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Auditor changes and debt financing : evidence from China

Suet Ying CHAN

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AUDITOR CHANGES AND DEBT FINANCING:
EVIDENCE FROM CHINA

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MPHIL

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AUDITOR CHANGES AND DEBT FINANCING:
EVIDENCE FROM CHINA

by
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ABSTRACT

Auditor Changes and Debt Financing: Evidence from China

by

CHAN Suet Ying

Master of Philosophy

The role of independent auditors is to ensure the accuracy and the credibility of the financial statements. Independent auditors help in reducing agency costs and serve as a monitoring function for creditors. A change in an auditor–client relationship may provide useful information to creditors. Creditors may consider the signal of auditor changes, which affects information risks, as a factor in determining the terms of debts. After several major audit scandals, awareness of the importance of audit quality has increased. Audit partner changes and audit firm changes have been implemented in some jurisdictions to enhance the audit quality. Since China requires disclosure by signing partners' names on audit reports, audit partner rotations can be identified. The direction of audit firm changes can be downward, lateral, and upward audit firm changes. In this thesis, the effects on debt financing of auditor changes at both audit firm and audit partner levels in different directions are comprehensively investigated. This thesis addresses the importance of understanding the association between audit firm/ partner changes and debt financing. I find that, overall, auditor changes worsen debt financing in various situations. The findings of this thesis should have important implications for investors, corporate financial managers, and regulators.

DECLARATION

I declare that this is an original work based primarily on my own research, and I warrant that all citations of previous research, published or unpublished, have been duly acknowledged.

SIGNED

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by

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Master of Philosophy

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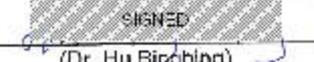
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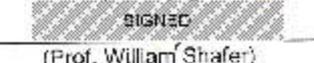
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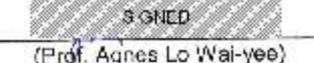
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TABLE OF CONTENTS

LIST OF TABLES

ACKNOWLEDGEMENTS

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Auditor Changes and Debt Financing: Evidence from China

Chapter 1. Introduction

Independent auditors play an important role in ascertaining the accuracy and reliability of financial statements. A relatively long auditor–client relationship involves less financial reporting uncertainty, which may lead to higher-quality audits and a lower cost of financing. Conversely, a prolonged auditor tenure may compromise auditor independence. If auditor changes induce uncertainty, leading to an increase in information risks, creditors may require stricter loan terms for companies with auditor changes. This thesis investigates whether auditor changes provide useful information to creditors that will affect the terms of debt for companies with auditor changes. There are two types of auditor changes: voluntary and mandatory. There are also different directions of audit firm changes, including upward, lateral, and downward changes. First, I examine whether, what, and how changes in auditors affect debt financing. Second, I investigate the effect of a change in auditor on debt financing without changes in audit quality (i.e. a change in an auditor without a change in an audit firm). Third, I examine whether a change in audit firm, without a change in auditors, affects debt financing. The last situation is rather unique in the Chinese setting, in which the audit partner remains the same, even when he/she moves to another audit firm. The emphasis on personal relationships in business dealings in Chinese society may explain this arrangement (Kriz and Keating 2010). This thesis includes whether there is any impact of such special auditor changes on debt financing.

This thesis is motivated by the importance of audit quality in reducing agency problems. The Big 4 auditors provide higher quality audits than

non-Big 4 auditors do (DeAngelo 1981). Retaining Big N auditors helps to enhance the reliability and credibility of financial statements, which reduces monitoring costs (Pittman and Fortin 2004). Lenders perceive companies that employ reputed auditors as more trustworthy, resulting in a lower cost of debt (Pittman and Fortin 2004). In this thesis, I define audit firm changes from non-Big N to Big N and vice versa as upward and downward changes, respectively. I define other changes as lateral changes.

Second, this thesis is motivated by the importance of debt financing in China. Debt rose from 160% of gross domestic product (GDP) in 2005 to 247% in 2015, with bank debt accounting for 19% of GDP in 2015 (Sun 2016). Loans granted by banks in China rose from 27.8 trillion yuan in 2007 to 86.79 trillion yuan in 2014 (The Statistics Portal 2017). The leverage ratio of listed non-financial firms in China rose from around 0.47 in 2002 to around 0.60 in 2014 (Zhang, Han, Ng, and Chan 2015).

Finally, this thesis is motivated by the importance of understanding the relationship between audit firm/partner changes and debt financing. More restrictive terms of debt for companies with auditor changes affects their financial performance. Therefore, the findings of the thesis should have important implications for investors, corporate financial managers, and regulators.

Given data availability, this study examines inside collateral and loan maturity as the terms of debt. Creditors consider default risks of companies when issuing debts. If companies cannot repay their debt, they must use collateral to offset it. Loans that require collateral and have shorter maturity imply stricter debt terms. I do not examine loan spread in this study due to

2

Chinese firms' limited disclosure of this information.

Researchers investigated how auditor changes may affect the cost of equity. However, the results are inconclusive. Some find negative market responses to auditor changes (Menon and Williams 2008; Shu 2000; Weiss and Kalbers 2013), while others fail to find such a relationship (Beneish, Hopkins, Jansen, and Martin 2005; Klock 1994). This thesis investigates whether the debt market provides a clearer response related to a change in an auditor–client relationship.

Banks have superior access to private information relative to public debt holders (Bharath, Sunder, and Sunder 2008; Cole 1998). If auditor changes are associated with a change in loan terms, then this implies that auditor changes are useful, even for these informed creditors. This implication also stresses the importance of increased disclosure of auditor changes (e.g., detailed reasons and the circumstances of the change). China implemented mandatory audit partner and firm rotations, and therefore, apart from considering voluntary auditor changes as in existing literature, this thesis also considers the effects of mandatory auditor changes due to the regulatory policy on debt financing in China. This approach gives us a more complete analysis of the effects of different types of auditor changes on debt financing.

I collect the sample of Chinese main-board A-share firm-year observations from 2007–2014 from the China Stock Market and Accounting Research (CSMAR) database. The study period commences in 2007 because China formally adopted the International Financial Reporting Standards (IFRS) in this year. I use logistic and linear regressions to examine the effects of the aforementioned changes on debt financing.

I find evidence that an audit partner change without a change in an audit firm worsens debt financing. Further, downward and lateral changes in audit firm also worsen debt financing. These results suggest that the information risks associated with auditor changes dominate the perceived increase in auditor independence. Further, I find evidence that maintaining the same audit partner after the audit partner moves to another firm worsens debt financing.

This thesis offers several contributions to the existing literature. First, no study has thus far focused on China, which is important in the debt financing market as explained earlier. Second, there is no study on the effect of audit partner changes on debt financing. The US Public Company Accounting Oversight Board requires disclosure of the name of the engagement partner for all public company audits issued on or after January 31, 2017. Therefore, research data for audit partner rotation are currently not available for U.S. public companies. Thus, due to data availability, I examine how audit partner and audit firm rotations affect debt financing in China. The disclosure of auditors' names on audit reports allows an identification of audit partner rotations. The impact of auditor changes at different levels (firm and partner) and the direction of changes on debt financing can be examined comprehensively for the first time. Third, no study considers how personal relationships affect debt financing. In China, the audit partner often remains unchanged for a listed company, even when that audit partner moves to another audit firm. This kind of "auditor change" represents about 7% of the auditor changes in China. As mentioned earlier, the Chinese place more emphasis on personal relationships. In this thesis, I also examine this phenomenon to see how it affects debt financing.

