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The Risk Premium of Audit Fee: Evidence from the 2008 Financial Crisis

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Abstract

This paper uses the 2008 financial crisis to examine the association between audit pricing and firm risk. The empirical analysis shows that when firm risk increased during the crisis, the risk premium of audit fee increased. This finding is consistent with the risk premium hypothesis. The correlation between audit pricing and firm risk is positively shocked by the crisis. The Enterprise Risk Management (ERM) is only found for companies with high risk.

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Show Purpose

The recent recession in the US, beginning with the bankruptcy of Lehman Brothers in September 2008 and the subsequent collapse of the US sub-prime mortgage market, had a ripple effect around the world. At the micro level, firms became vulnerable as a result of the global credit squeeze; for example, more than 4900 firms in Guangdong province had gone bankrupt by the end of 2008 (Huang, [2009](#)). As firm risk increases during a crisis, an interesting question is whether auditors pay attention to it and how this further relates to their provision of services. Unfortunately, the literature does not provide a satisfactory answer. In this paper, we use the 2008 financial crisis as an exogenous event to investigate the increased risk premium on audit fees.

Since the pioneering research of Simunic ([1980](#)), the literature has explored various determinants of audit pricing, such as firm size, asset structure, business complexity and audit opinion (Anderson & Zeghal, [1994](#); DeFond, Francis, & Wong, [2000](#); Francis, [1984](#); Firth, [1985](#)). Simunic ([1980](#)) argues that firm risk should be an important factor of audit fees, because it influences the amount of effort expended by accounting firms and the potential cost of a lawsuit. For example, auditors might implement more procedures and face a higher possibility of lawsuit for risky firms, which would incur a risk premium on audit fee (Li & Wu, [2004](#)). However, whether audit pricing is associated with firm risk is still unclear. Studies in China and other countries draw inconsistent conclusions (Gul & Tsui, [1998](#); Seetharaman, Gul, & Lynn, [2002](#); Simunic & Stein, [1996](#); Wu, [2003](#); Zhang, Chen, & Wu, [2005](#); Zhu & Yu, [2004](#)). A more important issue is that the endogeneity problem is ignored in the extant research, thus reducing the reliability of conclusions.

The 2008 financial crisis has a significant impact on the relationship between audit fees and firm risk. In this paper, we investigate the relationship between audit fees and firm risk in this global crisis. We find that most firms' audit fees increase during the crisis. Second, as the crisis deepens, the audit risk, conditional on firm risk, increases. Third, the endogeneity problem is more pronounced in this crisis. Our findings suggest that the endogeneity problem can deepen the relationship between audit fees and firm risk. Our paper contributes to the literature on audit fees and firm risk in the following ways.



The remainder of this paper proceeds as follows. Section 2 reviews the literature. Section 3 develops our hypotheses. Section 4 introduces the sample, data and model, and gives the summary statistics. Section 5 presents the empirical results about the risk premium of audit fee. Section 6 further analyzes how the risk premium is generated. Section 7 performs some robustness tests, and Section 8 concludes the paper.

Since Simunic ([1980](#)) first analyzed the determinants of audit fees, various factors relating to accounting firms' charges have been investigated. (1) Firm size: audit fees are positively correlated with firm size (Simunic, [1980](#)). (2) Asset structure: Simunic ([1980](#)) and others explain audit pricing. The amount of audit fees (Anderson [1980](#)) finds that audit fee rate is related to firm size and asset structure (e.g., [2000](#); Gunandan [2003](#)) suggest that such as the presence of debt influences the amount of empirical

find that audit fees increase with firm risk. Gul and Tsui ([1998](#)) show that the risk measure of free cash flow positively correlates with audit pricing. Choi, Kim, Liu, and Simunic ([2008](#)) employ data from 15 countries and provide evidence that audit fees are higher under better legal regimes because of the enhanced possibility of lawsuit. Although the above analyses confirm that firm risk is positively related to audit fees, there are different findings. Francis ([1984](#)) argues that firm risk cannot explain audit pricing, based on an analysis of Australian companies. Employing Canadian data, Chung and Lindsay ([1988](#)) find that audit fees do not increase with firms' operational risks. Further, the analysis of Seetharaman et al. ([2002](#)) shows that audit fees for listed companies in Britain are unrelated to risk.

