

Impact of Audit Fee on Financial Reporting Quality: Evidence from Listed Companies in China

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<https://doi.org/10.5755/j01.ee.36.4.26107>

The high incidence of financial fraud in listed companies in recent years has raised more concerns about the quality of financial reporting (FRQ) for sound development purposes. Although auditing is used to ensure FRQ for listed companies, more and more companies are subject to financial and regulatory penalties for financial fraud or non-compliance even after receiving standard unqualified audit opinions. Recent new government regulations in China make it more difficult to change auditors, so companies now tend to use audit fee as a proxy to influence audit opinions. Therefore, it is crucial to investigate the relationship between audit fees and FRQ in the Chinese context. This research takes this perspective to measure and discuss FRQ of listed companies in China using the proxy audit fee. In this research, 25,482 A-share listed companies in China are selected to empirically investigate the relationship between audit fee and FRQ, and the authors innovatively divide the audit fee into abnormal audit fee and reasonable audit fee, and use the proportion method to calculate whether the audit fee is abnormal. The research finds that there is a positive relationship between reasonable audit fee and FRQ, while the relationship between abnormal audit fee and FRQ is negative. The results show that the division and measurement of audit fee is a good proxy to measure FRQ, which will contribute to the healthy development of listed companies and the capital market as a whole.

Keywords: *Audit Fee; Abnormal; Reasonable; FRQ; Impact; Chinalla.*

Introduction

Financial Reporting Quality (FRQ) examines the quality of companies' external financial reporting, which is an important measure for investors, government authorities and affected companies. Investors need FRQ information to make informed decisions. Government authorities can use FRQ information to assess the financial health of a company and to enable the healthy development of the capital market as a whole. For individual companies, a high FRQ can bring benefits such as aiding the decision-making process and even contributing to a company's future innovation (Park, 2018). However, in real life, many listed companies around the world have experienced various financial frauds in recent years. According to the China Securities Regulatory Commission (2022), there were 283 administrative penalties issued in 2022. Among all the penalty cases, 166 of them were for information disclosure violations (58.66 %), 80 of them were related to insider trading (28.27 %), and 11 of them were due to manipulation of the securities market (3.88%). Although the Chinese government has enacted and enforced a number of regulations in recent years to prevent all types of violations (including financial fraud and other financial reporting problems), there are still many information disclosure violations. There is increasing public concern about the FRQ of listed companies, especially from investors and government authorities. High quality financial reporting contributes to the healthy development of companies and the capital market. Therefore, the problem of financial fraud clearly shows that there is a need to monitor FRQ from the perspective of external investors and

government. This research takes this perspective to measure and discuss the FRQ of listed companies in China using the proxy audit fee.

The audit process ensures an accepted level of FRQ for listed companies, as auditors are required to endorse financial reports by issuing audit opinions. Auditors are a third-party institution that has to go through all the details of the financial reports to identify possible errors and omissions and to ask the companies concerned to make necessary corrections. However, the recent increase in cases of financial fraud is beginning to call into question the quality of listed companies' financial reports and the related audit opinions. In many cases of financial fraud, auditors didn't identify the problem of financial fraud in the audit process, so it can be called audit failure. For example, in China, more than 80 % of companies that have been punished for various financial frauds actually have standard unqualified audit opinions from auditors (Li, 2019). This shows that listed companies care about their reputation and public image. Some companies try to publish false financial statements after the auditors' approval. In this case, auditors may make personal mistakes in the audit process, but in other situations, auditors may deliberately endorse false financial statements after being bought out. The dilemma between an unqualified audit opinion and an unacceptable FRQ raises doubts about the quality of auditor endorsement. One of the criticisms relates to audit fees. There is strong competition between auditors, which may encourage a strategy of low audit fees. Companies may also offer to buy audit opinions. These situations will lower the quality of financial reports. In China, recent government regulations do not allow listed

companies to easily change auditors, so companies tend to use audit fees to influence audit opinions. Therefore, it will be interesting to study the relationship between audit fees and FRQ in the Chinese context.

There are different models for measuring FRQ. Many of the existing accounting models to measure FRQ use only one dimension to measure quality, such as accounting accruals and discretionary accruals. While these traditional accounting models are useful, they often produce biased views due to the inherent weakness of one-dimensional measure of quality. Instead, in our research, we use audit fee as a proxy to measure FRQ, which has at least four distinct advantages over traditional accounting models (Ghosh & Tang, 2015). First, audit fee models typically have R-squares in the range of 70 %-80 %, which have very high explanatory power, so the results derived from these models are more reliable (Ghosh & Tang, 2015; DeFond & Zhang, 2014; Asthana *et al.*, 2019). Second, traditional accounting models often emphasise accruals to measure FRQ, while audit fee models look beyond accruals because accruals, while important for FRQ, should not be overestimated. Audit fee models include more information from financial statements and other sources. Third, audit fee models include auditors' proprietary information and professional judgement about FRQ, whereas accounting models are based only on public information. Fourth, accounting models often pay more attention to performance, which is highly correlated with FRQ. Large companies tend to be more profitable and therefore have better performance. However, audit fee models do not overestimate performance (Ghosh & Tang, 2015).

In this research, the main research question is: How will audit fee affect FRQ of listed companies in China? The main research question can be further divided into two sub-questions: (1) What is the relationship between reasonable audit fee and FRQ? (2) What is the relationship between abnormal audit fee and FRQ? An empirical study was conducted to test the hypotheses using 2013-2021 listed companies from the A-share market in China. Robustness check was applied to ensure reliability of the results from multiple regression analysis.

