jiambalvo, & Subramanyam 1998; Francis, Maydew, & Sparks 1999).

While experimental studies find that bank loan officers are more likely to grant loans to firms providing audited financial statements, the effects on loan pricing are not consistent with these results on loan officer perceptions. Johnson, Pany and White (1983) find no significant relation between loan interest rates and auditor association in their experiment with loan officers.

Petersen and Rajan (1994) suggest that loan officers view firm size as a proxy for risk and a significantly negative relation between loan interest rates and firm size. Similarly, Blackwell and Winters (1998) find that the interest rates are negatively related to both firm size and the frequency of monitoring by loan officers. Since it
appears that banks perceive larger firms as less risky borrowers, the interest rate benefit of the audit should decrease as firm size increases (Blackwell, Noland & Winters 1998). Bamber and Stratton (1997) find that loan officers in an experimental setting associate uncertainty-modified audit reports with a greater likelihood of loan rejection, higher risk assessments, and higher interest rates.
6 HYPOTHESIS AND RESEARCH DESIGN

6.1 Hypothesis

Given that American companies rely more on stock market to finance, there are numerous study of the relationship between auditor choice and equity capital while the influences on debt capital is rarely discussed.

In my study, information asymmetry, which is always prevalent in modern firm, is considered to influence auditor choice in debt markets. Large auditors pay more attention to their reputation, thus have more incentive to maintain a high-level audit service (DeAngelo, 1981, Datar et al., 1991 and Craswell et al., 1995). Besides, Balvers et al. (1988) and Beatty (1989) provide strong evidence indicate that auditors with a “brand name” provide an ex ante signal of insurance coverage in new equity issues.

Different auditor choices can have a significant influence on audit quality (Francis et al. 2009; Zerni et al. 2010; Haapamäki et al. 2011). Audit quality, to some extent, is related to the ability of auditors to discover the misstatements in the financial reports and the auditor's willingness to issue a proper audit report based on sufficient detections and tests (DeAngelo 1981b).

Audit quality can contribute to efficiency of debt contracting by increasing the credibility of financial information, reducing the information uncertainty and debt monitoring costs for lending institutions (Jensen & Meckling 1976; Watts & Zimmerman 1986; Kim et al. 2007a). Since Lenders largely rely on the information to analyze firms’ present performance and future prospects, credible earning reports would support their decision making process. In addition, evidences imply that higher quality auditors reduce earnings management which lowers the uncertainty of information (Sweeney 1994 and DeFond and Jiambalvo 1994). Accounting-based covenant violation is one of incentives to manipulate earnings for most firms. Without sufficient and effective monitoring, lenders would consider to reduce risk of earnings management by increasing interest rates for firms who hire non-bigN firms.
In that case, high-quality auditors lessen the cost of monitoring for lending institutions.

This study focuses on the relationship between auditor choice and interest rate on debt capital for U.S listed companies. I expect that under better monitoring of high-quality audit firm, which refers to Big 4 firms in this case, listed firms can benefit from lower borrowing costs due to less information asymmetries between lending institutions and themselves. As a result, I have the following hypotheses.

\[ H: \text{The interest rate on debt capital for listed company is negatively related to the choice of high-quality audit firm (Big4 firms).} \]

6.2 Sample selection

To test the hypothesis, I obtained data from annual CCM database (the CRSP/Compustat Merged Database) which is supported by the Center for Research in Security Prices (CRSP), located in the center of the Chicago financial district, is an integral part of the University of Chicago’s Booth School of Business. The data combines CRSP and COMPUSTAT databases and includes US listed companies from NYSE, AMEX, NASDAQ and ARCA EXCHANGE. First, I drew a random sample from the database by requiring sample firms to have financial statements for six successive years from 2007 to 2011 and fiscal years with 12 months. Then, I combine the auditor information data and financial statement data, which I afterwards eliminate all companies without both data. In addition, an exclusion of firms without sufficient data for the measurement of the variables needed in regression analysis lead to a final sample of 398 firms and 1,990 firm-year observations from 2007 to 2011.
6.3 Research design

I emerged the auditor change, auditor engagement and financial information data together to cross compare the companies.

