

Audit quality and financial distress: Evidence from China

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Abstract: This study empirically examines the relationship between audit quality and financial distress based on Chinese listed firms. This paper examines whether high audit quality can reduce the likelihood of financial distress, especially in high growth firms and government owned firms. Results indicate that the quality of the external audit has a negative relationship with financial distress. In addition, for high growth firms, results show that the relationship between audit quality and financial distress is more significant. Finally, the association between audit quality and financial problems is moderated by ownership. The overall results demonstrate that audit quality is negatively associated with financial distress and their relationship is enhanced in growth firms and state-owned firms. The findings suggest that in China, external auditing is an effective governance mechanism to face a financial crisis.

Key-Words: Audit quality, Financial distress, Growth, Ownership

1 Introduction

Since the 21st century, some serious corporate scandals have happened frequently worldwide. For example, Lehman Brothers, General Motors, Enron and WorldCom collapsed. In China, many enterprises such as China Aviation Oil, CITIC Pacific, Eastern Airlines, Lantian Stock and Yili have also suffered from financial failures [1]. These egregious cases have focused public attention on the importance of effective external auditing to avoid a financial crisis.

Listed firms play a vital role in economic development and they benefit from high-quality audits. Better financial condition needs a higher-quality audit. However, the relation between audit quality and financial distress is influenced by other factors such as growth and ownership. Agency theory points out the significance of external audits in solving agency problems [2]. Prior research has examined audit quality and financial distress separately. However, to our best knowledge, there is no research about the relationship between audit quality and financial distress. In order to fill this gap, this paper examines whether audit quality is related to the likelihood of financial distress.

The research question is whether external audit quality is associated with financial distress. In order to answer this question, there are three hypotheses in this paper. Carey and Simnett (2006) argue that going concern reports are linked to the possibility of receiving a modified auditor's opinion [3]. Auditing is one of the effective ways to solve agency problems.

The first hypothesis is that audit quality is negatively related to financial crisis. Additionally, for growth firms, high audit quality is more likely to be needed to reduce uncertainty and operation risk. The second expectation is that the relation between auditing quality and financial crisis is stronger for high growth firms. Chinese government-controlled firms have higher agency costs and they are more likely to suffer from financial distress. External audits can effectively resolve a financial crisis to help state-owned firms keep a good reputation and high corporate social responsibility. Managers also strive to get promoted by improving their firm's financial condition. The last hypothesis is that the relation between auditing quality and financial crisis is stronger in state-owned firms.

We use China data rather than US evidence because the US may not generalise to audits in other countries with diverse mechanisms. Compared with Western countries,

Chinese firms have unique characteristics. Firstly, China is considered to have poor legal enforcement and weak corporate governance [4]. As an alternative mechanism, auditing plays a key role. Secondly, the Chinese government greatly influences corporate governance. State-owned firms and non-state-owned firms may differ in many aspects. The country's institutional backgrounds offer an opportunity to conduct research: this research investigates whether in China an audit is also effective in reducing financial distress.

This research empirically examines the relation between audit quality and financial stress using the data from Chinese listed firms. Audit quality includes whether audit opinion is standard or not, whether the accounting firm is one of the Big 4 or not, and the audit fee. Financial condition is measured using the Altman (1983) Z-Score and Altman (1993) Z-Score.

The empirical findings are consistent with expectations and the hypotheses are confirmed. Firstly, we find that a non-standard audit opinion has a negative relationship with financial condition. Next, for high growth firms, we find that the relation between audit opinion and financial distress is more significant. Lastly, in terms of the effect of ownership, the results show that the negative relation between audit quality and financial crisis is enhanced in state owned firms.

The remainder of this research is as follows. The next part discusses the hypotheses. This is followed by research design, where details are provided of sample selection, data collection, variable definitions and model construction. In the results section, we present the descriptive statistics, the results for the main analyses and additional texts. The conclusions are offered in the final section.

2 Hypotheses

Some regulations address audit quality issues. Auditing Standard No. 16 requires auditors to evaluate the subjective judgments of management about critical accounting policies and practices (PCAOB, 2012a). In China, the regulations and rules are similar. The Chinese Institute of Certified Public Accounts (CICPA) raised the strategy that accounting firms need to become stronger and bigger since 2007 and audit quality is a vital part of this strategy.

A large amount of literature has studied audit quality from various viewpoints. Audit quality can restrain financial reporting fraud, improve earnings

management and improve accounting information quality [5]. Auditing has been focused on by the public because it can improve firm value. The annual reports that have been audited can easily be trusted by a capital market. However, this trust is based on audit quality [6]. A competent auditor can reduce the incentive of management to manipulate earnings as audit quality is a component of financial reporting quality.