This research is innovative in the following ways. First, it uses audit fee as a proxy to study FRQ for Chinese listed companies. In the existing literature, most audit-based research focuses on external influencing factors such as characteristics of the audit institution and audit tenure. Audit fee is a largely neglected factor in the literature to study FRQ. This is particularly true for the case of China. This research contributes to the literature by investigating the relationship between audit fee and FRQ for listed companies in the Chinese context. Second, different accounting accruals are often used in researching the relationship between audit and FRQ. However, researchers use different models and formulas to calculate accruals, which may lead to completely different or even contradictory results. In addition, accruals can be easily manipulated so that they may not reflect the real situation. In this research, FRQ is measured by whether or not a company has received a penalty from the China Securities Regulatory Commission or the Ministry of Finance of China for false financial statements.

According to Article 39 of China's Regulations on Financial and Accounting Reporting by Enterprises, and for the sake of simplicity, the specific types of violations covered in this paper include, but are not limited to, the following: fictitious profits, false listing of assets, false records (misleading statements), late disclosure, material omission, inaccurate disclosure, fraudulent listing, unauthorised change of use of funds, insider trading, illegal stock trading, stock price manipulation, etc. Depending on the severity of the circumstances, penalties may include criticism, warning, reprimand, fine, confiscation of illegal income, cancellation of business licence (order to close down), ban on market entry, etc.

If a company has been penalised, it is considered to have a low FRQ, otherwise it has an acceptable FRQ. This measure is more objective and comparable than accrual-based accounting models because it is based on reality, which is easier to collect and compare. The implication is that for the companies that received penalties, the auditors didn't detect false financial statements or they detected the information but didn't disclose it for some reason. Third, when examining the relationship between audit fee and FRQ, existing research often treats audit fee as a single one-dimensional factor. However, in this research, the audit fee is divided into reasonable and abnormal audit fees to examine their respective relationship with FRQ. The abnormal audit fee is further classified into "abnormally high" and "abnormally low". All classifications help to gain a comprehensive understanding of the relationship between audit fee and FRQ. The calculation of the abnormal audit fee uses the proportional method, which is more accurate than the traditional residual method. Therefore, from the above discussions, this research will make a contribution to the existing literature from the three aspects discussed above.

Literature Review

In the literature, there is little research on the relationship between audit fee and FRQ. The relationship is examined directly (such as Xu *et al.*, 2019) or indirectly (such as Usman *et al.*, 2022). In this section we will review the relevant research in the literature.

Factors Affecting Audit Fee

Audit fee is the fee charged by auditors or audit institutions for providing audit services to target organisations. Before 2014, the standard of audit fee charged in China is set by local government authorities. As a result, the audit fee standard is quite different in different regions of the country. Before 2014, there is no national audit fee standard. The audit fee standards in different regions are determined based on a number of different factors, such as the size of the target company, total assets, audit duration (Zhang & Li, 2004). Since 2014, the Chinese government has decontrolled the audit fee and it is fully oriented to the market economy. Thus, the actual audit fee charged is fully regulated by the market. This audit fee reform makes it possible to study its impact on FRQ.

The study of audit fees was first introduced by Simunic in 1980. Through a study of 400 listed companies at the end of the 1970s, Simunic (1980) found that among all the factors, the most significant factor influencing audit fees was

the size of a company. Simunic went on to develop a pricing model for audit fees, which serves as the basis for the later relevant study on audit fees. Francis and Simon also found that accounts receivable turnover rate and inventory level are also significant factors affecting audit fee. In addition, large listed companies with good accounting system often pay less audit fee than small listed companies (Francis & Simon, 1987; Coffie & Bedi, 2019). Through an empirical study using examples of listed companies from Singapore, Low *et al.* (1990) found that different industries also strongly influence the actual audit fee charged. Johnson *et al.* (1995) found that audit fees charged by Big Five audit companies are, on average, 25 % higher than non-Big Five audit companies. They show that the size of the audit company can also influence the audit fee. The larger the audit company, the higher the audit fee charged. Menon and Williams (2001) conducted an empirical study of 18 years of audit fees of listed companies in the US, which shows that the number of listed subsidiaries also affects the audit fee of the head office. A company with more listed subsidiaries generally pays a higher audit fee, *ceteris paribus*. Abbott *et al.* (2003) claim that both audit fee and non-audit fee are related to FRQ and an independent audit committee leads to a low non-audit fee. Coffie and Bedi (2019) find that the adoption of International Financial Reporting Standards (IFRS) will increase the audit fee, because auditors need more effort to follow IFRS in performing the audit. Kim *et al.* (2012) argue that the impact of IFRS adoption on audit fee has two opposite effects. IFRS adoption will increase the complexity of audit task, which will increase audit fee. On the other hand, IFRS adoption will increase FRQ thus decreasing audit fee.

For impact of Non-Audit Services (NAS) fees, due to the highly competitive audit market and the fact that non-audit services are a value-added service, non-audit services have grown strongly since the 1950s. On a global average, non-audit services account for approximately 50% of a company's total revenues. Simunic (1980) found a positive correlation between audit and non-audit fees, controlling for client size, audit risk and client complexity. Later studies (*e.g.* Parkash & Venable, 1993; Davis *et al.*, 1993; Barkess & Simnett, 1994; Kornish & Levine, 2000) come to the same conclusion. If the sample in these studies is based on voluntary disclosure by companies, the study by Abbott *et al.* (2001) is based on mandatory SEC disclosure requirements.

In China, audit fee research began in 2001 when the China Securities and Regulatory Commission required all listed companies to disclose audit information, including audit fees. This mandatory requirement makes research on audit fees possible. Since then, some research has been conducted on audit fees. Zhang and Li (2004) identified some key factors affecting audit fees, including total assets, audit duration, auditee location, etc. Zhang and Xu (2005) confirmed that auditee location is a significant factor affecting audit fee. Other factors affecting audit fee include company size and audit opinion (Li, 2015), auditee reputation in the market (Li, 2018) and gender composition of audit committee (Li, 2018). Many different factors affecting audit fees have been identified and discussed since Simunic's era. However, these factors need to be explained with caution due to different business environments, such as the unique business environment in China.