As for Chinese firms, the risk premium of audit fee is unclear. Zhang et al. ([2005](#)) find that auditors charge more when companies are burdened with higher loan guarantees. Using commercial banks as their sample, Liu and Zhou ([2007b](#)) document that risk measures such as customer concentration, the asset sensitivity gap, return on capital, and the capital adequacy rate are important determinants of audit fees. In contrast, the research of Liu, Sun, and Liu ([2003](#)), Wu ([2003](#)), Zhu and Yu ([2004](#)) show that firm risk cannot explain audit pricing, whether employing firm leverage or performance as the risk measure.

Overall, the literature does not provide a clear picture of how audit fees are associated with firm risk. Moreover, the analyses ignore the fact that the relationship between firm risk and audit fees might be endogenous, which lowers the reliability of the related findings. We use the 2008 financial crisis as an exogenous event to examine the risk premium



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auditing work to reduce the possibility of offering an incorrect audit opinion when financial reports are materially misrepresented. For example, they may implement more account receivable confirmations and inventory counts, which could increase the fixed cost of the audit. Moreover, the possibility of distress and bankruptcy is higher for risky companies, which increases the potential lawsuit cost and reputation loss to accounting firms, thus further raising the risk cost of the audit.

Following the 2008 financial crisis, firms faced high risk due to low product demand and tightened bank credit. For example, sales went down, inventories were overstocked, and account receivables were difficult to collect. All these cast more doubt on firms' futures. Furthermore, when firm performance declines under a crisis, managers have more incentives to manipulate earnings to ensure good compensation and beat analysts' forecasts, resulting in a higher possibility of misrepresentation in financial statements. To avoid issuing an incorrect audit opinion, auditors might carry out more audit procedures and increase the scope of the audit, leading to a higher fixed cost of audit. Moreover, when companies are vulnerable to bankruptcy and the odds of accounting fraud increase after a crisis, accounting firms face a higher risk of lawsuit and would ask for more risk compensation.¹ Based on this analysis, we propose our first hypothesis.

Hypothesis 1: The audit fee increases with firm risk under the financial crisis.

Although the impact of the 2008 financial crisis was undoubtedly widespread, and a great many companies suffered as a result, the effects differed across industries. The crisis began with the collapse of the US sub-prime mortgage market and immediately spread to other countries. The crisis led to a sharp decline in demand, which shocked many companies and led to a high possibility of bankruptcy. To avoid issuing an incorrect audit opinion, auditors might carry out more audit procedures and increase the scope of the audit, leading to a higher fixed cost of audit. Moreover, when companies are vulnerable to bankruptcy and the odds of accounting fraud increase after a crisis, accounting firms face a higher risk of lawsuit and would ask for more risk compensation. Based on this analysis, we propose our second hypothesis.



One notable feature of China's stock market is that SOEs account for a large proportion of listed companies (Liu, Sun, & Liu [2003](#)). The level of state ownership was still as high as 50.2% at the end of 2006. Kornai ([1988](#), [1993](#)) argues that state ownership provides an implicit assurance to SOEs. Once SOEs fall into distress, the government is more likely to bail them out to avoid the prospect of much unemployment and society instability. The analysis of Faccio, McConnell, and Masulis ([2006](#)) provides supporting evidence for this argument. As government bailout reduces the possibility of a subsequent lawsuit, accounting firms should require less risk compensation. SOEs, therefore, should incur lower risk premiums than private firms. This leads to our third hypothesis.

Hypothesis 3: The risk premium of audit fee is more significant for private firms than for SOEs under the financial crisis.

Finally, we discuss how auditors influence the risk premium on audit fee. The Big Four accountancy firms tend to produce higher-quality audits. DeAngelo ([1981](#)) and Dye ([1993](#)) state that to maintain their reputation, the Big Four have better control of the audit process and their audit quality is considered to be better. When firm risk increased under the financial crisis, the Big Four may have implemented stricter audit procedures and required more risk compensation, generating a significant risk premium. However, whether the Big Four have a higher quality audit in an emerging market such as China remains in question. First, Liu and Xu ([2002](#)) point out that compared to domestic accounting firms, the Big Four face a lower risk of lawsuit because of political privilege and public relationship building.³ Second, Chinese listed companies concentrate on the Big Four auditors (DeFond, Wong, & [2005](#)). Third, the audit quality of the Big Four is higher than that of the domestic auditors (Guo, [2011](#); Liu & Zhong, [2012](#)). Therefore, the Big Four audit may influence the risk premium on audit fee. We propose the following hypothesis to test this question.

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that accounting firms charge more to firms with higher risk, supporting the risk premium of audit fee.