The remainder of this thesis proceeds as follows. Chapter 2 describes the relevant institutional background in China, provides a review of the literature and develops the research hypotheses. Chapter 3 presents the research methods. Chapter 4 discusses the empirical results. Chapter 5 presents the sensitivity tests. Chapter 6 concludes and discusses limitations and future research.

Chapter 2. Institutional Background, Literature Review and Hypotheses Development

2.1 Institutional Background

2.1.1 Regulations covering audit quality and auditor changes in China

Mandatory rotations of audit partners and audit firms

The Enron/Arthur Andersen scandal raised global concerns about auditor independence and the need for an appropriate regulatory policy to enhance audit quality. Many jurisdictions adopted mandatory audit partner and/or audit firm rotations to maintain auditor independence and reduce the familiarity threat. Mandatory audit partner rotation is more common than mandatory audit firm rotation worldwide. For example, The U.S. and Australia implemented mandatory audit partner rotation every 5 years. The U.K. requires audit partner and audit firm rotation every 5 and 10 years, respectively. Table 1 summarizes the regulations related to audit partner and firm rotations in different jurisdictions.

(Insert Table 1 here)

In China, the China Securities Regulatory Commission (CSRC) and the Ministry of Finance (MOF) jointly issued a policy in October 2003 that prohibits signing partners from providing audit services for the same listed entity for more than five consecutive years and the signing auditors cannot resume audit services for the firm within two years. In addition, signing auditors cannot provide audit services for more than two consecutive years for the same initial public offering entity (IPO). The regulations took effect on 1 January 2004 (Firth, Rui, and Wu 2012).

Apart from implementing mandatory audit partner rotation to maintain

auditor independence for listed entities, in 2005, the State-owned Assets Supervision and Administration Commission of the State Council (SASAC) required that each Chinese state-owned enterprise (SOE) switches its existing audit firm to a new audit firm if the existing audit firm has served the company for five consecutive years (Firth, Rui, and Wu 2012).

2.1.2 Debt market in China

China's total debt has increased steadily since the global financial crisis. In China, total debt rose 465% over the past decade (Sun 2016). China's debt grew to 247% of gross domestic product in 2015, from 160% in 2005, of which bank debt accounted for 19% of GDP in 2015 (Sun 2016). The leverage ratio grew from around 0.47 in 2002 to around 0.60 in 2014 for listed non-financial firms in China (Zhang, Han, Ng, and Chan 2015). This indicates the growing importance of debt markets in China. In China, the proportion of internal financing is relatively low, while the proportion of external financing is about 80% to 90% (Luo 2011). External financing includes equity and debt financing. Large firms in China favor debt financing (Chen, Jiang, and Lin 2014): firms in the real estate industry borrow relatively more debt and firms in the manufacturing and utility industries use more long-term debt (Chen, Jiang, and Lin 2014). The leverage ratios for companies in the real estate and construction industries were consistently higher at the industry level from 2007 to 2014, reaching 0.8 in 2014 (Roberts and Zurawski 2016).

2.2 Literature Review and Hypotheses Development

2.2.1 Audit quality

Extant studies exclusively studied the difference in audit quality between Big 4 and non-Big 4 auditors. Based on a variety of audit-quality proxies, researchers find evidence suggesting that Big 4 audit firms provide higher quality audits than non-Big 4 audit firms do (Becker, DeFond, Jiambalvo, and Subramanyam 1998; Khurana and Raman 2004; Palmrose 1988). Big 4 audit firms have more incentives to provide higher quality audit services to maintain their reputation (DeAngelo 1981; Francis and Wilson 1988). Big 4 audit firms have more motivation to ensure the credibility of their clients' financial statements to avoid litigation exposure (Khurana and Raman 2004). Audit clients with higher agency conflicts are more likely to choose reputed audit firms to adopt credible monitoring (DeFond 1992). I therefore expect higher audit quality for Big N firms than for non-Big N firms. The audit quality of audit partners within an audit firm should be similar because audit partners in the same firm usually have similar audit competence under the same quality control system.

2.2.2 Auditor rotations and audit quality

Prior studies document that auditors play an important role in ensuring the credibility and accuracy of financial statements, to reduce the corporate agency problems, and hence lower the cost of equity capital (Fernando, Abdel-Meguid, and Elder 2010; Francis, LaFond, Olsson, and Schipper 2005). Other studies also show that auditor rotations can help to maintain auditors' independence and objectivity (Gietzmann and Sen 2002; Hussey and Lan

2001). However, auditor changes serve as a "red flag" that financial reporting uncertainties will be higher (Lu 2006). If there is a disruption in an auditor-client relationship at the audit firm level, external users of financial statements will suspect that the auditor's monitoring function may be compromised, which can increase firms' information risks (Menon and Williams 2008).

Since switching to a new auditor involves a high start-up cost, voluntary audit partner and audit firm changes provide signals to creditors that the companies are opinions shopping (Matsumura, Subramanyam, and Tucker 1997). If the incumbent auditor issues a qualified audit opinion to a company, the company wants to switch to another audit firm that the company will have more influence on the auditors to have a better audit opinion (Chow and Rice 1982).

Apart from the signal of opinion shopping, auditor changes causes a loss of existing auditors' cumulative knowledge of the companies and hence can lower the audit quality (Sayyar, Basiruddin, Zaleha Abdul Rasid, and Sayyar 2014).

Extant research studies find that the effects of audit partner rotation on audit quality are mixed. Fargher, Lee, and Mande (2008) find that there is a positive relationship between audit partner changes and audit quality in the Australian setting which use abnormal accruals as a proxy for audit quality. They suggest audit quality increases after audit partner rotations because of the increased independence to the audit engagement. However, Chen, Lin, and Lin (2008) find that audit quality deteriorates after audit partners switch using discretionary accruals as a proxy for earnings quality. Audit quality and the

length of auditor tenure are positively related because of the reduced information asymmetry between auditors and audit clients (Solomon, Shield, and Whittington 1999). Chen, Peng, Xue, Yang, and Ye (2016) suggest that companies also engage in partner-level opinion shopping by seeking another partner who is more willing to give them a clean opinion. Audit clients are more likely to engage in successful partner-level opinion shopping if they are economically essential to the audit firm. Therefore, in this situation, auditors' monitoring function will be compromised, which leads to higher information risks and uncertainties.

Since China requires a disclosure of signing partners' names on audit reports, creditors should be able to discover mandatory audit partner changes by examining the disclosure over time. Since audit reports also disclose audit firms, creditors can also detect mandatory audit firm changes for SOEs by examining the disclosure over time.

Mandatory auditor rotations, either at partner or firm levels, aim to increase auditor independence, reduce over the familiarity and self-interest threats to enhance audit quality at the expense of a loss of current auditor's cumulative knowledge of the company (Ghosh and Moon 2005; Mansi, Maxwell, and Miller 2004). Kwon, Lim, and Simnett (2014) find that audit quality measured by abnormal discretionary accrual does not significantly change with mandatory audit firm rotation in the South Korean setting. Firth, Rui, and Wu (2012) also find that mandatory auditor changes at both the audit partner and audit firm levels provide fresh perspectives, but leads to a loss of current auditors' accumulated knowledge of the client's auditing process, which will increase financial reporting risks. The disadvantages offset the perceived

benefits; thus, empirically, the net effects of mandatory auditor rotations at both levels are not clear.