Measurement of Audit Quality

There is no single definition of audit quality and how to measure it in academia. DeAngelo (1981) defines audit quality as a crossover probability between auditors' identification of false financial statements and their disclosure to the public. Among them, the identification of false financial statements depends on the professional skills of auditors, while the disclosure of false financial statements depends on the level of independence of the auditors. DeAngelo (1981) also found that audit company size is a significant factor in determining audit quality. From the perspective of corporate earnings management, Yang (2012) found that audit fee has the highest stickiness to audit quality, type of audit opinion ranks second and audit company size ranks third in terms of stickiness to audit quality. Other researchers have also highlighted that audit fee is highly correlated with audit quality (Asthana *et al.*, 2019; Xie *et al.*, 2010; Shen & Ding, 2011). However, there are also different voices that audit fee doesn't have a high correlation with audit quality (Krishnan & Zhang, 2014; Salehi & Komeili, 2019). Other factors such as non-audit fees (Habib, 2012) and indirect audit fee payment system (Kim *et al.*, 2018) may also affect audit quality. In this research, we use audit fee as a proxy to investigate audit quality. The rationale is discussed in the next section.

Audit Fee and Audit Quality

The existing research on the relationship between audit fee and audit quality can be divided into three categories. The first category of findings focuses on audit duration and task complexity. From this perspective, audit fee is charged on the basis of audit duration and task complexity. If more time is required based on audit duration and task complexity, then more audit fees are charged. The quality of the audit is also considered to be better in this case (Simunic, 1980). Auditees often want to pay more to get a satisfactory audit service and they believe that if they pay more, the quality of the audit will improve. Auditees also want to hire more capable auditors, so they need to pay more audit fee and audit quality will also improve (Bell *et al.*, 2002). Later research clearly showed that there is a positive relationship between audit fee and audit quality (Larcker & Richardson, 2004; Gul *et al.*, 2007; Zaman & Chayasombat, 2014; Yahaya & Onyabe, 2022). The second category relates to litigation and auditee risk. Some researchers claim that litigation and auditee risks could be a measure of audit fees. The higher the risks, the higher the audit fee charged (Ashbaugh *et al.*, 2003; Kim, 2019). The third category is based on the combination of the results of the first two categories. For example, Choi *et al.* (2010) argue that a dialectic should be used when studying the impact of audit fee on audit quality. An abnormally low audit fee doesn't necessarily lead to low audit quality (Cho *et al.*, 2021). Audit quality is considered to be lower when the audit fee is outside a reasonable range in a given period (Choi *et al.*, 2010; Mande & Son, 2015). Using Australian evidence, Hossain and Wang (2022) found that audit quality becomes lower when abnormal audit fee is increased.

Audit Quality and FRQ

There is no consensus on the definition of audit quality as people explain audit quality from different perspectives and in different contexts. One popular definition is that of DeAngelo (1981), who argues that the definition of audit quality should relate to the probability of disclosure when auditors find false financial statements. If auditors do not report in such a case, then audit quality is not good. Similarly, there is no agreed definition of FRQ. A good definition of FRQ comes from Chen et al. (2017), who define FRQ as: "the precision of information about future cash flows". Then, a key difference between audit quality and FRQ is that higher audit quality means that auditors are more likely to detect false financial statements. Other researchers have also shown that audit quality is positively related to FRQ. Companies that have experienced financial fraud often have lower audit quality and FRQ. Some argue that the two concepts of audit quality and FRQ can be used interchangeably because they are highly correlated (Sun & Qiang, 2011; Yang & Liu, 2013).

Measurement of FRQ

FRQ is widely regarded as an important driver of sustainability for both companies and the capital market. There is no consensus on the definition of FRQ (Dechow *et al.*, 2010). However, it is generally agreed that a high-quality financial report is in line with Generally Accepted Accounting Principles (GAAP). There are various qualitative and quantitative indicators to measure FRQ and a comprehensive discussion of all relevant FRQ indicators is presented in the literature (Zheng & Chen, 2017; Zheng *et al.*, 2019). For qualitative indicators, the European Union proposes six accounting principles for FRQ: "going concern, consistency over time, prudence, accruals, separate valuation and correspondence of the opening balance sheet with the previous closing balance sheet". The International Accounting Standards Committee (IASC) clearly defines FRQ as having four qualitative characteristics, namely "understandability, relevance, reliability and comparability" (Nobes & Stadler, 2015). For quantitative measurement, accrual-based models are often used to measure the level of earnings management for listed companies and have been widely discussed in the literature for their advantages and disadvantages (Rahman *et al.*, 2010; Johl *et al.*, 2013; Lim *et al.*, 2015; Mboobo & Ekpo, 2016; Brown *et al.*, 2018). However, in this research, the audit fee is used as an indicator to measure FRQ. Audit fee-based models have very high explanatory power (as indicated by R-squares), therefore results obtained from audit fee models are more reliable than accrual models (Ghosh & Tang, 2015; Defond & Zhang, 2014; Asthana *et al.*, 2019). Although there is some research using audit fee as a proxy to examine FRQ, there is very little research examining audit fee. We argue that audit fee itself is large enough to be insensitive to FRQ. We divide audit fee into reasonable and abnormal audit fee to investigate their respective relationships with FRQ. The research results will shed more light on the role of audit fee in influencing FRQ.