When it comes to the demands of a high quality audit, Francis et al. (1999) find that firms with great monitoring due to high agency costs tend to employ a high quality auditor [7]. The inherent uncertainty including information asymmetry (insiders and outsiders) are more likely to communicate with a high-quality auditor about their intrinsic quality to reduce information asymmetry. In particular, for the private firms in countries with weak institutional backgrounds, Francis et al. (2011) indicated that the demand for high audit quality can enhance investor protection [8].

There is vast literature related to financial distress, especially its determinants. Financial distress is defined as having no ability to cover current obligations, for example, unpaid debts. The corporate characteristics such as size, maturity, industry, and complexity are found to be related to financial distress. Janes (2005) finds that poor profitability and high financial leverage results in financial distress [9]. In China, Lv (2004) finds that surplus capacity, equity ratio and firm size have a positive relationship with bankruptcy or finance distress [10]. Jiang et al. (2009) studied the association between management overconfidence, firm expansion and financial distress [11]. They found that management overconfidence was positively related to investment level and internal expansion of firms. This relationship is more significant when the firms have enough cash flow. However, there is no strong association between overconfident management and external expansion. The results suggest that the expansion strategies carried out by overconfident managers are more likely to be associated with financial difficulties.

With regards to corporate governance, the auditor plays a vital role in the assessment of internal control. High quality auditors can easily detect control deficiencies. Doyle et al. (2007) find that financial distress was related to poor internal control because firms have no funds to improve internal control quality [12]. Using Chinese data, Li et al. (2012) examined whether internal control could effectively reduce the incidence of financial distress. They found that internal control had a great influence on finance distress [13]. The firms with

internal control problems tended to suffer from financial difficulties. Noor and Wan (2009) study the relation between audit committee and financial distress. The results show that independence, meeting frequency and attendance and the expertise of the audit committee did not affect financial distress. However, the efficiency of the audit committee relates to financial report quality, which in turn negatively affects financial distress.

In terms of earnings management, Sweeney (1994) reported that earnings management has no correlation with financial distress [14]. However, financial distress offers an incentive to manipulate earnings to meet market expectations and debt covenants by adjusting earnings.

Prior literature has studied audit quality and financial distress separately. However, to the best of our knowledge, no research analyses the relationship between them. This paper is based on agency theory to examine whether audit quality is related to financial distress.

Past work has tested the issue of going-concern reports and the possibility of receiving a modified opinion from auditors. A going concern report is important for stakeholders to know about firm performance. If audits are of high quality, when stakeholders believe that reports convey bad news, then investors respond to those going concerns. Butler et al. (2004) concluded that about 7% of American listed companies received a going concern report from 1994 to 1999 and the rates decreased from 9% to 5% from 1990 to 1997 (Francis and Krishnan, 2002) [15]. Carcello and Palmrose (1994) reported that 30% of bankruptcies are predicted by an audit report with a going concern [16].

When an organization's management and ownership are separated, the agency problem arises (Jensen and Meckling, 1976); that is, the desires and goals of managers and owners conflict and shareholders ineffectively monitor managerial work. An external audit is considered to be one of the effective ways to solve this agency problem. Auditing is one mechanism used to relate the interests of shareholders to managers and to discipline ineffective management by making sure that accounting information is of high quality. The responsibility of the auditor is to oversee the accuracy and reliability of accounting reports. In contrast, if there is no reliable external governance mechanism, the owner reduces the risk control right of the company and managers are driven by the motivation of maximizing their own value. A low-quality audit could lead to information asymmetry

between management and investors by providing uncertain and false information.

According to agency theory, if there is no effective monitoring mechanism, management may not work hard, instead they could blindly expand the scale of the firm in order to increase their own benefits or improve their reputation. This results in the abuse of cash flow, which damages firm performance and makes firms face financial distress. As an effective mechanism, an audit can identify problems in time to respond to the risks (such as ineffective operation caused by moral hazard). This can avoid the loss caused by opportunistic behaviours and other problems. Audit quality is an important assurance that the financial reports reflect faithfully firm performance and innate characteristics. The first hypothesis is derived based on the above analysis.

H1: Audit quality is negatively related to financial distress.

Growth is an important internal characteristic of firms. In China, a great many firms grow fast, however, they easily fail in operation (Jiang et al., 2009). China is a new market economy country in a transitional period. There are a lot of problems for Chinese firms, for example: the capital market was founded a short time ago, laws and regulations are incomplete, information disclosure is insufficient, and the agency is underdeveloped. In order to grow fast, firms may ignore accounting conservatism to improve firm performance and meet market expectations. Opportunism motivation drives corporate insiders to speculate, so growth firms can use a radical accounting policy, which leads to low accounting information quality. Compared to firms that grow slowly, firms that grow fast are more likely to suffer from operational risk.

High growth firms have higher agency costs, the information asymmetry between corporate outsider investors and insiders. Investors pay more for the stock of firms with higher growth. And at the same time, they have higher expectations about preformation of those firms. However, growth firms are also restricted by resources and it is difficult to meet the expectations of investors. Managers of high growth firms have a strong incentive to protect information by managing earnings. Using US data from 1997 to 2001, Madhogarhia et al. (2009) found that growth firms are more likely to aggressively manipulate earnings both downward and upward [17].

