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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, accounting firms charged more for their auditing services, supporting the risk premium of audit fee. An analysis of different industries presents a positive correlation between the audit fees and firm risk for export companies that were seriously shocked by the crisis. Further, compared with private firms, the audit fees of State-Owned Enterprises (SOEs) did not increase with firm risk under the crisis, due to the government's bailout guarantee. Finally, the risk premium of audit fee was only found for companies audited by non-Big Four accounting firms.

Keywords:

audit fee | financial crisis | firm risk | risk premium

1. Introduction

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 global financial crisis provides a good opportunity to examine the relationship between firm risk and audit fees. First, numerous companies have suffered in this global crisis. Owing to declining demand and tightened monetary policies, most firms' operating risks have increased. This situation allows us to analyze how accounting firms respond to this increased risk, by examining changes in their audit fees. Second, as the crisis came as a shock, changes in audit fees should be a reaction to incremental risk, thus providing a natural experimental research setting and avoiding the endogeneity problem. Finally, because the financial crisis affected firms differently, we can deepen

our analysis by comparing across industries, types of ownership, and auditors to improve our understanding of the risk premium on audit fee.

Our paper makes several contributions to the literature. First, although firm risk is theoretically a predictor of audit fees, the evidence is far from conclusive. We examine the risk premium on audit pricing empirically, which increases our knowledge of the relationship between firm risk and audit fees. Second, by analyzing audit fees during the 2008 financial crisis, our analysis provides a new perspective on how the crisis influenced firm behavior and sheds light on the aftermath of this recession. Third, our research shows that state ownership lends an implicit guarantee to SOEs that influences the behavior of accounting firms, as shown by the effect of state ownership on the risk premium of audit fee. Last but not least, our paper has implications for research methodology. We employ the 2008 financial crisis as an exogenous event to investigate how audit fees change with incremental firm risk, thus eliminating the endogeneity problem in the analysis.

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.

2 Literature review

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 Firth (1985) find that accounts receivables and inventories can explain audit pricing. (3) Business complexity: the number of subsidiaries is a determinant of audit fees (Anderson & Zeghal, 1994; Francis, 1984). (4) Audit opinion: Simunic (1980) finds that audit opinion influences auditors' charges. (5) Accounting firm: the literature provides evidence that the characteristics of accounting firms, such as their size and reputation, are related to audit fees (Beatty, 1993; DeFond, Francis, & Wong, 2000; Francis, 1984). (6) Corporate governance: Abbott, Parker, Peters, and Raghunandan

(2003) suggest that audit fees are affected by firms' governance structure, such as the presence of an audit committee.

Theoretically, firm risk should be an important factor on audit fees because it influences the amount of effort and the lawsuit cost of accounting firms. However, the empirical evidence is inconclusive. For example, Simunic (1980) and Simunic and Stein (1996) 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 of audit fee after controlling for endogeneity.

3 Hypothesis development

The audit fee paid to accounting firms is usually composed of three parts. The first is

The second is the risk cost, defined as the expected loss due to audit failure, including the cost of a lawsuit and loss of reputation. The third is the accounting firm's profit, determined by the local economy and market competition.

Of the three components, the fixed cost and risk cost are related to firm risk. When companies experience high uncertainty, accounting firms should implement more 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 downturn in the economic prospects of Western countries, with rising unemployment rates and decreasing consumption expenditure, led to a decline in product demand from emerging markets.[2] The crisis seriously shocked export firms, and they are more likely to manipulate earnings. The possibility of bankruptcy for export firms is also higher, which increases the lawsuit risk. To avoid

require more risk compensation, resulting in higher audit fees. This leads to our second hypothesis.

> Hypothesis 2: The risk premium of audit fee is more significant for export firms than for non-export firms under the financial crisis.

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 lack the demand for high-quality audit due to state ownership concentration, IPO market regulation, and weak protection of property rights (DeFond, Wong, & Li, 2000). Thus, the Big Four may have little incentive to provide good quality audits in China. Finally, recent empirical evidence shows that the audit quality of the Big Four is no better than that of non-Big Four and sometimes even worse (Guo, 2011; Liu & Zhou, 2007a). Therefore, we do not make a prediction about how a Big Four audit

influences the risk premium of audit fee under the crisis, and empirically test this question in the later analyses.

4 Research design

4.1 Sample

The 2008 financial crisis began with the bankruptcy of Lehman Brothers in September 2008, and quickly spread to other countries. China's economy also experienced a slowdown in 2008 because of the crisis. To promote economic growth, the Chinese government implemented an RMB4 trillion economic stimulus program and the economy started to recover in the second half of 2009. Thus, we choose all listed companies in 2008 as our sample. We also include 2007 data as a comparison to figure out the shock of the financial crisis. For consistency, we do not include data before 2007 because the financial reports of listed companies have changed considerably since China's new accounting standards were issued in 2006 (Zhu, Zhao, & Sun, 2009). Finally, we exclude observations within two years of firms' IPOs because audit fees are usually higher around the time of IPOs.

4.2 Data

The audit fee data are taken from the CCER China Security Market Database. The financial data on listed companies are taken from the China Stock Market and Accounting Research Database (CSMAR). The WIND Database provides the information on firms' ultimate owners. Finally, the export data come from the China Industrial Companies Database compiled by the Chinese National Bureau of Statistics.