To test the hypothesis:

**Equation 1**

\[
INTRATE_{it} = \beta_0 + \beta_1(BIG4_{it}) + \beta_2(TY_{it}) + \beta_3(CFO_{it}) + \beta_4(LEVERAGE_{it}) \\
+ \beta_5(MATURITY_{it}) + \beta_6(DISTRESS_{it}) + \beta_7(PPE_{it}) \\
+ \beta_8 \left( \sum_{0}^{57} d_{1-57} \right) + \epsilon_{it}
\]

In this equation, the dependent variable INTRATE is an estimate of a firm's market interest rate on debt capital. As we cannot observe the cost of debt capital directly, we have to estimate it according to financial expenses. Although, financial expenses can consist of interests, other financial expenses and even foreign exchange losses,

The main test variable is lagged indicator as proxy for the perceived audit quality (BIG4). The coefficient on BIG4 audit firms will indicate the difference of interest rate between firms with Big 4 and those with non-Big 4 firms. A negative coefficient on BIG4 is consistent with hypothesis and indicates that perceived audit quality which conducted by Big 4 auditors has incremental value relevance on the pricing of debt.
Some control variables should be included in Equation (1) to minimize the debt pricing effects of information on auditing and accruals quality from other potential effects. To control the effect of auditor tenure, I include TY defined as years that the latest auditor engaged year to 2011. CFO defined as cash flow from operations scaled by lagged total assets. Due to firms with more cash flows are in a better position to pay their debts, the coefficient of CFO is supposed to be negative (Pittman & Fortin, 2004). As the risk of agency problems between managements and outside lenders would increase with financial leverage and maturity structure, I include LEVERAGE and MATURITY following Jensen and Meckling (1976) and Myers (1977). LEVERAGE refers to total debt to total assets and MATURITY defined as short-term debt to total debt. Based on Pittman and Fortin (2004), a dummy variable DISTRESS, which defined as firms with negative book value of equity, is included to consider the possibility that firms in financial distress have higher interest rate. In addition, following Pittman and Fortin (2004), PPE is included as plant, property and equipment scaled by total assets as a control for the collateral value of assets which is expected to be negative coefficient. Finally, dummy variables indicating a firm’s industry classification and fiscal year to control for potential industry-specific and time-varying macroeconomic effects on debt pricing (Karjalainen 2011).
Table 1: Variable definitions

<table>
<thead>
<tr>
<th>Variables</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>The independent variable</td>
<td></td>
</tr>
<tr>
<td>$\text{INTRATE} = \text{The interest rate in year } t$ is measured as interest expenses in year $t$ divided by the average of interest bearing debt at the beginning and end of year $t$ and multiplied by 100</td>
<td></td>
</tr>
<tr>
<td>Test variable</td>
<td></td>
</tr>
<tr>
<td>$\text{BIG4}(t-1) = \text{A dummy variable equal to 1 if an audit report is signed by auditor}$</td>
<td></td>
</tr>
<tr>
<td>Control variables</td>
<td></td>
</tr>
<tr>
<td>$\text{TY} = \text{Tenure year which is calculated by 2011 minus auditor-since-year}$</td>
<td></td>
</tr>
<tr>
<td>$\text{CFO} = \text{A ratio of cash flow from operations to lagged total assets. Cash flow from operations is measured by subtracting total accruals from income before extraordinary items. Total accrual is measured as the change in non-cash working capital minus depreciation and amortization}$</td>
<td></td>
</tr>
<tr>
<td>$\text{LEVERAGE} = \text{A ratio of total debt to total assets}$</td>
<td></td>
</tr>
<tr>
<td>$\text{MATURITY} = \text{A ratio of short-term debt to total debt}$</td>
<td></td>
</tr>
<tr>
<td>$\text{DISTRESS} = \text{A dummy variable equal to 1 if the book value equity is negative, and 0 otherwise}$</td>
<td></td>
</tr>
<tr>
<td>$\text{PPE} = \text{A ratio of plant, property, and equipment to total assets}$</td>
<td></td>
</tr>
<tr>
<td>$d_{1-57} = \text{A dummy variable that controls the distribution of industries}$</td>
<td></td>
</tr>
</tbody>
</table>
7 EMPIRICAL RESULTS

7.1 Descriptive statistics

Table 2 present the descriptive statistics for a test sample of 1,990 firm-year observations. The mean of big4 is 75 percent, indicating that the three out of four companies are audited by high-quality auditors (Big4). The mean LEVERAGE is 24 percent and the mean proportion of short-term debt in total debt (MATURITY) is 22.6 percent. This reveals that sample firms mainly use long-term debt. The mean of TY is 17.5 which is relatively long tenure period.