High growth firms have high financing incentives. Growth firms need to expand production, seize market share, and invest enormously in equipment, product promotion, research and

development. However, their cash flow from operation is little or unstable. Therefore, higher growth firms have greater capital demands, which determine directly the development of firms. For one thing, rapid acquisition and blind expedition can result in the decrease of earnings ability and poor integration. For another, research and development are risky and may bring uncertainty to firms. By using Chinese data from 2004 to 2009, Shen and Xu (2013) found that high growth companies are more likely to suffer from financial distress [18]. According to the theory of Robert. C. Higgins, if a firm grows too fast, then it will face financial crisis soon because firm resources are over-consumed.

Auditors can supervise the conflicts between outsiders and insiders of firms. As a restriction mechanism, an audit can effectively reduce information asymmetry and agency cost. High audit quality such as an independent professional can evaluate exactly the quality of accounting information, which could help high growth firms to reduce operational risk (Guan, 2014) [19]. Using US data, Krishnan (2003) finds that a high-quality audit can restrain the earnings of management and reduce accounting conservatism of high-growth firms, which reduces the possibility of financial problems. Similarly, by using data from 2007 to 2012, Guan (2014) found that a high-quality audit can improve accounting conservatism and financial reporting quality in high growth Chinese firms. For growth firms, high audit quality is more likely to be needed to decrease uncertainty and operational risk, and then reduce the incidence of financial distress, so we raise Hypothesis 2:

H2: For high growth firms, the relationship between auditing quality and financial crisis is much stronger.

The state-owned and non-state-owned firms differ in many aspects. They have different agency problems and different risk levels (Jiang et al., 2009). Different from other countries, the Chinese government controls about 60% of listed firms. The lack of an internal controller is a serious problem in corporate governance for state-owned firms. The organisation structure of state-owned firms is hierarchical, vertical and concentrated. The decision-making process is led by both party and government. The people who make decisions do not have professional knowledge, which leads to the self-interest behaviour of managers. In addition, the Chinese government funds the firms and uses a multiple-holding structure. The long control chain results in ineffective supervision of the dominant shareholder (government) on management of state-owned firms. Therefore, agency cost is higher in

government controlled firms than for non-government controlled firms (Zhou and Zhang, 2012) [20].

As a key governing measure, an audit can supervise strongly the firms from outside to decrease agency costs of management in state owned enterprises (Jensen and Mecking, 1976). In China, dominant shareholders have a weak supervision in state owned firms, so a high-quality external audit is needed. Strong agency conflicts can be resolved by external supervisors. Zhou and Zhang (2012) examined the influence of ownership on internal governance by examining Chinese listed firms from 2008 to 2010 from the perspective of audit quality. They found that external audits can relieve agency conflicts of managers. In addition, this relationship is more significant in government controlled firms than non-government controlled firms.

What is more, Chinese listed firms play a key role in social and economic activities. It is the responsibility of listed firms to contribute to society. For example, corporate social responsibility includes retaining the employment rate and developing local economies (Wang and Hong, 2007). The Chinese government pays more attention to the evaluation of listed public firms. The managers of state owned firms are appointed by the state. Government tends to prevent the failure of state-owned firms by administrative measures. In order to get promoted and protect private interests, managers in state-owned firms focus on improving their corporate reputation to meet the requirements of the government. Therefore, managers make efforts to avoid financial distress by carrying out various measures. Anderson et al. (2000) indicated that in Mongolia, firms with a state share have higher operational efficiencies than firms that are fully privatized [21]. On the other hand, Wang and Li (2007) found that ST (special treatment) firms have low government share [22]. By using data from firms in China, they point out that the high percentage of government shareholders can reduce effectively the incidence of financial distress.

Although unethical or opportunistic behaviours do exist in Chinese state-owned firms, managers who are nominated by government will not allow firms to get into trouble. Instead, they try their best to take advantage of necessary measures (such as external audits) to prevent the occurrence of financial crisis. An external audit has stronger external supervision of state-owned firms. Auditors, especially high-quality auditors, have incentive to identify internal control problems in order to reduce audit risk. High audit quality can

reduce the possibility of low-quality financial information by finding weaknesses and giving suggestions on time (Liu et al., 2013). In China, traditional internal governance mechanisms do not work in improving internal control levels and avoiding operation risk in state-owned firms. Instead, the function of corporate governance of high-quality external quality is more significant. By examining 1222 firms in 2010, Liu et al. (2013) found that for Chinese state owned firms, a high quality audit can improve significantly internal control levels [23]. Hence, the final hypothesis is proposed as follows.

H3: For state-owned firms, the relationship between audit quality and financial crisis is more significant.