China's Auditing Environment

First, there is a lack of demand for high quality audit services in China's capital market (Li & Wu, 2002). It is noteworthy that Chinese auditors perform a large part of the accounting function of agents, it is the auditors, not the agents' accountants, who present financial statements. DeFond *et al.* (2014) also point out the lack of institutional characteristics of the demand for independent audit in the Chinese capital market. This may lead to the phenomenon of "bad money drives out good", and reduce the independence of auditors in the whole market. Second, there are few leading companies in the country (Liu, 2007) and the competition among companies is fierce, which directly leads to the dependence of companies on clients (especially large clients), which leads to a passive position in the audit execution process (Ma, 2016). Again, the mechanism and system to protect investors in China's capital market is not sound and the policy is not sufficient (Ma, 2016). Therefore, the cost of non-compliance is low and the incentive to provide high quality audit is insufficient. Finally, there is obvious government intervention in China's audit market, and local governments have strong incentives to interfere with accounting companies and ask them to cooperate with surplus manipulation of subordinate enterprises, leading to low auditor independence (Mei, 2012). Thus, on a national average, fierce competition, widespread government intervention and lack of demand for quality audits make it difficult and unwilling for companies to maintain their independence.

Research Model and Data Collection

Previous sections have discussed the relationship between audit fee and FRQ. Since 2014, China has liberalised the pricing of audit fee and it is now fully market-based. There is now fierce competition among auditors to provide audit services. The barriers to audit fee pricing have been completely removed. The survival of the fittest is a good model for the audit market. It also helps to mitigate agency problems, which are common among listed companies in China.

Financial reports should meet the basic requirements of accountability and usefulness for decision making. The level of FRQ is crucial to China's capital market because investors often rely on this information to make decisions. Therefore, FRQ measurement is extremely important in this case. Although there are different models and opinions on FRQ measurement, the underlying principles are that financial reports should be useful, authentic, legal and timely. One of the objective and practical ways to measure the level of FRQ is to look at whether or not a listed company has received a penalty from government authorities for false financial statements or the like. If it has, then FRQ is unacceptable. If not, the FRQ level is acceptable or good. We argue that the relationship between audit fee and FRQ can be explained from two perspectives. First, fierce competition among auditors will lead to a lower audit fee for the same audit task. This will have a negative impact on the FRQ because of the limited audit fee available to perform the audit service. Second, auditees often tend to buy audit opinions. In this case, auditors will lose their independence and will often compromise before the demands of auditees. These situations

will ultimately harm FRQ. Based on the above discussions, we develop the following hypotheses:

H1: *Ceteris paribus*, abnormal audit fee is negatively related to FRQ of listed companies.

In normal situations, based on the principle of supply and demand, audit service is considered as a commodity and its price should reflect its real value. To further explore the relationship between audit fee and FRQ, in our research, audit fee can be divided into reasonable and abnormal audit fee. A reasonable audit fee means that the ratio of audit fee to company size is stable according to the proportion method. An abnormal audit fee means that there is a large change in the ratio of audit fee to company size under the proportional method. The quality of audit service is then evidenced by the change in audit fee, which also implies a certain FRQ level of listed companies. This is the second hypothesis:

H2: *Ceteris paribus*, reasonable audit fee is positively related to FRQ of listed companies.

We then build multiple regression models to test the two hypotheses. Audit fee consists of audit cost, expected loss and normal profit. Among them, audit cost is determined by total assets of auditee (LNASSET), inventory and receivables (INVREC), and foreign sales, because these items represent task complexity in auditing. Items such as profit loss (LOSS) and return on assets (ROA) may indicate the auditee's operational risk, which influences the expected loss. Audit specialisation may also affect the level of audit fees charged.

In order to test the hypotheses, it is necessary to divide the audit fee into reasonable and abnormal audit fees. There are two ways to measure whether the change in audit fees is abnormal. One method is to use the proportion method as described by Zhang (2016), which measures the difference between the audit fees in the current period and the periods before and after the current period. The larger the difference, the more abnormal the audit fee. The second method is the residual method, which obtains the coefficient values of all variables through regression of an audit fee pricing model. Real variable data are then entered into the regression model to obtain a reasonable audit fee. A reasonable range of audit fee is further defined, often allowing 5% minus and plus of the reasonable audit fee (Han *et al.*, 2015). The difference between the actual audit fee and the reasonable audit fee represents the abnormal audit fee change. However, the residual method often encounters all kinds of measurement noise and variable changes, so the final calculated abnormal audit fee is not accurate. Therefore, in this research, we use the proportional method to calculate abnormal audit fee, which could be better controlled and give a more stable and accurate result. The model is as follows:

$$ABNAFEE = \ln \left(\frac{AuditFee_t}{Asset_t} \right) - \ln \left(\frac{AuditFee_{t-1}}{Asset_{t-1}} \right) \quad (1)$$

Next, we use the criterion 'a company is fined by government authorities for false financial statements' to measure FRQ because it is more objective and easier to understand than other measures. If a company receives a penalty, FRQ is not good, otherwise it is acceptable or good. The fact-based measure is more objective than accrual-based measures and it removes the problem of earnings management. The results are also more comparable. Based