2.2.3 Audit quality and the cost of debt

Higher-quality audits can reduce financial information uncertainties for lenders and thus enhance the efficiency of debt contracting (Jensen and Meckling 1976). Creditors may perceive that companies audited by Big N audit firms have higher-quality audits, which reduces information asymmetry between creditors and firm managers. Consequently, companies with higher-quality audits will have a lower cost of debt (Causholli and Knechel 2012). Retaining Big-N auditors enhances the reliability and credibility of financial statements, which reduces monitoring costs (Pittman and Fortin 2004). Lenders perceive companies employing auditors with a higher reputation as more trustworthy (Pittman and Fortin 2004). There is a negative relationship between Big 4 audits and the cost of debt. Companies with modified audit opinions are associated with a higher cost of debt (Karjalainen 2011). Therefore, higher-quality audits should generally have a lower cost of debt. Francis, Hunter, Robinson, Robinson, and Yuan (2016) find that voluntary auditor changes provide a signal to creditors that companies are "opinion shopping" and implies a higher information risk. Thus, loan spreads should increase after auditor changes.

With higher information risks but essentially the same audit quality controls, I expect that a voluntary audit partner change without an audit firm change and lateral changes in audit firms will worsen debt financing. I also expect that the audit quality for voluntary audit firm changes in the downward direction will

be lower. Therefore, voluntary audit firms in downward changes should worsen debt financing. Finally, although voluntary audit firm rotations may induce higher information risks that may impair audit quality, Big N audit firms usually provide better audit services because they have more competent staff and more comprehensive accounting systems (Behn, Choi, and Kang 2008). Thus, the effect of a voluntary audit firm change in an upward direction (i.e., from non-Big N to Big N) on debt financing is uncertain. The net effects of mandatory auditor rotations at both audit firm and audit partner levels are not clear.

As a result, I formulate the following hypotheses.

2.2.4 Hypotheses

Considering the combined effect of voluntary and mandatory audit firm changes, the impact of an audit firm change in an upward direction on debt financing is uncertain.

H_1: Upward audit firm changes will lead to a change in debt financing.

Considering the combined effect of voluntary and mandatory audit firm changes, downward audit firm changes will worsen debt financing because voluntary downward changes will worsen debt financing, while the effect of mandatory changes on debt financing is uncertain.

H_2: Downward audit firm changes will worsen debt financing.

Considering the effects of voluntary and mandatory changes, lateral audit firm changes will worsen debt financing because voluntary lateral changes will worsen debt financing, while the effect of mandatory audit firm changes is uncertain.

H_3: **Lateral audit firm changes will worsen debt financing.**

Considering the effects of voluntary and mandatory changes, an audit partner change without an audit firm change will worsen debt financing because a voluntary audit partner change without a change in an audit firm will worsen debt financing, while the effect of mandatory audit partner changes on debt financing is uncertain.

H_4: **An audit partner change without an audit firm change will worsen debt financing.**

When the audit partner remains the same for a listed company, even the partner changes to another audit firm, I expect a worsening of debt financing because creditors will question the intention of this special arrangement. Since creditors consider that this change will increase the information risks and familiarity threat, this situation should worsen debt financing.

H_5: **Keeping the same audit partner while changing the audit firm will worsen debt financing.**

Chapter 3. Research Methods

3.1 Data collection

The sample of the Chinese main-board, non-financial, A-share firm-year observations from 2007-2014 have been collected from the China Stock Market and Accounting Research (CSMAR) database. I also collect information from other sources such as websites of the listed companies. I start from 2007 because that is the year when the International Financial Reporting Standards (IFRS) was formally adopted in China. Sample firms without bank debts are excluded in the sample. Firms in the financial sector are also excluded in the sample because of their special reporting requirements. I start with 15,076 non-financial year-observations and reduce to 4,353 because of no bank debts and financial data.

3.2 Statistical model

To test the hypotheses, I use collateral as the dependent variable. Loan spread is not chosen due to the limited disclosure of this information by Chinese listed companies. Collateral is used to repay the debt in case the company fails to repay the debt. The common forms of collateral in China include land use right and real estate. Therefore, a loan obligation that requires collateral implies a stricter loan term. I use logistic regression to test the hypotheses.

$\text{Collateral} = \beta_0 + \beta_1 \text{Firm\_Up} + \beta_2 \text{Firm\_Down} + \beta_3 \text{Firm\_Lateral} + \beta_4 \text{Man\_Firm\_Change} + \beta_5 \text{Partner\_Change} + \text{Control} + \varepsilon$

(1)

$$\text{Collateral} = \beta_0 + \beta_1 \text{Partner\_Change\_Firm\_NoChange} +$$

$$\beta_2 \text{Man\_Partner\_Change} + \text{Control} + \varepsilon$$

(2)

$$\text{Collateral} = \beta_0 + \beta_1 \text{Partner\_NoChange\_Firm\_Change} +$$

$$\beta_2 \text{Man\_Firm\_Change} + \text{Control} + \varepsilon$$

(3)

Collateral is coded as one if bank debt is backed by any collaterals and is coded as zero otherwise. Having collateral in the loan obligation implies a stricter loan term and an auditor's assessment of a higher risk transaction. Firm_Up is coded as one if an audit firm changes from non-Big N to Big N and zero otherwise. Firm_Down is coded as one if an audit firm changes from Big N to non-Big N and zero otherwise. Firm_Lateral is coded as one if an audit firm changes from Big N to Big N and non-Big N to non-Big N and zero otherwise. All the above audit firm changes include both voluntary and mandatory audit firm rotations. Partner_Change_Firm_NoChange is coded as one in the situation that an audit partner change without an audit firm change and zero for no change in an audit firm and no change in audit partners. Partner_NoChange_Firm_Change is coded as one in the situation where there is no change in audit partners but there is an audit firm change and zero for no change in an audit firm and no change in audit partners. Man_Firm_Change is coded as one if there is a mandatory audit firm change and zero otherwise. Man_Partner_Change is coded as one if there is a mandatory audit partner change and zero otherwise. Partner_Change is coded as one if there is an audit

partner change and zero otherwise.

If the audit firm is not the same as the one in the previous year, a rotation of audit firm is identified. I identify mandatory audit firm rotation if the audit firm has reached the maximum number of years serving a listed company set by the regulation. Merger between firms is also regarded as a mandatory audit firm rotation. If any one of the signing partners changes in year t from year t-1, I identify a rotation of audit partner. I identify mandatory audit partner rotation if the audit partner has reached the maximum number of years serving as a listed company set by the regulation.

Equation (1) is used to test for Hypotheses (1), (2), and (3). In the thesis, Big N firms include Big 4 (PricewaterhouseCoopers, KPMG, Ernst & Young, and Deloitte Touche Tohmatsu) and BDO. Since BDO ranked fourth in China based on the ranking released by the Chinese Institute of Certified Public Accountants (CICPA) in 2014, it is reasonable to include BDO as one of the Big N audit firms. BDO has gained reputation and provided high-quality services similar to the Big 4 audit firms. If an audit firm is changed from non-Big N to Big N, this change is regarded as an upward change and vice versa. Other audit firm changes are regarded as lateral audit firm changes. Since there are situations where there is no change in audit partners, but there is an audit firm change, the audit partner change is added in the Equation (1) to control the effect of the audit partner rotation. Equation (2) is used to test for Hypothesis (4) and Equation (3) is used to test for Hypothesis (5).