3 Research Design

3.1 Data and Sample

In this research, the data is electronically available from the China Stock Market Accounting Research (CSMAR) Database. The data of financial distress is calculated by hand. we collected the data of the recent years from 2012 to 2013. we selected the sample firms from the mainboards of the Shanghai Stock Exchange and the Shenzhen Stock Exchange in China.

The sample selection steps are as follows: firstly, all companies listed in Shanghai Stock Exchange and Shenzhen Stock Exchange from 2012 to 2013 were identified from CSMAR Database. Next, similar to other research (Jiang et al., 2009), We excluded financial and insurance industry companies as well as cross-listed firms (B shares and H shares), because they are considered to have different regulation systems. After deleting missing data, the final sample for the hypothesis contained 3828 firm-year observations.

3.2 Variables

3.2.1 Dependent Variables

Financial distress (FD) is the dependent variable. There are various ways to measure the likelihood of financial distress. Most of the research uses a financial distress prediction model to measure financial difficulties, such as: Altman Z-Scores, Ohlson O-Score, ZFC Score (Jiang et al., 2009). Jiang et al. (2009) also used financial leverage as a proxy of financial problems. Li et al. (2012) used a FD three dimensional dummy variable to proxy for financial distress. FD equals -1 if the firm stocks have been specially treated or particularly transferred. FD equals 0 if the cash flow is not enough to cover debt. FD equals to 1 if the firm has enough cash flow.

We employed the Altman (1983) Z-Score to measure financial distress. It is: $0.012 \times (\text{net working}$

$\text{capital/total assets}) + 0.014 \times (\text{retained earnings/total assets}) + 0.033 \times (\text{earnings before interest and tax/total assets}) + 0.006 \times (\text{market value of equity/book value of total liabilities}) + 0.999 \times (\text{sales/total assets})$. In additional text, I also use Altman (1993) Z-Score to proxy for financial distress. It is: $0.717 \times (\text{net working capital/total assets}) + 0.847 \times (\text{retained earnings/total assets}) + 3.107 \times (\text{earnings before interest and tax/total assets}) + 0.42 \times (\text{market value of equity/book value of total liabilities}) + 0.998 \times (\text{sales/total assets})$.

3.2.2 Independent variables

The independent variable is audit quality. Francis (2004) concludes that it is hard to measure audit quality [24]. Balsam et al. (2003) points out that audit quality is inherently unobservable and multidimensional, so it is better to employ various auditor characteristics to proxy for it [25]. Knechel et al. (2012) reviewed the past work regarding audit quality and created a framework to analyse the main attributes of an audit (incentives, uniqueness, judgement, process, and uncertainty) and the different aspects of the audit (inputs, process, outcomes and context). They concluded that a good audit is a well-designed audit process with an appropriate incentive and qualified auditors who know the inherent uncertainty and adjust properly according to the conditions of the clients [26]. All characteristics must be considered to determine whether an audit is high quality or not. Audit quality relies on the fundamental characteristics reflected in the given engagement. The definition of audit quality is different for stakeholders. It is useful to develop a balanced scorecard that captures the key characteristics of auditing. DeFond and Zhang (2014) review auditing research and conclude that audit quality relies on innate characteristics and financial reporting [27]. They measure audit quality from output base and input base.

The process and result of auditing are two steps of auditing. Auditing process cannot be observed, while auditing result (audit opinion) is available. Many researchers measure audit quality by the auditing opinion. Auditors issue the audit reports according to a going-concern principle, which predicts the potential risk in the operation.

A great many papers use the Big 4 to measure audit quality because larger auditors tend to have stronger incentives and greater competencies to offer better audit service. Francis et al. (1999) find that firms audited by a Big 4 firm have low abnormal accruals, suggesting less aggressive earnings management and higher earnings quality.

This paper measures audit quality by audit opinion, Big 4, and audit fee. Audit opinion is

measured by whether auditors issue a non-standard audit opinion. Big 4 is a dummy variable that equals 1 if the auditor is one member of the Big 4 auditing firms (Pricewaterhouse Coopers, Deloitte & Touche, Ernst and Young, KPMG) and 0 otherwise. Audit fee is measured as the nature log of audit fee.

3.2.3 Control variables

Regarding control variables, following prior research (e.g. Janes, 2005; Jiang et al., 2009; Chancharat et al., 2010), this paper controls for firm characteristics (growth, ROA, firm size, ownership), corporate governance (independence of board, duality, board size, stock holding), industry, and year.