Table 2: Descriptive statistics for whole period from 2007-2011

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIG4</td>
<td>1990</td>
<td>0.750</td>
<td>0.432</td>
<td>N/A</td>
<td>1.000</td>
</tr>
<tr>
<td>TY</td>
<td>1990</td>
<td>17.492</td>
<td>19.276</td>
<td>1.000</td>
<td>121.000</td>
</tr>
<tr>
<td>CFO</td>
<td>1990</td>
<td>0.088</td>
<td>0.111</td>
<td>-0.890</td>
<td>0.988</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>1990</td>
<td>0.242</td>
<td>0.203</td>
<td>0.000</td>
<td>2.600</td>
</tr>
<tr>
<td>MATURITY</td>
<td>1990</td>
<td>0.226</td>
<td>0.294</td>
<td>N/A</td>
<td>1.000</td>
</tr>
<tr>
<td>DISTRESS</td>
<td>1990</td>
<td>0.027</td>
<td>0.162</td>
<td>N/A</td>
<td>1.000</td>
</tr>
<tr>
<td>PPE</td>
<td>1990</td>
<td>0.249</td>
<td>0.206</td>
<td>0.000</td>
<td>0.958</td>
</tr>
</tbody>
</table>

Note: five successive years financial and audit data ranging from 1997-2011. N denotes the number of firm-year observations

Variables definition

\[
\begin{align*}
BIG4(t-1) &= \text{A dummy variable equal to 1 if an audit report is signed by at auditor} \\
TY &= \text{tenure year} \\
CFO &= \text{A ratio of cash flow from operations to lagged total assets.} \\
& \text{Cash flow from operations is measured by subtracting total accruals from} \\
& \text{income before extraordinary items. Total accrual is measured as the change in} \\
& \text{non-cash working capital minus depreciation and amortization.} \\
LEVERAGE &= \text{A ratio of total debt to total assets} \\
MATURITY &= \text{A ratio of short-term debt to total debt} \\
DISTRESS &= \text{A dummy variable equal to 1 if the book value equity is negative, and 0 otherwise} \\
PPE &= \text{A ratio of plant, property, and equipment to total assets}
\end{align*}
\]
7.2 Regression results

Table 3 presents estimates of Equation 1 obtained by using pooled ordinary least squares for the overall sample of 1,999 observations. Hypothesis testing will be based on pooled OLS results. For the purpose of minimizing the concern of residual heteroskedasticity and serial-correlation, all the reported regressions based on robust standard errors clustered at the firm level. As a result, the reported test statistics of coefficient estimates are not biased by heteroskedasticity and intra-firm serial correlation of the residuals.

As shown in the table 3, the coefficient on BIG4 is insignificant and with positive sign which are not consistent with my hypothesis and indicate that perceived audit quality attributable to Big 4 audits and involving auditors may not be value relevant to the pricing of debt.

Regarding the control variables, contrary to the prediction, the result of LEVERAGE indicates that interest rate is inversely related to financial leverage. This may reflect endogeneity of leverage in the debt pricing equation.

On one hand, the borrowing costs may increase with leverage. However, the increase in borrowing costs may drive firm to lower their leverage. To sum up, it may simply reflect a mechanical relationship between LEVERAGE and INTRATE, because the numerator of the former and the denominator of the latter increases with interest-bearing liabilities (Karjalainen 2011).
Table 3: Main regression results: test of hypothesis

| Variable    | Expected Sign | Coefficient estimate | t Value | Pr > |t| |
|-------------|---------------|----------------------|---------|------|---|
| Intercept   | ?             | 8.60627              | 0.67    | 0.5009 |
| BIG4        | -             | 2.37503              | 1.38    | 0.1688 |
| TY          | -             | -0.02899             | -0.77   | 0.4398 |
| CFO         | -             | -17.22925            | -2.79   | 0.0053 |
| LEVERAGE    | +             | -27.30968***         | -6.47   | <.0001 |
| MATURITY    | -             | 6.72905              | 2.78    | 0.0054 |
| DISTRESS    | +             | 16.60026*            | 3.49    | 0.0005 |
| PPE         | -             | 3.64184              | 0.72    | 0.4695 |

N: 1990

Year Controls: yes

Industry controls: yes

This table presents the main regression results of Equation 1 for the total sample. N denotes the number of firm-year observations. Superscript asterisks ***, **, * denote coefficients’ statistical significance at the 1%, 5% and 10% confidence level, respectively.

In addition to the main regression containing years from 2007 to 2011, I divided the data into two periods of time which are from 2007 to 2009 and 2010 to 2011 and have a look at the differences between these two sub-period regression results.

Table 4 illustrates the regression result of sub-period from 2007 to 2009 which is also the financial crisis period. It does not show a significant relationship between choosing a Big 4 auditor and debt interest rate.