Control variables in regression models include Prior_MAO, Age, Leverage, Loan_Size, Current_Ratio, CFO, Industry_Dummy, and Year dummies. Prior_MAO is coded as one if the company received modified audit opinion in

the previous year and zero otherwise. Prior_MAO is expected to be positively related to loan terms (Firth, Rui, and Wu 2012; Francis, Hunter, Robinson, Robinson, and Yuan 2016). A company with a modified audit opinion in the previous year is expected to have higher litigation and audit risks, and poorer financial performances than other companies. The ability of repaying debts for those companies with a modified audit opinion in the previous year will be lowered. Thus, creditors will require collateral in their loan obligations. Age is the number of years since the company has been listed. Age is expected to be positively related to loan terms, as older firms are more likely to have exhausted the capital since listed, resulting in a higher chance of financial distress (Firth, Rui, and Wu 2012). Leverage is calculated with the total liabilities to total assets ratio. Leverage is expected to be positively associated with loan terms. It measures the ability of a company to repay the debt and the capacity to resist the external shocks. Higher leverage involves higher default risks, therefore, creditors will require collateral for those companies with higher leverage ratios (Bacha 2014; Firth, Rui, and Wu 2012; Pittman and Fortin 2004; Francis, Hunter, Robinson, Robinson, and Yuan 2016). Loan_Size is a natural logarithm of the loan size. Loan_Size is expected to be negatively related to loan terms, as borrowers with low default risks are able to borrow more debts (Yu 2005). CFO is cash flows from operations scaled by total assets. CFO is expected to be negatively associated with loan terms. Companies with higher CFO imply they have a higher flexibility of the usage of cash flows. Companies with more cash are expected to have a lower risk of default (Pittman and Fortin 2004). Current_Ratio is current assets to current liabilities ratio. Current_Ratio is expected to be negatively associated with

17

loan terms. Companies with a higher liquidity are expected to have a lower risk of bankruptcy and have a higher ability to repay the debt (Oh, Park and Hong 2016). Industry_Dummy is coded as one if a company is in the manufacturing sector and zero otherwise. Manufacturing companies and non-manufacturing companies are different in terms of business nature, business environment, and assets structure. Year dummies are also included in the regression models.

Chapter 4. Empirical Results

4.1 Descriptive statistics

Table 2 Panel A presents descriptive statistics for the dependent variable and all the independent variables in Equation (1). Seventy-one percent of the sample firm years have collateral in their loans. Among different types of audit firm changes, most of the audit firm changes are lateral audit firm changes, which are about sixteen percent, while upward audit firm changes and downward audit firm changes are about one percent and one percent respectively.

(Insert Table 2 Panel A here)

Table 2 Panel B presents descriptive statistics for the dependent variable and all the independent variables in Equation (2). Sixty-nine percent of the sample firm years have collateral in their loans. The situation of an audit partner change without an audit firm change is about fifty-five percent of the sample firm years.

(Insert Table 2 Panel B here)

Table 2 Panel C presents descriptive statistics for the dependent variable and all the independent variables in Equation (3). Sixty-eight percent of the sample firm years have collateral in their loans. The situation of no change in audit partners, but an audit firm change is about eleven percent of the sample firm years.

(Insert Table 2 Panel C here)

4.2 Correlation Matrix

Table 3 Panel A shows the Pearson correlation matrix for the dependent variable and all independent variables in Equation (1). I find that downward audit firm change, lateral audit firm change, and audit partner change are positively and significantly related to collateral. However, I find no significant correlation between mandatory audit firm rotation and collateral. Age and Leverage are positively and significantly correlated with collateral. Loan_Size, CFO, and Current_Ratio are negatively and significantly correlated with collateral. The direction of all these independent variables is consistent with prior studies. The correlations among most of the independent variables are less than 0.5. The correlation coefficient above 0.5 includes -0.599 (Age and Industry_Dummy). The highest variance inflation factor is 1.865. Therefore, multicollinearity should not be a problem in the regression.

(Insert Table 3 Panel A here)

Table 3 Panel B shows the Pearson correlation matrix for the dependent variable and all independent variables in Equation (2). I find that an audit partner change without an audit firm change is positively and significantly correlated to collateral. However, I find no significant correlation between mandatory audit partner rotation and collateral. Loan_Size, CFO, and Current_Ratio are negatively and significantly correlated with collateral. Age and Leverage are positively and significantly correlated with collateral. The direction of all these independent variables is consistent with prior studies. The correlations among most of the independent variables are less than 0.5. The correlation coefficient above 0.5 is -0.612 (Age and Industry_Dummy). The

highest variance inflation factor is 1.912. Therefore, multicollinearity should not be a problem in my regression.

(Insert Table 3 Panel B here)

Table 3 Panel C shows the Pearson correlation matrix for the dependent variable and all independent variables in Equation (3). I find no change in audit partners, but an audit firm change is positively and significantly related to collateral. Moreover, I find mandatory audit firm rotation in this situation is positively and significantly related to collateral. However, as I do not control other variables that may have effects on debt financing, I cannot draw strong inferences from the correlation table. Age and Leverage are positively and significantly correlated with collateral. Loan_Size, CFO, and Current_Ratio are negatively and significantly correlated with collateral. The direction of all these independent variables is consistent with prior studies. The correlations among most of the independent variables are less than 0.5. The correlation coefficients above 0.5 include 0.554 (Man_Firm_Change and Partner_NoChange_Firm_Change) and -0.612 (Age and Industry_Dummy). The highest variance inflation factor is 1.964. Therefore, multicollinearity should not be a problem in my regression.

(Insert Table 3 Panel C here)

4.3 Main results of logistic regression analyses

Table 4 presents the results for Equation (1). The total sample is 4353 firm years. Upward audit firm change is negatively and significantly related to collateral at the 0.05 level. This indicates that the effects of higher-quality

audits and better quality control system on debt financing are larger than that of higher information risks. Downward audit firm change and lateral audit firm change are positively and significantly related to collateral at the 0.1 level. This implies that with higher information risks and lower-quality audits or unchanged audit quality, creditors require stricter loan terms. Since the monitoring function of auditors is compromised, creditors more likely require collateral for those companies with audit firms in downward or lateral changes. In case of an audit partner change, creditors also require stricter loan term as an audit partner change implies higher financial reporting uncertainties and risks. However, I cannot find any evidence on the relationship between mandatory audit firm rotation and collateral. Age and Leverage are significantly and positively related to collateral at the 0.01 level. Loan_Size is significantly and negatively related to collateral at the 0.01 level. CFO is significantly and negatively related to collateral at the 0.05 level. The direction of the aforementioned control variables is consistent with prior studies.

(Insert Table 4 here)

Table 5 presents the results for Equation (2). The total sample is 3555 firm years. To avoid the confounding effect of audit firm changes, the situations of an audit firm change with an audit partner change and no change in audit partners but with an audit firm change are eliminated. An audit partner change without an audit firm change is significantly and positively related to collateral at the 0.05 level. This implies that creditors perceive higher information risks and uncertainties for those companies with an audit partner change. Further, this indicates that creditors perceive that an audit partner change is a kind of

"opinion shopping" and hence they require stricter loan terms for those companies. However, I cannot find any evidence on the relationship between mandatory audit partner rotation and collateral. Age and Leverage are significantly and positively related to collateral at the 0.01 level. Loan_Size is significantly and negatively related to collateral at the 0.01 level. CFO is significantly and negatively related to collateral at the 0.05 level. The direction of the aforementioned control variables is consistent with prior studies.