4.4 Statistics

Table 1 reports the descriptive statistics. The mean audit fee is RMB727,000, and the median is RMB500,000; however, there is significant variance among the audit fees of sample firms. For example, the minimum is RMB100,000 and the maximum is close to RMB60 million. The Crisis statistic shows that the mean value is 0.5513, indicating that crisis sample firms are closely matched to non-crisis sample firms.⁴ The table shows that the average ROA is 0.0320, and debts on average account for 23.33% of total assets. Further, the mean ratio of current assets to current liabilities is 1.457 and firms on average operate 2.341 segments. Interestingly, only 5.29% of firms employ Big Four auditors. Finally, the average number of years since listing is 10.31.

Table 1. Summary statistics.

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Table 2 reports the Pearson correlation coefficients among the variables. It shows that audit fees are higher for large and more complex firms. The ratio of current assets to current liabilities is negatively correlated with audit fees. Finally, the Big Four charge more for their auditing services.

Table

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examine the association between audit fees and incremental risk at the time of the crisis. We find that the coefficient of $ROA \times Crisis$ is -0.3422 , significant at the 5% level.⁵ The result indicates that when firms face higher risk under the crisis, accounting firms charge more due to rising fixed and risk costs; that is, audit fees incur a risk premium. The regression also shows that audit fee correlates positively with firm size (Size), leverage (Lev), segment number (Diversify) and age (Age), but negatively with current assets (Liquidity). The Big Four charge higher fees than the non-Big Four.

Table 3. Results for the risk premium on audit fee.

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5.2 The difference between export and non-export firms

To compare the risk premium of audit fee between export and non-export firms, we calculate the ratio of export output to total output for each industry using the China Industrial Companies Database, and employ its median to divide the sample firms into two groups, export and non-export companies. We then run a regression for each group and the results are presented in columns (1) and (2) of Table 4. The number of observations is reduced because the China Industrial Companies Database only covers manufacturing firms, thus only industrial listed companies are included in the regression.⁶ We find that the coefficient of $ROA \times Crisis$ is significantly negative for export firms, but insignificant for non-export firms. We conduct an F test to compare the two interaction coefficients, and it is significant at the 5% level. The above finding suggests that the risk premium on audit fee is higher for export firms when they are in crisis than for non-export firms. We add the export variable to the regression to control for the difference between export and non-export firms.

Table 4. Results for the risk premium on audit fee by export status.

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We construct the following model to investigate whether auditors input additional effort when firm risk increases:

(2)

Time denotes audit time. As listed companies do not publicly disclose information about audit time, we use the period between the fiscal year end and the auditor's report date as a proxy. The other variables are defined as before. The first two columns in Table 5 report the regression result for model (2), based on the 2008 data. We find that the coefficient of our risk measure, ROA, is -21.1720 and significant at the 1% level. The result indicates that accounting firms widen their audit scope and carry out additional processes for risky firms, which prolongs the auditing period. The regression also shows that accounting firms spend longer when auditing older firms.

Table 5. Results of the audit time and opinion.

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6.2 Attention to lawsuit risk

High risk may increase auditors' concerns over potential lawsuits, thus generating higher audit fees. We employ the following logistic model to analyze this:

(3)



7 Robust analysis

7.1 The lagged effect of the crisis

As there may be a lag between the happening of the financial crisis and its effects, we also employ 2009 as the crisis period. Specifically, we use 2007 and 2009 listed company data, and re-run the model (1) regression. The result is presented in the last two columns of Table 3. We find that the interaction item ROA×Crisis still generates a significantly negative coefficient. The result provides further evidence for the risk premium of audit fee, even when controlling for the lagged effect of the financial crisis.

7.2 The increase in audit fees

We adjust audit fees by the annual inflation rate in the analysis, because audit fees might increase with time. To further rule out this time effect, we use the listed company data from 2004 to 2007 and re-run the model (1) regression for each successive two-year period. The regression result is reported in Table 6. Here, the variable *Nextyear* denotes the following year; for example, *Nextyear* equals one for 2005 when running the regression of the year 2004 and 2005. The coefficient of the interaction item $ROA \times Nextyear$ is insignificant in all of the regressions, suggesting that our conclusion is free from the time-series increase in audit fees.

Table 6. Results of the ‘other years’ analysis.