3.3 Model

A lot of studies are about the prediction models of financial distress and bankruptcy. The study is not aimed at the prediction of bankruptcy. The accounting-based models are preferred. The popular accounting models are Altman (1983, 1993), Z-Scores. Since the Z-Score was first proposed, the model has been used widely and is reliable and accurate. A higher (lower) value means a higher (lower) possibility of financial distress. The Z-Score provides a guideline on whether finance is healthy or not. For these reasons, I use Altman (1983) Z-Score and Altman (1993) Z-Score to proxy for financial distress.

$$FD_{it} = b_0 + b_1 AQ_{it} + b_2 Size_{it} + b_3 Growth_{it} + b_4 Independence_{it} + b_5 Duality_{it} + b_6 ROA_{it} + b_7 Owner_{it} + b_8 Boardsize_{it} + b_9 Stock_{it} + \sum Year + \sum Industry + \varepsilon$$

FD: financial distress, Altman's (1983) Z-Score for financial distress. It is calculated as: $0.012 \times (\text{net working capital} / \text{total assets}) + 0.014 \times (\text{retained earnings} / \text{total assets}) + 0.033 \times (\text{earnings before interest and tax} / \text{total assets}) + 0.006 \times (\text{market value of equity} / \text{book value of total liabilities}) + 0.999 \times (\text{sales} / \text{total assets})$

AQ: 1= non-clean auditing opinion, otherwise 0

Size: natural logarithm of total assets

Growth: the growth rate of operating revenue

Independence: the percentage of independent board members

Duality: 1= general manager and board chairman are not the same person, otherwise 0

ROA: nature log of return of assets

Owner: 1= stated-owned firms, 0 otherwise

Board size: the numbers of board members

Stock: natural logarithm of the number of shares of top management

4 Results

4.1 Descriptive Statistics

Table 1 shows descriptive statistics of the Model. We winsorized all continuous variables at the 1st and 99th percentiles of that variable's distribution. It shows that the mean value of financial distress is 5.54. This suggests that on average, the Z scores of Chinese listed firms were about 5.5 in the last two years. Table 1 also shows that the mean audit quality is 0.04, which means only 4% of firms in China have non-standard audit reports. For controls, the average size of sample firms is 22 and growth is 0.22. On average, the percentage of independent directors is 0.36. The mean value of duality is 22%. Half of the sample firms are state-owned firms. Sample companies have on average around 11 members in the board. We can see that the mean value of the natural logarithm of ROA is 2.71. The log value of stock holdings is about 9.

Table 1 Descriptive statistics

Variable	Mean	S.D.	Min	0.25	0.75	Max
FD	5.54	3.26	-6.37	3.86	7.1	18.18
AQ	0.04	0.19	0	0	0	1
Size	22	1.26	19.16	21.14	22.71	25.88
Growth	0.22	0.9	-0.57	-0.05	0.21	7.54
Independence	0.36	0.06	0.25	0.33	0.38	0.5
Duality	0.22	0.41	0	0	0	1
Owner	0.5	0.5	0	0	1	1
Board size	10.63	2.03	6	9	12	17
ROA	2.71	0.05	2.57	2.68	2.74	2.82
Stock	8.9	6.83	0	0	15.47	19.19

4.2 Correlation Analysis

Table 2 lists correlation analysis results between the variables. A correlation coefficient in bold means that correlation is statistically significant. As we can see, the correlation coefficients between variables are all below 0.4. Hence, multicollinearity is not a serious problem in the model (Tabachnich and Fidell, 2001). We also checked the variance inflation factors (VIF) and they are under 2.

Table 2 Correlation matrix

	AQ	Size	Growth	Independence	Duality	Owner	Board size	ROA	Stock
AQ	1								
Size	-0.1	1							
Growth	0.0	-0.1	1						
Independence	0.0	0.0	0.0	1					
Duality	0.0	0.0	0.0	0.0708	1				
Owner	0.0	0.3	-0.0	-0.0684	0.2	1			
Board size	-0.1	0.1	-0.1	-0.219	-0.0	-0.0	1		
ROA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	
Stock	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1

	379	203	238	047				
ROA	-	0.4	-	0.0225	-	0.1	0.17	1
	0.1	888	0.0		0.0	492	95	
	742		645		725			
Stock	-	-	-	0.084	0.2	-	0.18	0.1
	0.1	0.0	0.0		256	0.3	36	78
	119	535	331		722			4

4.3 Regression analysis

4.3.1 H1

Hypothesis 1 employs regression analysis to examine the relationship between audit quality and financial distress. Table 3 presents the main results of this regression. The model is significant with F value = 53.6 (p<0.001) and Adjusted R Square = 0.2044, suggesting high goodness of fit. The results show that a non-standard audit opinion is significantly negatively related to Z-score. It demonstrates that the firms with a non-standard audit opinion are more likely to suffer from financial distress. It is consistent with the expectation that firms with a high-quality audit are less likely to be related to financial difficulties, which supports Hypothesis 1.

For control variables, size is significantly negatively related to Z-Scores. This result suggests that larger firms appear to have more problems. This is consistent with Krishnan (2005) who points out that firm size is positively related to internal control weaknesses [28]. However, this is different from Jiang et al. (2009) who argue that Chinese big firms are risk-takers. Independence is significantly positively related to financial condition. This finding is consistent with Goh (2009). The coefficient on ownership is negative and significant, which is consistent with Jiang et al. (2009). In China, state-owned firms are riskier than non-state owned firms because they have different agency problems. As we expected, ROA and stockholdings have a positive relationship with financial condition. It is consistent with the results of Li et al. (2012). Contrary to our expectation, the coefficients on growth, duality and board size are not significant.