(Insert Table 5 here)

Table 6 presents the results for Equation (3). The total sample is 1799 firm years. To avoid the confounding effect of audit partner changes, the situations of an audit firm change with an audit partner change and an audit partner change without an audit firm change are eliminated. No change in audit partners, but an audit firm change is significantly and positively related to collateral at the 0.1 level. This implies that creditors consider that this kind of change will lead to higher information risks and will lead to a higher risk of familiarity threat. However, I cannot find any evidence on the relationship between mandatory audit firm rotation and collateral. Age and Leverage are significantly and positively related to collateral at the 0.01 level. Loan_Size and CFO are significantly and negatively related to collateral at the 0.01 level. The direction of the aforementioned control variables is consistent with prior studies.

(Insert Table 6 here)

Chapter 5. Sensitivity Tests

5.1 Loan maturity as the dependent variable

Loan maturity is used as a dependent variable to check the robustness of the main findings. Similar to the requirement of a collateral, shorter loan maturity implies a stricter loan term, as lenders perceive a higher risk of loan. As a result, borrowers will be less flexible in the use of cash flows. I use linear regression to test the hypotheses.

$$Loan\_Maturity = \beta_0 + \beta_1 Firm\_Change + \beta_2 Man\_Firm\_Change +$$
$$\beta_3 Partner\_Change + Control + \varepsilon$$

(4)

$$Loan\_Maturity = \beta_0 + \beta_1 Firm\_Down/Lateral + \beta_2 Man\_Firm\_Change +$$
$$\beta_3 Partner\_Change + Control + \varepsilon$$

(5)

$$Loan\_Maturity = \beta_0 + \beta_1 Partner\_Change\_Firm\_NoChange +$$
$$\beta_2 Man\_Partner\_Change + Control + \varepsilon$$

(6)

$$Loan\_Maturity = \beta_0 + \beta_1 Partner\_NoChange\_Firm\_Change +$$
$$\beta_2 Man\_Firm\_Change + Control + \varepsilon$$

(7)

Loan_Maturity is the length of the loan term. Firm_Change is coded as one

if there is an audit firm change and zero otherwise. Firm_Down/Lateral is coded as one if an audit firm changes from Big N to non-Big N, Big N to Big N, and non-Big N to non-Big N and zero otherwise.

Since the sample size of upward audit firm change is not large enough (n=18), I test the effect of all audit firm changes in Equation (4). There are 2210 observations. Table 7 presents the results for all audit firm changes on loan maturity. Firm_Change is significantly and negatively related to loan maturity at the 0.05 level. Creditors give shorter loan maturity to those companies with an audit firm change. This indicates that creditors consider companies with an audit firm change as having a higher information uncertainty and risk. Partner_Change is negatively and significantly related to loan maturity at the 0.1 level. Creditors perceive the effect of enhancing audit independence being smaller than the effect of increasing information risks. However, I cannot find any evidence on the relationship between mandatory audit firm rotation and loan maturity. These results are consistent with the main findings.

(Insert Table 7 here)

In the main test, I find the upward audit firm changes being negatively related to collateral. To exclude the effect of upward audit firm changes on loan maturity, I exclude upward audit firm changes in Equation (5). There are 2192 samples. Table 8 presents the results for Equation (5). Downward and lateral audit firm changes are significantly and negatively related to loan maturity at the 0.05 level, which is consistent with the results in the main test and the results in Equation (4).

(Insert Table 8 here)

Table 9 presents the results for Equation (6). There are 1772 samples. An audit partner change without an audit firm change is significantly and negatively related to loan maturity at the 0.05 level. However, I cannot find any evidence on the relationship between mandatory audit partner rotation and loan maturity. Other control variables are broadly consistent with those reported in prior studies. These results are consistent with the main findings.

(Insert Table 9 here)

Table 10 presents the results for Equation (7). There are 888 samples. No change in audit partners, but an audit firm change is significantly and negatively related to loan maturity at the 0.05 level. However, I cannot find any evidence on the relationship between mandatory audit firm rotation and loan maturity. Other control variables are broadly consistent with those reported in prior studies. These results are consistent with the main findings.

(Insert Table 10 here)

5.2 Control the direction of audit firm changes in the situation of no change in audit partners, but an audit firm change

The upward audit firm changes are significantly and negatively related to collateral in the main results. Hence, to control the effect of upward audit firm changes, only no change in audit partners but with an audit firm change in downward and lateral directions is tested for both collateral and loan maturity. No change in audit partners, but an audit firm change in downward and lateral

directions is positively related to collateral at the 0.05 level and negatively related to loan maturity at the 0.05 level. These results imply that creditors will issue strict loan term to those companies with this kind of auditor changes. The results are consistent with the main findings.

(Insert Table 11 here)

(Insert Table 12 here)

5.3 Alternative measures of audit firm changes

In the main test, Big 5 audit firms (i.e., Big 4 and BDO) are used for the measure of audit firm changes. In the sensitivity test, Big 4 audit firms are used for an alternative measure of audit firm changes. Since upward audit firm changes (i.e., non-Big 4 to Big 4) are not large enough for both collateral (n=14) and loan maturity (n=1), and the upward audit firm changes are negatively and significantly related to collateral in the main results, only downward and lateral audit firm changes are tested. Downward and lateral audit firm changes are positively and significantly related to collateral at the 0.1 level and negatively and significantly related to loan maturity at the 0.05 level. This implies creditors perceive higher information risks for those companies with this kind of change and hence they will issue strict loan term in the loan obligation. The results are consistent with the main findings. Apart from Big 5 audit firms, Big 10 audit firms are used for an alternative measure of audit firm changes to check the robustness of the main test. Upward audit firm change is negatively and significantly related to collateral at the 0.05 level and positively and significantly related to loan maturity at the 0.1 level. Downward audit firm changes are positively and significantly related to

collateral at the 0.1 level and negatively and significantly related to loan maturity at the 0.05 level. Lateral audit firm changes are positively and significantly related to collateral at the 0.1 level and negatively and significantly related to loan maturity at the 0.01 level. This implies creditors perceive higher information risks for those companies with downward and lateral audit firm changes and hence they will issue strict loan term in the loan obligation. The results are consistent with the main findings.

(Insert Table 13 here)

(Insert Table 14 here)

(Insert Table 15 here)

(Insert Table 16 here)

5.4 Measuring the dependent variable in a change form

Dependent variable is measured in a change form to test the robustness of the main test. Collateral is measured in a change form that a dummy variable equal to one if bank debt is backed by stricter collateral (i.e. increase in collateral) and zero otherwise. Upward audit firm change is negatively and significantly related to collateral at the 0.1 level. Downward audit firm change is positively and significantly related to collateral at the 0.05 level and lateral audit firm change is positively and significantly related to collateral at the 0.01 level. An audit partner change without an audit firm change is significantly and positively related to collateral at the 0.01 level. No change in audit partners, but an audit firm change is significantly and positively related to collateral at the 0.01 level. The results are consistent with the main findings.

(Insert Table 17 here)

(Insert Table 18 here)

(Insert Table 19 here)

5.5 Measuring the dependent variable in a change form with firm fixed effect

Dependent variable is measured in a change form with firm fixed effect to test the robustness of the main test. Collateral is measured in a change form that a dummy variable equal to one if bank debt is backed by stricter collateral (i.e. increase in collateral), and zero otherwise. Downward and lateral audit firm changes are positively and significantly related to collateral at the 0.01 level. An audit partner change without an audit firm change is significantly and positively related to collateral at the 0.01 level. No change in audit partners, but an audit firm change is significantly and positively related to collateral at the 0.01 level. The results are broadly consistent with the main findings.