However, it does indicate a strong cash flow from operation can reduce the interest rate due to more confidence on the operation of the firm. Similar to the main result, the result of LEVERAGE indicates that interest rate is inversely related to financial leverage.
Table 4 Sub-period 2007-2009 regression result

| Variable | Expected Sign | Coefficient estimate | t Value | Pr > |t| |
|----------|--------------|----------------------|---------|------|-------|
| Intercept| ?            | 9.97017              | 0.45    | 0.6540 |
| BIG4     | -            | 3.50405              | 1.22    | 0.2217 |
| TY       | -            | -0.02129             | -0.34   | 0.7370 |
| CFO      | -            | -35.11104***         | -3.91   | <.0001 |
| LEVERAGE | +            | -37.55432***         | -5.44   | <.0001 |
| MATURITY | -            | 9.61086              | 2.40    | 0.0164 |
| DISTRESS | +            | 20.98988             | 2.48    | 0.0132 |
| PPE      | -            | -3.44336             | -0.41   | 0.6830 |

N 1990
Year Controls yes
Industry controls yes

This table presents the main regression results of Equation 1 for the total sample. N denotes the number of firm-year observations. Superscript asterisks ***, **, * denote coefficients’ statistical significance at the 1%, 5% and 10% confidence level, respectively.

Table 5 shows the result of sub-period from 2010 to 2011. The same as it is in Table 4: CFO reveals a significant negative relationship between cash flow from operation and debt interest rate.

After the look into sub-period results, perceived audit quality attributable to Big 4 audits and involving auditors may not be value relevant to the pricing of debt according to the regression results.

Table 5 Sub-period 2007-2009 regression result

| Variable   | Expected Sign | Coefficient estimate | t Value | Pr > |t| |
|------------|---------------|----------------------|---------|------|-------|
| Intercept  | ?             | 18.56227             | 0.63    | 0.5283 |
| BIG4       | -             | 0.73202              | 0.20    | 0.8389 |
| TY         | -             | 0.01878              | 0.22    | 0.8244 |
| CFO        | -             | -88.53415***         | -6.69   | <.0001 |
| LEVERAGE   | +             | -28.59969            | -2.94   | 0.0034 |
| MATURITY   | -             | 6.98815              | 1.44    | 0.1494 |
| DISTRESS   | +             | 6.07798              | 0.62    | 0.5352 |
| PPE        | -             | -3.96575             | -0.36   | 0.7163 |
As there is no significant result from sub-period regression, the data is divided by the industry since there are 57 industries. In this part, the manufacturing industry is the main focus.

The result is presented in Table 6 which indicates that there is no significant relationship between the pricing of debt and the choice of Big 4 auditor. However, the LEVERAGE variable shows an inverse relation between cost of debt capital and leverage of firms.

| Variable     | Expected Sign | Coefficient estimate | t Value | Pr > |t| |
|--------------|---------------|----------------------|---------|------|---|
| Intercept    | ?             | 8.93961              | 0.61    | 0.1242 |
| BIG4         | -             | 4.63287              | 0.15    | 0.5865 |
| TY           | -             | -0.96982             | -0.67   | 0.0154 |
| CFO          | -             | -6.22398             | -2.79   | 0.3336 |
| LEVERAGE     | +             | -20.45258***         | -3.68   | <.0001 |
| MATURITY     | -             | -6.32523             | -2.78   | 0.2512 |
| DISTRESS     | +             | 1.34343              | 1.25    | 0.1136 |
| PPE          | -             | -2.78995             | -0.51   | 0.7458 |

N 1990
Year Controls yes
Industry controls yes

This table presents the main regression results of Equation 1 for the total sample. N denotes the number of firm-year observations. Superscript asterisks ***, **, * denote coefficients’ statistical significance at the 1%, 5% and 10% confidence level, respectively.
Auditor tenure is considered to be long-term when it is more than 9 years. In that case, we can find that whether a longer tenure would indicate a relation between cost of debt capital and the choice of a Big 4 auditor. The sample, as a result, has been divided into two groups which are less and no less than nine years of auditor tenure. Even though the longest tenure in the sample is 121 years, the average tenure is 17 years which is considered as a long-term tenure.

Table 7 Auditor tenure less than 9 years

| Variable       | Expected Sign | Coefficient estimate | t Value | Pr > |t| |
|----------------|---------------|----------------------|---------|------|---|
| Intercept      | ?             | 23.58541             | 0.58    | 0.3632 |
| BIG4           | -             | 0.58977              | 0.37    | 0.4697 |
| TY             | -             | -1.79525             | -0.55   | 0.0345 |
| CFO            | -             | -6.22398             | -2.79   | 0.1125 |
| LEVERAGE       | +             | 0.45257              | 1.71    | 0.1954 |
| MATURITY       | -             | -7.19378***          | -2.78   | <.0001 |
| DISTRESS       | +             | 8.22235              | 0.79    | 0.0257 |
| PPE            | -             | -29.72195            | -0.51   | 0.9526 |

N: 1990

Year Controls: yes

Industry controls: yes

This table presents the main regression results of Equation 1 for the total sample. N denotes the number of firm-year observations. Superscript asterisks ***, **, * denote coefficients’ statistical significance at the 1%, 5% and 10% confidence level, respectively.