Table 3 Audit quality and financial distress

Variables	Expected Sign	Coef.	T
AQ	-	-4.0894	-10***
Size	-	-0.4622	-9.15***
Growth	-	0.0046	0.06
Independence	+	2.6724	3.3***
Duality	+	0.0218	0.17
Owner	-	-0.9149	-8.18***
Board Size	+	0.0223	0.96
ROA	+	15.1777	12.41***
Stock	+	0.0597	7.33***
Year and industry indicators		Included	
Constant		-26.2660	-8.55***
Observations		3828	
F		53.6	
Adj R ²		0.2044	

4.3.1 H2

In order to examine Hypothesis 2, we have added an interaction item AQ*Growth to the regression model. Referring to Table 4, as hypothesized, the coefficient on the interaction between audit quality and growth is in the predicted direction and significantly correlates with Z-Score. Growth plays a positive role in the relation between audit opinion and financial condition. It suggests that for high growth firms in China, the relation between audit quality and financial distress is more significant. This finding supports Hypothesis 2. This finding is consistent with Krishnan (2003) and Guan (2014). Growth moderates the association between audit quality and financial distress. High-quality external audits can effectively improve financial condition in high growth firms. For growth firms, a non-clean audit opinion can signal that it is possible that the firm will face financial distress.

Table 4 The effect of growth

Variables	Expected Sign	Coef.	T
AQ	-	-3.8716	-9.32***
Growth	-	0.0747	1.04
AQ*Growth	-	-0.4898	-2.06**
Size	-	-0.4689	-9.19***
Independence	+	2.7070	3.32***
Duality	+	0.0290	0.23
Owner	-	-0.9080	-8.12***
Board size	+	0.0222	0.95
ROA	+	15.1119	12.37***
Stock	+	0.0594	7.3***
Year and industry indicators		Included	
Constant		-25.9779	-8.45***
Observations		3828	
F		50.48	
Adj R ²		0.2066	

4.3.1 H2

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Size	-	-0.4689	-9.19***
Independence	+	2.7070	3.32***
Duality	+	0.0290	0.23
Owner	-	-0.9080	-8.12***
Board size	+	0.0222	0.95
ROA	+	15.1119	12.37***
Stock	+	0.0594	7.3***
Year and industry indicators		Included	
Constant		-25.9779	-8.45***
Observations		3828	
F		50.48	
Adj R ²		0.2066	

4.3.2 H3

Table 5 presents regression estimates for Hypothesis 3. In order to test the moderate effect of ownership, an interaction between audit quality and ownership was put into the model. As we can see in Table 5, the coefficient on AQ*Owner is negative and statistically significant. It provides significant evidence that ownership has a positive influence on the relation between audit quality and ownership. For state-owned firms, the positive relation between audit quality and financial crisis is much stronger. This finding is consistent with Liu et al. (2013). Whether the firm is controlled by the Chinese government or not does affect the relationship between audit opinion and financial condition. If the dominant shareholder is the government, high audit quality is needed to help reduce the incidence of financial distress. As such, the last hypothesis is confirmed.

Table 5 The effect of ownership

Variables	Expected Sign	Coef.	T
AQ	-	-3.2944	-5.1***
Owner	-	-0.8478	-7.75***
AQ*Owner	-	-1.5539	-1.9***
Size	-	-0.4682	-9.3***
Growth	-	-0.0011	-0.02
Independence	+	2.7218	3.37***
Duality	+	0.0264	0.21
Board size	+	0.0220	0.94
ROA	+	15.2019	12.43***
Stock	+	0.0607	7.47***
Year and industry indicators		Included	
Constant		-26.2498	-8.53***
Observations		3828	
F		50.82	
Adj R ²		0.2063	

Overall, this section displays all main regression results in the research. The results of analysis are consistent with the expectations. All together, the overall results provide strong support for Hypotheses 1, 2 and 3. What we learn from the research findings is that audit quality has a positive relationship with financial condition. In addition, among firms with high growth that are controlled by the government, the relation between audit quality and financial distress is more significant.

4.4 Additional Text

In this section, we do three sensitive tests to check the robustness of the main results. First of all, we re-run the regression using an alternative measurement

of financial distress. We employ Altman (1993) Z-Score: 0.717*(net working capital/total assets) +0.847*(retained earnings/total assets) +3.107*(earnings before interest and tax/total assets) +0.42*(market value of equity/book value of total liabilities) +0.998*(sales/total assets). Following Jiang et al. (2009), we also use leverage to proxy for financial distress. Table 6 indicates that audit quality is still negatively significantly related to Altman (1993) Z-Score and positively significantly related to leverage. This suggests that the relation between audit quality and financial distress remains significant using alternative measurement of variables. The results are robust in this way.