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7.3 End

We use the following problem to illustrate the shock. To regress

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where R is the residual, \hat{y} is the predicted value, and y is the observed value. The quartile regression model is used to estimate the parameters of the regression function at the quartile level. The regression function is estimated by minimizing the sum of the absolute residuals, which is equivalent to minimizing the sum of the absolute deviations from the quartile. The quartile regression model is used to estimate the parameters of the regression function at the quartile level. The regression function is estimated by minimizing the sum of the absolute residuals, which is equivalent to minimizing the sum of the absolute deviations from the quartile. The quartile regression model is used to estimate the parameters of the regression function at the quartile level. The regression function is estimated by minimizing the sum of the absolute residuals, which is equivalent to minimizing the sum of the absolute deviations from the quartile.

The regression results for model (4) are presented in columns (1) and (2) of Table 7. We find that the coefficient of Size is significantly negative, suggesting that large firms face lower uncertainty. Firm risk is higher for highly leveraged firms, and the coefficient of Diversify shows that firm risk also increases with operational complexity. Finally, older firms have higher risk.

Table 7. Results of the Heckman regression.

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Based on the first-stage regression, we calculate a Mill's Ratio (λ) and employ it in the second-stage regression. The result is reported in columns (3) and (4) of Table 7. The interaction item ROA×Crisis still generates a significantly negative coefficient. The regression provides further evidence that audit fees increase with firm risk under the crisis and there is a risk premium on audit fees.

7.4 Further analysis of auditor size

The previous analysis shows that the risk premium of audit fee is insignificant for Big Four audited firms. However, this result might be caused by only a few observations in the Big Four regression because the Big Four have a low market share among Chinese listed companies. To rule out this alternative explanation, we classify our sample into 'Big Ten' and non-'Big Ten' audited firms according to accounting firms' revenue, and re-run the regression. We find that the coefficient of the interaction item ROA×Crisis is insignificant for non-Big Ten audited firms, but they are available on audit fee is consistent with the previous results.

7.5 Alternative

As a further analysis, we investigate the relationship between audit fees and return on sales (ROS), as the measure of firm profitability. The regression results are presented in Table 8. The coefficient of the interaction item ROS×Crisis is significantly positive, indicating that firms with higher ROS pay higher audit fees under the crisis. This result is consistent with the previous analysis that firms with higher profitability pay higher audit fees to



8 Conclusion

We explore the relationship between firm risk and audit fees using the 2008 financial crisis as an exogenous event. We find that audit fees increase with firm risk under the crisis, suggesting that audit fees incur a risk premium. Further analysis reveals that the risk premium on audit fee is particularly high for export firms, which were seriously shocked by the crisis. The comparison shows that accounting firms do not charge more to SOEs with higher risk, due to the government's implicit bailout guarantee, but the audit fees of private firms significantly increase with risk under the crisis. Finally, the risk premium of audit fee is only found for firms audited by smaller, non-Big Four auditors.

By investigating firms' audit fees under the crisis, this research improves our understanding of how firm risk is associated with audit pricing by controlling the endogeneity issue. Our analysis clarifies the controversy over the risk premium of audit fee in the extant literature. Further, our research shows that the 2008 financial crisis had a notable effect on firm auditing. For example, accounting firms expended more effort and were more concerned about potential lawsuits following the crisis. Finally, an implication of our research is that although most companies carried out cost-cutting projects under the crisis, accounting firms should respond by implementing stricter procedures and increasing the scope of their audits to avoid audit failure.

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1. The risk of lawsuit is indeed low in China compared with other developed countries, but Chen, Li, Rui, and Xia (2009) point out that the litigation right of investors is gradually being recognized and protected as China's legal system develops, which increases the risk of lawsuit for accounting firms.
2. In November 2008, China's export market experienced its first negative growth since entering the WTO.
3. For example, the domestic accounting firms that are partners of the Big Four all had a government background when the Big Four entered the China audit market in the 1990s. The Chinese Institute of Certified Public Accountants (CICPA) has not undertaken an annual inspection of the Big Four for a long time.
4. The mean of Crisis does not equal 0.5 because some companies do not disclose their audit fees and we require that firm observations should be at least two years after their IPOs.
5. Because the analysis is based on two-year firm data, we admit that the test statistics could be overstated due to residual correlations, thus the significance levels should be interpreted with caution.
6. We compare the deleted and undeleted firms on variables such as ROA, Size, Lev and Liquidity. The results show that the two groups of firms are quite similar, except in firm size: manufacturing firms are usually larger than non-manufacturing firms.

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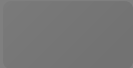
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