on the original audit fee pricing model developed by Simunic (1980), we modified the model by considering the later models developed by other researchers (Ghosh & Tang, 2015; Markelevich & Rosner, 2013). The fraud triangle theory is used in this research because it's also appropriate in the audit service situation. According to this theory, fraud behaviour is caused by three factors, namely pressure (motivation), opportunity and rationalisation. We believe that the financial fraud situation fits well with the fraud triangle theory, so we use this theory to analyse in our research. According to the fraud triangle theory, the pressure (motivation) factors include those indexes or ratios that indicate financial instability or risk, such as the previous year's loss (LOSS), the ratio of current operating cash flow to total assets (RCOCF), ratio of debt to total assets (LEVERAGE), liquidity ratio (CATA), return on assets (ROA), sales growth rate (SGROWTH), whether or not the value of the issue of ordinary shares exceeds 5 % of total assets (FINANCE), CEO's shareholding (CEOSHARES). Fraud opportunity means that there are opportunities for financial fraud in listed companies. It can help listed companies to hide false financial reports and avoid penalties. These fraud opportunity factors include percentage of independent directors (POID), chairman of the board and CEO (CEOCHAIR), audit opinion, audit specialisation, short tenure, audit duration (DELAY). In this research, audit fee is considered as an opportunity factor because a high audit fee often means that the auditors need more time and procedures to strengthen the third-party monitoring role. As a result, there is less likelihood of financial fraud behaviour, which also reduces audit risk. The audit fee is an independent variable in this study. In addition to the pressure and opportunity factors, we use the change of auditor (SWITCH) to measure rationalisation (personal justification). In the model we also include control variables for year and industry.

Therefore, for testing hypothesis 1 we develop the following model:

$$Violation = \alpha + \beta_1(HIABFEE) + \beta_2(LOABFEE) + \beta_3(LOSS) + \beta_4(RCOCF) + \beta_5(LEVERAGE) + \beta_6(CATA) + \beta_7(ROA) + \beta_8(SGROWTH) + \beta_9(FINANCE) + \beta_{10}(CEOCHAIR) + \beta_{11}(POID) + \beta_{12}(CEOSHARES) + \beta_{13}(Audit-opinion) + \beta_{14}(Audit-specialization) + \beta_{15}(Short-tenure) + \beta_{16}(DELAY) + \beta_{17}(LNASSET) + \beta_{18}(LNSUBS) + \beta_{19}(INVREC) + \beta_{20}(Foreign-sale) + \beta_{21}(SWITCH) + YEAR + INDUSTRY + \varepsilon \quad (2)$$

In order to test hypothesis 2, abnormal audit fee samples are excluded from the model in hypothesis 1. We use the following model to test hypothesis 2:

$$Violation = \alpha + \beta_1(LNFee) + \beta_2(LOSS) + \beta_3(RCOCF) + \beta_4(LEVERAGE) + \beta_5(CATA) + \beta_6(ROA) + \beta_7(SGROWTH) + \beta_8(FINANCE) + \beta_9(CEOSHARES) + \beta_{10}(POID) + \beta_{11}(CEOCHAIR) + \beta_{12}(Audit-opinion) + \beta_{13}(Audit-specialization) + \beta_{14}(Short-tenure) + \beta_{15}(DELAY) + \beta_{16}(LNASSET) + \beta_{17}(LNSUBS) + \beta_{18}(INVREC) + \beta_{19}(Foreign-sale) + \beta_{20}(SWITCH) + YEAR + INDUSTRY + \varepsilon \quad (3)$$

For the above models, variable definition is presented in Table 1.

Table 1

Definition of Variables

	Variable	Variable name	Explanation
Dependent variable	Violation	Violation penalty	Substitution variable of FRQ. It is 1 when a listed company receives penalty for violation of financial information disclosure otherwise 0
Independent variable	HIABFEE	Positive going abnormal audit fee	When ABFEE>0, HIABFEE=ABFEE, otherwise 0
	LOABFEE	Negative going abnormal audit fee	When ABFEE<0, LOABFEE= -ABFEE, otherwise 0
	LNFEED	Audit fee	Natural logarithm of audit fee
Control variables	LOSS	Profit loss	If the current year has a profit loss then it is 1 otherwise 0
	RCOCF	Current operating cash flow ratio	Current net operating cash flow/Total assets. It shows the financial situation of a listed company
	LEVERAGE	Debt to asset ratio	Debt/Total assets
	CATA	Liquidity ratio	Liquid assets/Total assets
	ROA	Return on assets	Net profits/Total assets
	SGROWTH	Sales growth rate	Natural logarithm of current operating income/last period operating revenue
	FINANCE	The value of common stock issue exceeds 5 % of total assets or not	If it exceeds then it is 1 otherwise 0
	CEOSHARES	CEO shareholding	Percentage of stocks a CEO holds
	LNASSET	Total assets	Natural logarithm of total assets
	LNSUBS	Number of listed subsidiaries	Natural logarithm of number of listed subsidiaries
	INVREC	Accounts receivable ratio	Accounts receivable/Total assets
	Foreign-sale	Proportion of foreign sales	Foreign sales/Total sales
	POID	Proportion of independent directors	Prevent internal control of controlling shareholders and management
	CEO CHAIR	Concurrent post of CEO and board chairman	If concurrent post holds it is 1 otherwise 0
	Audit-opinion	Audit opinion	Unqualified opinion is 1 and in other cases it is 0
	Audit-specialization	Audit specialization	Big four audit companies have 1 otherwise 0
	Short-tenure	Short tenure	Audit tenure less than 4 years then it is 1 otherwise 0
	DELAY	Days of delay of audit reports	Days between issue of financial reports and audit reports
Rationalization factors	SWITCH	Auditor change	It is 1 if there is auditor change in the current year otherwise 0

In Table 1 all variables used in the models are defined and explained in details. These variables are used to develop the models to test the two hypotheses.

The data in this research are from non-financial private companies of A-share markets of Shanghai and Shenzhen Stock Exchanges from years 2013 to 2021. The data are filtered based on the following criteria. First, private companies have more freedom than other companies such as state-owned enterprises to make decisions concerning audit fee and FRQ. Private companies are also more flexible and reactive than other companies. So private companies are chosen in this research. Second, cross listed companies on the two exchanges are excluded. Third, those companies with less than two years listing on the exchanges are also excluded.