Table 8 Auditor tenure no less than 9 years

| Variable       | Expected Sign | Coefficient estimate | t Value | Pr > |t| |
|----------------|---------------|----------------------|---------|------|---|
| Intercept      | ?             | 3.46213              | 0.34    | 0.3084 |
| BIG4           | -             | 8.14522              | 0.76    | 0.7521 |
| TY             | -             | -1.33664             | -0.12   | 0.2212 |
| CFO            | -             | -9.44717***          | -1.72   | <.0001 |
| LEVERAGE       | +             | -16.71669            | -0.44   | 0.0236 |
| MATURITY       | -             | -7.79522             | -1.93   | 0.4621 |
| DISTRESS       | +             | 6.21152              | 0.93    | 0.1136 |
### Table 1

| Variable | Expected Sign | Coefficient estimate | t Value | Pr > |t|
|----------|---------------|----------------------|---------|------|
| PPE      | -             | -9.66832             | -0.68   | 0.3629 |

N: 1990  
Year Controls: yes  
Industry controls: yes

This table presents the main regression results of Equation 1 for the total sample. N denotes the number of firm-year observations. Superscript asterisks ***, **, * denote coefficients’ statistical significance at the 1%, 5% and 10% confidence level, respectively.

Table 7 and 8 illustrate the results of regression by different tenure year. In the firms who hire auditors for less than nine years, the MATURITY shows a significant negative relation between cost of debt capital and the proportion of short-term debt in total debt which reveals higher proportion of short-term debt would, to some extent, decrease the cost of debt capital. In Table 8, similar to Table 4 and 5, CFO reveals a significant negative relationship between cash flow from operation and debt interest rate. However, both regressions do not show significant relation between cost of debt capital and auditor choice.

To sum all the regression results up, they show significant relationship between cash flow from operation, financial leverage, even the proportion of short-term debt and cost of debt capital, respectively. But none of them shows evidence that proof my hypothesis that there is a positive relationship between auditor choice and the cost of debt capital.
8 CONCLUSION

The purpose of this paper is to examine the impact of auditor choice on debt pricing for listed companies by using the samples of listed companies in U.S. Based on related studies, they examine the value relevance of perceived audit quality and proxy audit quality by the Big N/non-Big N dichotomy, which is a measure for audit quality in the context of publicly traded firms. In this paper, Big 4 audit firms are considered to be “high-quality” auditors and consequently they provide a higher perceived and actual audit quality. The value relevance of Big 4 auditors to investors of U.S-listed companies can be attributed to information and/or insurance value (Dye 1993). Especially in common law environments, such as in the U.S., Big 4 auditors play an essential role in capital market to provide credible financial information to the investors. The auditor’s opinion can, to some extent, influence stock prices and cost of debt when it conveys information for future cash flows and expectation of firms’ viability.

I set a hypothesis towards the value relevance of auditor choice in the context of pricing debt capital for publicly traded companies. The hypothesis is tested by using a sample of 1,990 observations of publicly traded companies, corresponding to the period 2007 to 2011. After controlling for other determinants of debt pricing, the results do not significantly support my hypothesis, as to say, the relationship between auditor choice and cost of debt capital cannot be drew in this paper. However, regressions show significant relationship between cash flow from operation, financial leverage, even the proportion of short-term debt and cost of debt capital, respectively.

Given that investor protection is generally higher in common law than in code law environments, the results could indicate that the governance and/or signaling role of a Big 4 audit is even more important in code law environments with lower investor protection (La Porta et al. 1998). A large proportion of companies in sample hire Big 4 auditors which may lead to the limitation of comparing the differential effect of Big 4 and non-Big 4 auditors. According to that, lenders may pay more attention to other factors instead of auditor. Minnis (2011) also pointed out that archival evidence regarding the value of financial statement verification remains mostly elusive. A key obstacle has hampered empiricists: the lack of variation in financial statement
verification. Due to the pervasive regulated audit mandate, researchers have been limited to get access to large sample data with variation

This study may be subject to some limitations. First of all, the study only analyze the data from just one country while audit environments are different. This result could not be generalized. In addition, the small scale of data could result bias result or not representative of audit practice. Third, there is still endogeneity in the results regarding the debt-pricing effects of perceived audit quality due to self-selection.
REFERENCES