Table 6 Alternative measure of financial distress

Variables	Altman (1993) Z-Score	Leverage
AQ	-1.1377 (-4.05***)	1.4242 (11.01***)
Size	-0.3785 (-10.98***)	0.3629 (15.87***)
Growth	0.0114 (0.27)	0.0377 (1.43)
Independence	0.3568 (0.64)	-1.0833 (-2.83***)
Duality	-0.0980 (-1.07)	-0.0644 (-1.06)
Owner	-0.2537 (-3.05***)	0.3176 (5.71***)
Board size	-0.0562 (-3.29***)	-0.0195 (-1.57)
ROA	7.3769 (7.98***)	-4.8049 (-8.34***)
Stock	0.0048 (0.79)	-0.0140 (-3.50***)
Year and industry indicators	Included	Included
Constant	-8.2076 (-3.54***)	7.9588 (5.69***)
Observations	3828	3828
F	35.58	44.92
Adj R ²	0.1397	0.1384

What is more, we employ the Big 4 and the audit fee to proxy for audit quality. Table 7 shows the results of the Big 4. The results show that use of a Big 4 firm has no significant relationship with financial distress. This is different from our expectation. It is different from Rice & Weber’s (2012) stance that the Big 4 have strong incentives and great competencies to provide high-quality audit services. It means that the Chinese firms audited by the Big 4 cannot reduce their financial distress. There is no difference between Chinese firms audited by Big 4 international accounting firms or not.

Table 7 Big 4

Variables	Expected Sign	Coef.	T
Big4	+	-0.1311	-0.74
Size	-	-0.4061	-7.12***
Growth	-	-0.0384	-0.44
Independence	+	2.6723	3.17***
Duality	+	0.0132	0.1
Owner	-	-0.9433	-8.05***
Board size	+	0.0179	0.75
ROA	+	17.0997	13.37***
Stock	+	0.0696	8.33***
Year and industry indicators		Included	
Constant		-32.8651	-9.85***

Observations	3828
F	49.03
Adj R ²	0.1519

Table 8 demonstrates that audit fee is negatively significantly related to Z-Score. This is also different from the expected direction. It means that a high audit fee relates to a bad financial condition. The results suggest that high audit fees do not effectively reduce the possibility of financial distress. The sign leans in the opposite direction with Ge & McVay (2005), this is perhaps attributable to the smaller firm size and the younger age of Chinese companies. It is consistent with Zhang & Gao (2014) who find that problem firms are related to high audit fees. With the increase of firm problems, more audit fees are needed.

Table 8 Audit fee

Variables	Expected Sign	Coef.	T
Fee	+	-0.6607	-6.27***
Size	-	-0.1807	-2.45***
Growth	-	-0.0425	-0.5
Independence	+	2.8378	3.4***
Duality	+	0.0385	0.3
Owner	-	-0.8752	-7.53***
Board size	+	0.0112	0.47
ROA	+	18.4457	14.19***
Stock	+	0.0660	7.99***
Year and industry indicators		Included	
Constant		-32.4559	-10.11***
Observations		3828	
F		49.16	
Adj R ²		0.1612	

Secondly, Jostarndt and Sautner (2008) [29] point out that industry and size have an impact on financial distress. The sample will be partitioned based on different years, their industry and size to examine the differences among firms. The first analysis is extended by conducting regression tests for each year. Table 9 shows that in both 2012 and 2013, audit opinion is significantly related to financial distress. It suggests that the relation between audit quality and financial distress is similar in each year.

Table 9 Year

Variables	Expected Sign	2012		2013	
		Coef.	T	Coef.	T
AQ	-	3.5884	6.46**	4.6206	7.81**
Size	-	0.5566	6.98**	0.3583	5.98**
Growth	-	0.0441	-0.26	0.0376	0.54
Independence	+	2.1948	1.68*	3.0386	3.2***
Duality	+	0.0195	0.09	0.0137	0.1
Owner	-	1.0812	5.99**	0.7246	5.59**

Board size	+	0.0222	0.58	0.0207	0.79
ROA	+	17.572	9.13**	12.273	8.47**
Stock	+	0.0579	4.41**	0.0639	6.83**
Industry indicators		Included		Included	
Constant		-	-	-	-
Observations		30.563	-6.28	21.462	5.81**
F		1		6	*
Adj R ²		0.1629		0.2635	

Industries are classified as per the CSRC Guideline on Industry Classification of Listed Companies. There are five industries: public utilities, real estate, comprehension, manufacture and business industries. Audit quality is negatively related to financial distress in public utilities, comprehension and manufacture industries. AQ is omitted for the real estate industry because there are only 11 sample firms. The business industry has no strong result. Generally, the results are similar across different industries.