Fourth, companies with missing data are also removed. Fifth, financial companies are excluded because these companies often have stricter internal control and they can easily bring in biases in research. Finally, 25,482 are chosen for this research. All the data are abstracted from the China Stock Market & Accounting Research Database (CSMAR). SPSS22.0 and STATA15.1 are used to do data analysis.

Results and Discussion

In this section, we present results and discussion of the empirical study. The descriptive statistical analysis is given in Table 2.

Table 2

Full Sample Descriptive Statistics

VARIABLES	(1) mean	(2) sd	(3) min	(4) max
Violation	0.196	0.397	0	1
ABNAFEE	-0.0526	0.304	-5.335	7.361
HIABFEE	0.0680	0.165	0	7.361
LOABFEE	0.121	0.221	0	5.335
LNFEED	13.89	0.697	11.51	21.42

VARIABLES	(1) mean	(2) sd	(3) min	(4) max
LOSS	0.121	0.326	0	1
RCOCF	0.0470	0.0806	-4.270	0.876
LEVERAGE	0.344	0.242	0	9.003
CATA	0.466	0.215	0	1.000
SGROWTH	1.450	14.24	-1.733	1,879
ROA	0.0298	0.121	-5.464	4.837
FINANCE	0.854	0.353	0	1
CEOSHARES	0.0536	0.116	0	0.800
LNASSET	21.98	1.198	14.13	28.28
LNSUBS	2.571	1.064	0	7.107
INVREC	0.182	0.338	0	20.67
Foreignsale	0.00879	0.0652	0	0.973
POID	0.378	0.0563	0	0.800
CEOCHAIR	0.284	0.451	0	1
Auditopinion	0.966	0.181	0	1
AuditSpecialization	0.0572	0.232	0	1
ShortTenure	0.356	0.479	0	1
DELAY	4.577	0.222	2.485	6.731
SWITCH	0.102	0.302	0	1

As shown in Table 2, for listed companies in China, the average number of illegal information disclosure penalty is 0.196. The average number of abnormal changes of audit fee is -0.0526 before audit fee division. After division the average number of positive going audit fee change is 0.068 while for negative going audit fee change it is 0.121. Negative going audit fee change is bigger than positive going audit fee change. The average number of total audit fee is 13.89 with min. 11.51 and max. 21.42. It shows the audit fees charged are quite concentrated. The number for profit loss is 0.121. It is clear 12.1 % of listed companies have a profit loss. The average operating cash flow is 0.0470 with min. -4.270 and max. 0.876. It shows the operating cash flow range is large although the average number is small. The average leverage is 0.344 with min. 0.00 and max. 9.003. The leverage ratio is quite different for different listed companies. The remaining variables also show they

have a big range of change which demonstrates different companies have different values.

Next, a correlation analysis is conducted to determine if there is a correlation between variables otherwise there is no need to do further analysis. Therefore, some important variables are selected to do Pearson correlation coefficient analysis to quantitatively capture relationships between variables. Table 3 shows the test results. For independent and dependent variables, violation penalty of sample listed companies is correlated to positive going and negative going abnormal audit fees as well as total audit fees at significance level 10 %. For independent variables, although there is significance between different variables the absolute values of relevant coefficients are not big so there is no multicollinearity. Therefore, it is possible to further study the relationships between different variables.

Table 3

Variable Correlation Test Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
(1) Violation1	1																							
(2) ABNAFEE	0.0682*	1																						
(3) HIABFEE	0.0898*	0.7058*	1																					
(4) LOABFEE	-0.0268*	0.8486*	-0.2242*	1																				
(5) LNFEET	0.0097	0.0877*	0.0917*	-0.0521*	1																			
(6) LOSS	0.1519*	0.1912*	0.2204*	-0.0985*	0.0177*	1																		
(7) RCOCF	-0.0685*	0.0247*	0.0724*	0.0201*	0.0632*	0.1864*	1																	
(8) LEVERAGE	0.0684*	0.0568*	0.0442*	-0.0452*	0.1752*	0.1516*	-0.1074*	1																
(9) CATA	-0.0504*	0.0126*	0.0404*	0.0128*	0.2094*	0.0735*	0.0641*	0.1309*	1															
(10) SGROWTH	-0.0041	-0.1066*	0.0028	0.1488*	0.0204*	-0.0049	0.0194*	0.0224*	0.0212*	1														
(11) ROA	-0.1208*	0.1931*	-0.2732*	0.0616*	-0.0319*	0.3883*	0.1549*	0.2663*	0.0979*	0.0014	1													
(12) FINANCE	0.0564*	0.1252*	0.0265*	-0.1524*	-0.0666*	0.0936*	-0.0267*	-0.0429*	0.1950*	0.0310*	-0.0764*	1												
(13) CEOSHARES	-0.0184*	0.0373*	-0.0118	0.0426*	0.1835*	0.0519*	0.0160*	0.1014*	0.1725*	-0.002	0.0578*	0.1617*	1											
(14) LNASSET	-0.0475*	-0.0674*	-0.0856*	0.0288*	0.7332*	-0.0742*	0.0993*	0.2380*	-0.1413*	0.0175*	0.0601*	-0.1063*	0.2113*	1										
(15) LNSUBS	0.0411*	-0.0098	-0.0169*	0.0008	0.5939*	0.0156*	0.0049	0.1980*	-0.1348*	0.0052	-0.0270*	0.0160*	0.1118*	0.5585*	1									
(16) INVREC	0.0049	-0.0273*	-0.0078	0.0317*	0.0430*	-0.0086	-0.0830*	-0.0024	0.0107	0.0095	-0.0296*	0.0274*	0.0101	-0.0790*	0.0352*	1								
(17) Foreignsale	-0.0053	-0.0079	-0.0129*	0.0013	-0.0191*	-0.0044	0.0178*	-0.0319*	0.0014	-0.0027	0.0082	0.0036	0.0209*	-0.0233*	-0.0009	-0.0039	1							
(18) POID	0.0058	0.0124*	0.0139*	-0.0067	0.0269*	0.0228*	-0.0139*	0.0047	0.0096	-0.0075	-0.0201*	-0.0342*	0.0925*	-0.0013	0.0083	0.0064	-0.004	1						
(19) CEOCHAIR	0.0243*	-0.0283*	-0.0018	0.0376*	-0.1040*	-0.006	-0.0113	-0.0622*	0.0940*	0.0102	0.0150*	0.0873*	0.5236*	0.1590*	0.0507*	-0.0017	0.0176*	0.1004*	1					
(20) Auditopinion	-0.1641*	-0.1396*	-0.1881*	0.0516*	-0.0194*	0.2673*	0.1008*	-0.1756*	0.0255*	0.0043	0.2701*	-0.0560*	0.0416*	0.0643*	0.0064	-0.0021	0.0047	-0.0094	0.0092	1				
(21) AuditSpeci-n	-0.0531*	0.0072	0.0106	-0.002	0.4190*	-0.0368*	0.0659*	0.0404*	-0.0548*	0.0209*	0.0361*	-0.0938*	-0.0804*	0.3212*	0.1458*	-0.0051	-0.0324*	0.0325*	-0.0577*	0.0248*	1			
(22) ShortTenure	0.0477*	-0.0002	0.0415*	0.0312*	0.0161*	0.0526*	-0.0364*	0.0156*	-0.0563*	0.0149*	-0.0508*	0.0052	0.0517*	0.0386*	0.0034	0.0293*	0.0288*	0.0171*	-0.0366*	-0.0483*	0.0555*	1		
(23) DELAY	0.0669*	0.0641*	0.0590*	-0.0441*	0.0805*	0.1339*	-0.0648*	0.0405*	0.0123*	0.0035	-0.0988*	0.0039	0.0336*	0.0295*	0.1046*	0.0183*	0.0044	0.0214*	0.0484*	-0.1178*	-0.0581*	-0.0038	1	
(24) SWITCH	0.0447*	-0.0235*	0.0445*	0.0656*	-0.002	0.0438*	-0.0157*	0.0097	-0.0373*	0.0333*	-0.0451*	0.0079	-0.0230*	0.0052	-0.0035	0.0141*	-0.0135*	0.0103	-0.0190*	-0.0550*	0.0233*	0.4349*	0.0271*	1