4.3 Model

We employ the following model to investigate the risk premium of audit fee under the crisis:

(1)

where Fee_log is the natural logarithm of audit fee, adjusted by the annual inflation rate. Following Simunic (1980) and Francis (1984), we employ firm performance as our risk measure, defined as the ratio of net income to total assets (ROA). Crisis is a

variables are as follows: Size is the natural logarithm of total assets; Lev denotes the ratio of debts to total assets; Liquidity is current assets divided by current liabilities; Diversify stands for the segment number; Big4 is a dummy variable, equal to one if a firm employs a Big Four auditor and zero otherwise; Age refers to the number of years since a firm was listed; and Industry and Region are the industry and region dummy variables, respectively. The interaction item ROA×Crisis examines how firm risk relates to audit fees under the crisis. If the coefficient α_3 is significantly negative, it means 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 2. Pearson correlations.

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5 Empirical analysis

5.1 The audit fee risk premium

The first two columns in Table 3 report the regression results for model (1). We find that the coefficient of Crisis is 0.0501, significant at the 1% level, suggesting that audit fees increased after the financial crisis. However, as Crisis is a dummy variable, it might represent factors other than risk, so we employ the interaction item ROA×Crisis to examine the association between audit fees and incremental risk at the time of the crisis. We find that the coefficient of ROA×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×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 of audit fee is highly significant for export firms when they are seriously affected by the financial crisis, but is insignificant for non-export firms because they are less influenced during the crisis. The results for the control

Table 4. Results of the sub-group regression.

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5.3 The difference between SOEs and private firms

We further investigate how corporate ownership influences the risk premium of audit fee. Specifically, we divide the sample by SOEs and private firms and run sub-group regressions. Columns (3) and (4) in Table 4 display the results. The coefficient of Crisis is significantly positive in the SOE regression, indicating that the audit fee for SOEs increases after the crisis. However, as the variable Crisis does not represent firm risk precisely, we cannot be sure whether the increase in SOEs' audit fees is due to higher risk under the crisis or to other factors. For example, the managers of SOEs may have a low incentive to bargain with accounting firms and thus SOEs' audit fees may increase gradually. Thus, we examine the interaction item ROA×Crisis and find that it generates an insignificant coefficient in column (3), but a significantly negative coefficient in column (4). Further, the F test of the two interaction items is significant at the 10% level. The result indicates that state ownership provides an implicit bailout guarantee to SOEs, thus mitigating the risk premium on SOEs' audit fees during the crisis. However, as the possibility of bailout is lower for private firms, accounting firms charge more when private firms' risk increases under the crisis. The control variables generate qualitatively similar results.

5.4 The difference between Big Four and non-Big Four audited firms

Finally, we examine the effect of auditors on the relationship between firm risk and audit fees. The last two columns in Table 4 present the sub-sample regression results for Big Four versus non-Big Four. In column (5), the coefficient of the interaction item ROA×Crisis is insignificant for firms audited by Big Four, but it generates a significantly negative coefficient for non-Big Four firms in column (6). An F test to compare the two interaction items is insignificant, which shows that the risk premium on audit fee is concentrated in firms audited by non-Big Four. The results for the control variables are unchanged.

The above analysis shows that audit fees increase with firm risk under the crisis and it provides evidence for the risk premium of audit fee. A further interesting question is how the risk premium is generated. Our argument suggests that when firms face higher uncertainty, auditors might implement more audit procedures and request higher lawsuit compensation, leading to higher audit fees. Next, we examine how firm risk is associated with auditors' time and attention to lawsuit risk.

6.1 Audit time

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)

Opinion is the audit opinion variable, which equals one if a firm receives a modified audit report, and zero otherwise. The definitions of the other variables are the same as before. We expect that auditors are more likely to issue modified opinions to risky firms if high uncertainty increases auditors' concerns over potential lawsuits. Columns (3)

coefficient of ROA is –0.9034 and significant at the 5% level, suggesting that risky firms are more likely to receive a modified audit opinion. The result confirms that high firm risk increases auditors' concern to a potential lawsuit, resulting in a higher possibility of issuing a modified opinion. The results for the other variables show that modified audit opinion negatively correlates with firm size and current assets, but positively correlates with firm leverage and age. Finally, the sample size is slightly reduced because the probit regression deletes any observations with perfect prediction.

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×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 Endogeneity

We use the 2008 financial crisis as an exogenous event to mitigate the endogeneity problem and analyze how audit fees relate to incremental firm risk when firms face a shock. To further resolve endogeneity in the analysis, we employ a Heckman two-stage regression (1979). First, we run a probit model on firm risk as follows:

(4)

where Risk is an indicator variable, equal to one if the firm's ROA is in the bottom quartile of sample firms in the same industry and year, and zero otherwise. The regression adds a year dummy to control for year effects. The definition of other variables is the same as before.

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 Big Ten audited firms, but attracts a significantly negative coefficient

are available upon request. The result further verifies that the risk premium on audit fee is concentrated in firms audited by small auditors.

7.5 Alternative risk measure

As a robustness test we employ another performance variable, return on sales (ROS), as the measure of risk. The regression shows that the coefficient of the interaction item (ROS×Crisis) is still significantly negative. Again, in the interest of space, we do not present the results, but they are available from the authors upon request. The analysis further supports our conclusion. That is, accounting firms charge higher audit fees to firms with higher risk under the crisis.

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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Notes

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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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