To investigate the impact of firm size on the results, we separated the sample firms into small, medium and large sized firms. From Table 10, we can see that the relationship between audit quality and financial distress is significant in all sized firms. The results suggest that size does not influence the relation between AQ and FD. There is no difference between differently sized firms in terms of the results.

Table 10 Size

Variables	Expected Sign	Small		Big		Medium	
		Coef.	t	Coef.	t	Coef.	t
AQ	-	4.9107	6.99***	2.0025	4.02***	2.5888	5.28***
Growth	-	0.0219	-0.15	0.0864	1.52	0.1113	1.65*
Independence	-	4.9260	2.21**	1.2175	1.24	1.3536	1.27
Duality	-	0.3142	-1.12	0.3114	-1.53	0.2504	1.62
Owner	+	1.4232	4.61***	0.6522	3.82***	0.7637	5.62***
Board size	-	0.1513	1.93*	0.0546	2.1*	0.0108	-0.32
ROA	+	17.6497	5.08***	15.0242	7.96***	12.9613	8.72***
Stock	-	0.1025	4.68***	0.0059	0.5	0.0483	4.68***
Year and industry indicators		Included		Included		Included	
Constant		-	-	-	-	-	-
Observations		44.7199	4.84***	35.9712	6.98***	29.0541	7.12***
F		957		957		1914	
Adj R ²		24.36		9.17		22.29	

Adj R ²	0.2650	0.1417	0.1509
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Finally, we controlled potential cross-relations within sample firms after controlling fixed effects at the firm level. Results show that the relation between audit quality and financial distress remain significant and negative. The results do not become insignificant. This suggests that fixed effects at the firm level do not influence the results. Also, it is difficult to control all variables at the firm level as it is impossible to control all corporate governance variables and corporate characteristics. This indicates that our results are robust.

In conclusion, as can be seen in Tables, the regression results are similar across two years and five industries as well as different sizes. The results are also significant for alternative measures and are not influenced by fixed effects at the firm level. Therefore, the main regression results are robust.

4.5 Discussion

In summary, analysis results support three hypotheses. This research provides evidence that, for Chinese listed firms, audit quality can predict the possibility of financial distress (Hypothesis 1). Furthermore, growth and ownership moderate the correlation between audit quality and financial distress (Hypothesis 2). The results of the first hypothesis extends early work (Francis et al., 1999; Janes, 2005) by confirming that as an external mechanism, high audit quality can reduce the incidence of financial difficulties. The second findings indicate that high growth firms are more likely to need external audits to control operation risks, which supports the conclusions of Krishnan (2003) and Guan (2014). The results of the third hypothesis demonstrate that state-owned firms have strong incentives to avoid financial failure by taking advantage of external audits. Taken as a whole, the results are consistent with the agency theory that an external audit is a good mechanism to decrease agency costs (Jensen and Meckling, 1976).

Chinese listed firms are concerned about financial condition (Carpenter and Petersen, 2002) [30]. If a firm has a non-standard audit opinion, it signals that it is risky. A high-quality audit leads to a better financial condition. Despite that audit quality is considered to be low in China, our findings suggest that in China, an external audit can effectively reduce financial difficulty. Moreover, because high growth firms have greater risk and uncertainty, they need high-quality audits to overcome financial risk. In China, government plays a vital role in corporate governance. We have found that, compared to non-state-owned firms, state-owned firms suffer more easily from financial distress. In order to resolve agency problems and

gain political benefit, managers in Chinese government controlled firms are more likely to improve their financial condition by the use of external audits.

The practical implication in this paper is that we point out the importance of audit quality to affect financial condition. That is, external auditing is an effective governance mechanism to solve agency conflicts and reduce operation risk. Policy-makers should formulate relevant policies to support high-quality audits (Peng and Qiu, 2014). What is more, it is necessary for the Chinese government to reduce financial control to develop the financial condition of SMEs, high-tech firms and private firms in China. Also, managers of Chinese firms need to take good advantage of different sources and ways to reduce operation risk and financial distress. It is only by actually improving audit quality and corporate governance that Chinese firms will fully identify the real problems involved in corporate finance.

5. Conclusions

This paper aims to investigate the relationship between audit quality and financial distress in Chinese listed firms. We found that whether firms accept a positive audit opinion is significantly associated with financial condition. We also find that growth and ownership have a positive impact on the relation between audit opinion and financial difficulty. The findings show that audit quality in Chinese firms has a close linkage with financial condition and their correlation is moderated by growth and ownership. The results confirm that it is important for Chinese firms, especially high growth firms and state-owned firms, to have better audit quality in order to overcome financial problems.

One potential limitation of this research seems to be the data. We gathered two years data for this study. Future studies could take advantage of other data to explore relevant academic questions. Another limitation is that this research is restricted to China. In future research, the data from different countries can be used to compare and analyse differences in various settings. This research makes key original and interesting findings on audit quality and financial distress in Chinese listed firms.

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