After correlation analysis the next step is to use multi-regression analysis model to examine the relationship

between independent and dependent variables and the results are presented in Table 4.

Table 4

Results of Multiple Regression Analysis for Abnormal Audit Fee

Variable		Coefficient	T test
HIABFEE	0.212***	0.077***	(4.84)
LOABFEE	-0.013	0.002	(0.15)
AuditSpecialization		-0.055***	(-4.99)
Auditopinion		-0.240***	(-16.76)
CATA		-0.103***	(-8.18)
CEOCHAIR		0.027***	(4.23)
CEOSHARES		-0.090***	(-3.54)
DELAY		0.036***	(3.10)
FINANCE		0.024***	(3.25)
Foreignsale		-0.039	(-1.05)
INVREC		-0.014*	(-1.87)
LEVERAGE		0.072***	(6.32)
LNASSET		-0.022***	(-7.83)
LNSUBS		0.027***	(9.06)
LOSS		0.093***	(10.99)
POID		-0.022	(-0.51)
RCOCF		-0.121***	(-3.84)
ROA		-0.057**	(-2.44)
SGROWTH		-0.000	(-0.43)
SWITCH		0.022**	(2.49)
ShortTenure		0.028***	(4.94)
Constant		0.733***	(8.71)
Year		Control variable	
Industry		Control variable	
R-squared	0.00803	0.063	
F-test	104.1	36.60	

Note: ***, **, and * denote that coefficients are significant at 1 %, 5 %, 10 % respectively.

Table 4 presents results from hypothesis 1 test which uses model 2. For model 2, when only positive going and negative going abnormal audit fees are included, R-squares value is 0.008. It means the model's fitting effect is not good. Independent variables' explanatory power is weak in explaining dependent variables. F value is 104.1 which means the model's linear correlation is significant. Listed companies' violation penalty is positively related to positive going abnormal audit fee and it passed the test at 1 % significance level. It implies that the higher the positive going abnormal audit fee, the worse the FRQ. Listed companies' violation penalty is not related to negative going abnormal audit fee and it failed to pass the test at 10 % significance level. It implies that the relationship between the negative going abnormal audit fee and the FRQ is not clear. Thus hypothesis 1 is proved to be partially true.

For hypothesis 2, model 3 is built to test it. Abnormal audit fee samples are excluded in this case and the multiple regression results are shown in Table 5.

For the right part of Table 4, it shows the results when more control variables are added to model 2 in addition to positive going and negative going abnormal audit fees. In this case, R-squares value is 0.063 and it shows that independent variables can better explain dependent variables than the previous situation. F value is 36.60 so the model's linear relationship is significant. Similar to the previous situation, listed companies' violation penalty is positively related to positive going abnormal audit fees and it passed the test at 1 % significance levels. However, the negative going abnormal audit fees failed to pass the test at even 10 % significant level. Therefore, hypothesis 1 is partially validated. i.e. *ceteris paribus*, the positive going abnormal audit fee is negatively related to FRQ of listed companies.