(Insert Table 20 here)

(Insert Table 21 here)

(Insert Table 22 here)

5.6 Consideration of state-owned enterprise

Since whether a firm is a state-owned enterprise may affect the loan terms, a dummy variable - state-owned enterprise is added to check the robustness of the main test. Upward audit firm change is negatively and significantly related to collateral at the 0.1 level. Downward and lateral audit firm changes are positively and significantly related to collateral at the 0.1 level. An audit

partner change without an audit firm change is significantly and positively related to collateral at the 0.05 level. No change in audit partners, but an audit firm change is significantly and positively related to collateral at the 0.1 level. The results are consistent with the main findings.

(Insert Table 23 here)

(Insert Table 24 here)

(Insert Table 25 here)

Chapter 6. Conclusion, Limitations and Future Research

6.1 Conclusion

Independent auditors help in reducing agency problems between companies and users of financial statements. They serve as a monitoring function for creditors. After several major audit scandals and frauds, the issue of ensuring audit quality becomes a great concern for creditors, investors, regulators, and various kinds of users of financial statements. Auditor changes can help increase the audit independence and provide "fresh eyes" to the audit engagement. However, auditor changes cause a loss of cumulative knowledge for current auditors for that audit engagement, which will affect the overall audit quality. Therefore, whether auditor changes provide useful information to creditors, which affect loan terms in the loan obligation, is an empirical question.

In this thesis, I have used Chinese data that enables to clarify both audit firm and audit partner rotations. Overall, I find that debt financing is worsened by various kinds of auditor changes including: downward audit firm changes, lateral audit firm changes, a change in an audit partner without a change in an audit firm, and a change in an audit firm without a change in audit partners. This indicates that generally, auditor changes provide a signal to creditors that the monitoring function of auditors is compromised, leading to a higher information uncertainty and hence require stricter loan terms for those companies with auditor changes.

The findings of this research should have important implications for users of financial statements. Overall, since auditor changes worsen debt financing, the financial performance of a company will be adversely affected. The

monitoring function of auditors will also be compromised for those companies with auditor changes. Investors should take these aspects into consideration before making an investment decision to avoid investment losses. Corporate financial managers should be aware that creditors generally require stricter loan terms for those companies with auditor changes. Stricter loan terms will affect the financial performance of a company. Stock price and the interests of stakeholders will also be affected. Therefore, corporate financial managers should carefully consider the necessity and effects before changing auditors.

Auditor changes are associated with a change in debt financing. This indicates that auditor changes are useful even for these informed creditors. This implication also addresses the importance of expanded disclosure of auditor changes such as the detailed reasons and circumstances of the changes. Regulators may consider further expansion of disclosure of auditor changes in audit reports to prevent further audit scandals.

6.2 Limitations and Future Research

There are some limitations of this thesis and there are some recommendations for future research. First, due to the limited disclosures of loan spread by Chinese listed companies, loan spread is not used in this thesis. If there are more disclosures of loan spread by Chinese listed companies in the future, loan spread can be used to have greater insights on the relationship between auditor changes and the cost of debts.

Second, greater insights can be obtained if the specific reasons for voluntary auditor changes could be examined. However, due to data limitation, it is suggested that this issue can be investigated for future research if there are

more details of the disclosure of auditor changes in the future. Hence, a more thorough analysis on the relationship between auditor changes and debt financing can be obtained.

Third, since the impact of voluntary and mandatory auditor changes on debt financing may be different, it is suggested that researchers can further investigate and analyze the reasons behind in the future. Hence, a more comprehensive investigation on the relationship of auditor changes and debt financing can be provided and the findings can have more implications for investors and corporate managers.

Table 1: Mandatory audit firm and audit partner rotations in different jurisdictions

	Audit firm rotation	Audit partner rotation
Australia	No	Yes - every 5 years
Austria	Yes - every 5 years for government-owned companies	Yes - every 5 years
Belgium	No	Yes - every 6 years
Brazil	Yes - every 5 years	No
Bulgaria	No	Yes - every 5 years
Canada	No	Yes - every 7 years
China	Yes - every 5 years for state-owned enterprises	Yes – every 5 years
Croatia	Yes - every 7 years for banks and every 4 years for insurance and leasing companies	Yes - every 7 years
Cyprus	No	Yes - every 7 years
Czech Republic	No	Yes - every 7 years
Denmark	No	Yes - every 7 years
Finland	No	Yes - every 7 years
France	No	Yes - every 6 years
Germany	No	Yes - every 7 years
Greece	No	Yes - every 7 years
Hungary	No	Yes - every 7 years
Ireland	No	Yes - every 5 years
Italy	Yes - every 9 years	Yes - every 7 years
Latvia	No	Yes - every 7 years
Luxembourg	No	Yes - every 7 years
Malta	No	Yes - every 7 years
Poland	No	Yes - every 5 years
Portugal	No	Yes - every 7 years
Romania	No	Yes - every 7 years
Slovakia	Yes - every 5 years	Yes - every 5 years

Slovenia	Yes - every 5 years for the banking and insurance industry	Yes - every 7 years
South Korea	No	No
Spain	No	Yes - every 7 years
Sweden	No	Yes - every 7 years
The Netherlands	No	Yes - every 7 years
Turkey	Yes - every 7 years	Yes - every 5 years
U.K.	Yes - every 10 years	Yes - every 5 years
U.S.	No	Yes - every 5 years

Source: EY Global Financial Services Institute 2015

Table 2 Descriptive statistics
Table 2 Panel A: Descriptive statistics for Equation (1)

	N	Mean	Standard deviation
Collateral	4353	0.71	0.46
Firm_Up	4353	0.01	0.12
Firm_Down	4353	0.01	0.08
Firm_Lateral	4353	0.16	0.37
Man_Firm_Change	4353	0.05	0.21
Partner_Change	4353	0.59	0.49
Prior_MAO	4353	0.01	0.10
Age	4353	11.53	5.61
Leverage	4353	0.54	0.25
Loan_Size	4353	18.75	1.51
CFO	4353	0.03	0.08
Current_Ratio	4353	1.64	2.10
Industry_Dummy	4353	0.17	0.37

Table 2 Panel B: Descriptive statistics for Equation (2)

	N	Mean	Standard Deviation
Collateral	3555	0.69	0.46
Partner_Change_Firm_NoChange	3555	0.55	0.50
Man_Partner_Change	3555	0.05	0.23
Prior_MAO	3555	0.01	0.08
Age	3555	11.63	5.66
Leverage	3555	0.54	0.25
Loan_Size	3555	18.81	1.51
CFO	3555	0.03	0.08
Current_Ratio	3555	1.63	1.87
Industry_Dummy	3555	0.17	0.38

Table 2 Panel C: Descriptive statistics for Equation (3)

	N	Mean	Standard Deviation
Collateral	1799	0.68	0.47
Partner_NoChange_Firm_Change	1799	0.11	0.31
Man_Firm_Change	1799	0.04	0.19
Prior_MAO	1799	0.01	0.10
Age	1799	11.61	5.85
Leverage	1799	0.54	0.28
Loan_Size	1799	18.81	1.54
CFO	1799	0.03	0.08
Current_Ratio	1799	1.63	1.67
Industry_Dummy	1799	0.18	0.38