Table 5

Results of Multiple Regression Analysis for Reasonable Audit Fee		
Variable	Coefficient	P value
LNFEED	-0.022***	(3.78)
AuditSpecialization	-0.067***	(-5.73)
Auditopinion	-0.244***	(-17.04)
CATA	-0.097***	(-7.64)
CEOCHAIR	0.026***	(4.09)
CEOSHARES	-0.085***	(-3.36)
DELAY	0.036***	(3.10)
FINANCE	0.024***	(3.33)
Foreignsale	-0.041	(-1.11)
INVREC	-0.018**	(-2.41)
LEVERAGE	0.071***	(6.25)
LNASSET	-0.030***	(-8.91)
LNSUBS	0.023***	(7.52)
LOSS	0.095***	(11.40)
POID	-0.025	(-0.57)
RCOCF	-0.124***	(-3.92)
ROA	-0.074***	(-3.22)
SGROWTH	-0.000	(-0.43)
SWITCH	0.024***	(2.64)
ShortTenure	0.029***	(5.14)
Constant	0.606***	(6.51)
Year	Control variable	
Industry	Control variable	
R-squared	0.0613	
F-test	37.16	

Note: ***, **, and * denote that coefficients are significant at 1 %, 5 %, 10 % respectively.

The regression results from model 3 are presented as shown in Table 5. For results from the table, reasonable audit fee and other control variables are added in the regression analysis. The result analysis process is similar to the one for model 2. It is concluded that hypothesis 2 is valid i.e. *ceteris paribus*, reasonable audit fee is positively related to FRQ of listed companies.

Next, robustness check is conducted for the regression results. Two methods are used for robustness check. First, the random sampling method is used. Some control variables are randomly screened out and the multiple regression analysis for the remaining variables is repeated. Three rounds of random sampling show that hypotheses 1 and 2 are still valid. Second, the Dechow and Dichev (DD) model (2002) is used for robustness check for the regression results. The DD model indicates that the current period discretionary accruals have a negative relationship with the current period net operating cash flow. It has a positive relationship with the previous and future net operating cash flows. For this robustness check, five years' net operating cash flows are used. Discretionary accruals are used to represent FRQ and the multiple regression analysis is repeated. For abnormal audit fee, it is found that the

coefficient is 0.301 which passed the test at 1 % significance. It means listed companies' violation penalty has a positive relationship with negative going abnormal audit fee. The higher the abnormal audit fee the worse the FRQ. So, hypothesis 1 is valid. Similarly, for reasonable audit fee, it is found that the coefficient is -0.015 which passed the test at 1 % significance. It shows the higher the reasonable audit fee the better the FRQ. Therefore, hypothesis 2 is also valid.

Conclusion

The impact of audit fee on FRQ is an interesting but often ignored area of research. This is particularly true in China. However, a good FRQ provides many benefits to investors for decision-making purposes. It also enables the healthy development of the companies concerned and the capital market as a whole. This study focuses on this important issue and provides empirical evidence from China on the relationship between audit fee and FRQ of listed companies. Recall that for this study, the main research question is how audit fee will affect FRQ of listed companies in China. In this research, audit fee is divided

into two parts, namely abnormal audit fee and reasonable audit fee, in order to best capture its influence on FRQ. Previous research often takes audit fee as a single whole variable, but this study provides an in-depth analysis of the role of audit fee on FRQ by examining it. This study uses the penalty for non-compliance as a proxy for FRQ because it is more objective and comparable. Two hypotheses are tested using 25,482 listed companies in China from the A-share market in the years 2013–2021. Two robustness checks further validate the results of multiple regression analysis. It is found that abnormal audit fee is negatively related to FRQ of listed companies. Reasonable audit fee is positively related to FRQ of listed companies. This implies that when examining audit fee, we should pay attention to different parts of audit fee and their movements. The total audit fee alone doesn't say much about FRQ. Rather, a high abnormal audit fee and a high reasonable audit fee both indicate a positive FRQ.

The research results are useful for listed companies, investors and relevant government authorities for decision-making purposes. The implications are as follows. (1) After 2001, China started to require listed companies to disclose audit fees, but listed companies are still not required to explain the specific details and use of audit fees, so the regulation in this area needs to be further strengthened, for example, listed companies should be required to disclose the details of the use of audit fees and the reasons for changes, which can facilitate investors' comprehensive understanding. This may, on the one hand, make it easier for investors to fully understand the audit information of listed companies and, on the other hand, may also form a constraint on the intention to purchase audit reports. (2) At present, the penalties for the disclosure of false financial information by listed companies are still limited to administrative penalties,

which include ordering rectification, market warnings, market bans and fines of not more than RMB 600,000, which cannot curb a large number of financial frauds in the Chinese market. Refine the punishment standards for each violation and moderately increase the intensity of punishment. To further improve the supervision system, it's also necessary to start from the perspective of social supervision, encourage investors to report irregularities, and work out detailed incentives to improve everyone's enthusiasm for supervision. (3) Listed companies and auditors, when faced with the choice of whether or not to engage in audit collusion, will first consider the costs and benefits involved. If the penalties incurred after the detection of audit collusion exceed the costs or benefits of audit collusion, listed companies and auditors are obliged to refrain from audit collusion. At present, the maximum number of penalties for non-compliance can be seen as a drop in the ocean that cannot serve as a major warning. It is urgent and appropriate to increase the penalties for non-compliant listed companies and auditors.

Regarding future research on this topic, we have the following outlook. (1) Scholars have mostly excluded the financial industry from their research, so there is less research on the relationship between audit fees and FRQ in the financial industry. Future research can address this academic weakness and enrich the research on the relationship between audit fee and FRQ in the financial industry. It is also possible to subdivide the topic by industry for further research. (2) The selection of proxy variables for FRQ has been an issue that cannot be unified in the academic community, and there are many unreasonable aspects of using a single indicator to proxy for FRQ, future studies can explore the use of comprehensive valuation indicators to measure it.

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The article has been reviewed.
Received in June 2020; accepted in October 2025.



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