Table 3 Panel A: Correlation matrix for Equation (1)

		Collateral	Firm_Up	Firm_Down	Firm_Lateral	Man_Firm_Change	Partner_Change	Prior_MAO	Age	Leverage	Loan_Size	CFO	Current_Ratio	Industry_Dummy
Collateral	Pearson Correlation	1												
	Sig. (2-tailed)													
Firm_Up	Pearson Correlation	-0.019	1											
	Sig. (2-tailed)	0.214												
Firm_Down	Pearson Correlation	0.030**	-0.009	1										
	Sig. (2-tailed)	0.045	0.546											
Firm_Lateral	Pearson Correlation	0.088***	-0.052***	-0.034**	1									
	Sig. (2-tailed)	0.000	0.001	0.024										
Man_Firm_Change	Pearson Correlation	-0.005	0.021	-0.003	0.478***	1								
	Sig. (2-tailed)	0.728	0.164	0.855	0.000									
Partner_Change	Pearson Correlation	0.055***	0.091***	0.053***	0.133***	0.042***	1							
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.006								
Prior_MAO	Pearson Correlation	0.017	0.008	0.023	0.058***	-0.010	-0.003	1						
	Sig. (2-tailed)	0.254	0.576	0.132	0.000	0.491	0.840							
Age	Pearson Correlation	0.068***	-0.007	-0.017	-0.033**	-0.012	-0.011	0.024	1					
	Sig. (2-tailed)	0.000	0.659	0.249	0.027	0.432	0.451	0.118						
Leverage	Pearson Correlation	0.089***	0.005	0.013	0.011	-0.023	0.014	0.157***	0.233***	1				
	Sig. (2-tailed)	0.000	0.730	0.403	0.468	0.126	0.360	0.000	0.000					
Loan_Size	Pearson Correlation	-0.291***	-0.005	-0.003	-0.088***	0.023	-0.035**	-0.022	0.126***	0.160***	1			
	Sig. (2-tailed)	0.000	0.727	0.838	0.000	0.135	0.022	0.139	0.000	0.000				
CFO	Pearson Correlation	-0.028*	-0.004	-0.004	0.013	-0.003	-0.018	-0.021	-0.032**	-0.095***	-0.053***	1		
	Sig. (2-tailed)	0.067	0.811	0.794	0.410	0.825	0.242	0.176	0.037	0.000	0.000			
Current_Ratio	Pearson Correlation	-0.068***	-0.008	-0.013	0.016	0.033**	0.006	-0.029*	-0.153***	-0.349***	-0.045***	-0.050***	1	
	Sig. (2-tailed)	0.000	0.599	0.375	0.293	0.029	0.716	0.056	0.000	0.000	0.003	0.001		
Industry_Dummy	Pearson Correlation	-0.168***	0.005	0.005	-0.042***	0.025	-0.029*	0.000	-0.599***	-0.246***	-0.033**	0.001	0.184***	1
	Sig. (2-tailed)	0.000	0.744	0.736	0.005	0.101	0.055	0.986	0.000	0.000	0.030	0.960	0.000	

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 3 Panel B: Correlation matrix for Equation (2)

		Collateral	Partner_Change_Firm_NoChange	Man_Partner_Change	Prior_MAO	Age	Leverage	Loan_Size	CFO	Current_Ratio	Industry_Dummy
Collateral	Pearson Correlation	1									
	Sig. (2-tailed)										
Partner_Change_Firm_NoChange	Pearson Correlation	0.062***	1								
	Sig. (2-tailed)	0.000									
Man_Partner_Change	Pearson Correlation	0.019	0.217***	1							
	Sig. (2-tailed)	0.246	0.000								
Prior_MAO	Pearson Correlation	0.011	-0.029*	-0.005	1						
	Sig. (2-tailed)	0.509	0.087	0.784							
Age	Pearson Correlation	0.059***	-0.012	0.118***	0.014	1					
	Sig. (2-tailed)	0.000	0.477	0.000	0.389						
Leverage	Pearson Correlation	0.093***	0.010	0.060***	0.133***	0.235***	1				
	Sig. (2-tailed)	0.000	0.569	0.000	0.000	0.000					
Loan_Size	Pearson Correlation	-0.310***	-0.030*	0.018	-0.017	0.137***	0.165***	1			
	Sig. (2-tailed)	0.000	0.074	0.276	0.310	0.000	0.000				
CFO	Pearson Correlation	-0.044***	-0.012	-0.005	-0.010	-0.034**	-0.086***	-0.048***	1		
	Sig. (2-tailed)	0.009	0.474	0.785	0.538	0.043	0.000	0.004			
Current_Ratio	Pearson Correlation	-0.072***	-0.008	-0.043***	-0.024	-0.156***	-0.367***	-0.060***	-0.057***	1	
	Sig. (2-tailed)	0.000	0.634	0.010	0.153	0.000	0.000	0.000	0.001		
Industry_Dummy	Pearson Correlation	-0.157***	-0.025	-0.094***	-0.002	-0.612***	-0.244***	-0.044***	0.006	0.182***	1
	Sig. (2-tailed)	0.000	0.133	0.000	0.920	0.000	0.000	0.009	0.703	0.000	

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 3 Panel C: Correlation matrix for Equation (3)

		Collateral	Partner_NoChange_Firm_Change	Man_Firm_Change	Prior_MAO	Age	Leverage	Loan_Size	CFO	Current_Ratio	Industry_Dummy
Collateral	Pearson Correlation	1									
	Sig. (2-tailed)										
Partner_NoChange_Firm_Change	Pearson Correlation	0.121***	1								
	Sig. (2-tailed)	0.000									
Man_Firm_Change	Pearson Correlation	0.050**	0.554***	1							
	Sig. (2-tailed)	0.035	0.000								
Prior_MAO	Pearson Correlation	0.010	0.019	0.011	1						
	Sig. (2-tailed)	0.673	0.414	0.646							
Age	Pearson Correlation	0.039*	-0.048**	-0.005	0.027	1					
	Sig. (2-tailed)	0.098	0.041	0.826	0.257						
Leverage	Pearson Correlation	0.079***	0.003	0.005	0.110***	0.241***	1				
	Sig. (2-tailed)	0.001	0.915	0.831	0.000	0.000					
Loan_Size	Pearson Correlation	-0.318***	-0.091***	0.019	-0.020	0.179***	0.164***	1			
	Sig. (2-tailed)	0.000	0.000	0.416	0.387	0.000	0.000				
CFO	Pearson Correlation	-0.048**	0.036	0.040*	-0.021	0.001	-0.020	-0.044*	1		
	Sig. (2-tailed)	0.040	0.124	0.092	0.372	0.955	0.390	0.059			
Current_Ratio	Pearson Correlation	-0.087***	-0.035	-0.017	-0.036	-0.212***	-0.367***	-0.070***	-0.107***	1	
	Sig. (2-tailed)	0.000	0.142	0.461	0.130	0.000	0.000	0.003	0.000		
Industry_Dummy	Pearson Correlation	-0.138***	-0.032	0.003	0.011	-0.612***	-0.214***	-0.069***	-0.020	0.220***	1
	Sig. (2-tailed)	0.000	0.174	0.885	0.645	0.000	0.000	0.003	0.385	0.000	

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 4: The effects of audit firm changes on debt financing

	Expected sign	Coefficient	Sig.
Constant	?	6.873	0.000***
Firm_Up	?	-0.604	0.047**
Firm_Down	+	1.145	0.081*
Firm_Lateral	+	0.250	0.067*
Man_Firm_Change	?	-0.082	0.697
Partner_Change	+	0.128	0.094*
Prior_MAO	+	0.241	0.584
Age	+	0.036	0.000***
Leverage	+	1.249	0.000***
Loan_Size	-	-0.415	0.000***
CFO	-	-1.047	0.032**
Current_Ratio	-	-0.004	0.836
Industry_Dummy	?	-0.284	0.028**
Year dummies: Included			
Cox & Snell R Square: 0.184 Nagelkerke R Square: 0.262			
Dependent variable: Collateral Upward audit firm change: 60 Downward audit firm change: 26 Lateral audit firm change: 712 No change in an audit firm: 3555 Total N: 4353			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 5: The effect of an audit partner change without an audit firm change on debt financing

	Expected sign	Coefficient	Sig.
Constant	?	7.555	0.000***
Partner_Change_Firm_NoChange	+	0.208	0.013**
Man_Partner_Change	?	-0.082	0.665
Prior_MAO	+	0.236	0.667
Age	+	0.035	0.000***
Leverage	+	1.489	0.000***
Loan_Size	-	-0.458	0.000***
CFO	-	-1.388	0.011**
Current_Ratio	-	-0.003	0.878
Industry_Dummy	?	-0.235	0.097*
Year dummies: Included			
Cox & Snell R Square: 0.199 Nagelkerke R Square: 0.280			
Dependent variable: Collateral An audit partner change without an audit firm change: 1949 No change in an audit partner and no change in an audit firm: 1606 Total N: 3555			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 6: The effect of no change in audit partners, but an audit firm change on debt financing

	Expected sign	Coefficient	Sig.
Constant	?	7.886	0.000***
Partner_NoChange_Firm_Change	+	0.525	0.068*
Man_Firm_Change	?	0.560	0.203
Prior_MAO	+	-0.107	0.866
Age	+	0.037	0.006***
Leverage	+	1.237	0.001***
Loan_Size	-	-0.463	0.000***
CFO	-	-2.123	0.005***
Current_Ratio	-	-0.028	0.438
Industry_Dummy	?	-0.192	0.325
Year dummies: Included			
Cox & Snell R Square: 0.201 Nagelkerke R Square: 0.281			
Dependent variable: Collateral No change in audit partners, but an audit firm change: 193 No change in an audit partner and no change in an audit firm: 1606 Total N: 1799			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 7: The effect of all audit firm changes on loan maturity

	Expected sign	Coefficient	Sig.
Constant	?	-5.730	0.000***
Firm_Change	-	-0.354	0.013**
Man_Firm_Change	?	-0.306	0.199
Partner_Change	-	-0.170	0.079*
Prior_MAO	-	-0.256	0.575
Age	-	0.004	0.710
Leverage	-	0.064	0.796
Loan_Size	+	0.423	0.000***
CFO	+	0.788	0.172
Current_Ratio	+	-0.002	0.934
Industry_Dummy	?	-0.422	0.014**
Year dummies: Included			
R Square: 0.093			
Adjusted R Square: 0.086			
Dependent variable: Loan maturity			
All audit firm changes: 438			
No change in an audit firm: 1772			
Total N: 2210			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 8: The effect of downward & lateral audit firm changes on loan maturity

	Expected sign	Coefficient	Sig.
Constant	?	-5.711	0.000***
Firm_ Down/Lateral	-	-0.354	0.015**
Man_Firm_Change	?	-0.295	0.223
Partner_Change	-	-0.168	0.085*
Prior_MAO	-	-0.260	0.569
Age	-	0.004	0.709
Leverage	-	0.070	0.777
Loan_Size	+	0.422	0.000***
CFO	+	0.774	0.181
Current_Ratio	+	-0.002	0.930
Industry_Dummy	?	-0.421	0.015**
Year dummies: Included			
R Square: 0.092			
Adjusted R Square: 0.085			
Dependent variable: Loan maturity			
Downward & lateral audit firm changes: 420			
No change in an audit firm: 1772			
Total N: 2192			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 9: The effect of an audit partner change without an audit firm change on loan maturity

	Expected sign	Coefficient	Sig.
Constant	?	-6.079	0.000***
Partner_Change_Firm_NoChange	-	-0.249	0.029**
Man_Partner_Change	?	-0.067	0.779
Prior_MAO	-	-0.141	0.824
Age	-	-0.001	0.964
Leverage	-	0.294	0.353
Loan_Size	+	0.436	0.000***
CFO	+	1.342	0.053*
Current_Ratio	+	0.004	0.901
Industry_Dummy	?	-0.464	0.021**
Year dummies: Included			
R Square: 0.090			
Adjusted R Square: 0.082			
Dependent variable: Loan maturity			
An audit partner change without an audit firm change: 988			
No change in an audit partner and no change in an audit firm: 784			
Total N: 1772			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 10: The effect of no change in audit partners, but an audit firm change on loan maturity

	Expected sign	Coefficient	Sig.
Constant	?	-5.068	0.000***
Partner_NoChange_Firm_Change	-	-0.684	0.046**
Man_Firm_Change	?	-0.320	0.555
Prior_MAO	-	-0.306	0.704
Age	-	-0.013	0.529
Leverage	-	0.164	0.730
Loan_Size	+	0.404	0.000***
CFO	+	1.596	0.135
Current_Ratio	+	-0.018	0.765
Industry_Dummy	?	-0.606	0.049**
Year dummies: Included			
R Square: 0.080			
Adjusted R Square: 0.063			
Dependent variable: Loan maturity			
No change in audit partners, but an audit firm change: 104			
No change in an audit partner and no change in an audit firm: 784			
Total N: 888			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 11: The effect of no change in audit partners, but an audit firm change in downward and lateral directions on debt financing

	Expected sign	Coefficient	Sig.
Constant	?	7.963	0.000***
Partner_NoChange_Firm_Down/Lateral	+	0.675	0.025**
Man_Firm_Change	?	0.421	0.348
Prior_MAO	+	-0.116	0.856
Age	+	0.037	0.007***
Leverage	+	1.250	0.001***
Loan_Size	-	-0.467	0.000***
CFO	-	-2.165	0.004***
Current_Ratio	-	-0.029	0.427
Industry_Dummy	?	-0.185	0.345
Year dummies: Included			
Cox & Snell R Square: 0.204 Nagelkerke R Square: 0.285			
Dependent variable: Collateral No change in audit partners, but an audit firm change in downward and lateral directions: 191 No change in an audit partner and no change in an audit firm: 1606 Total N: 1797			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 12: The effect of no change in audit partners, but an audit firm change in downward and lateral directions on loan maturity

	Expected sign	Coefficient	Sig.
Constant	?	-5.077	0.000***
Partner_NoChange_Firm_Down/Lateral	-	-0.698	0.045**
Man_Firm_Change	?	-0.308	0.574
Prior_MAO	-	-0.305	0.706
Age	-	-0.013	0.534
Leverage	-	0.161	0.735
Loan_Size	+	0.405	0.000***
CFO	+	1.602	0.134
Current_Ratio	+	-0.018	0.766
Industry_Dummy	?	-0.604	0.050**
Year dummies: Included			
R Square: 0.080 Adjusted R Square: 0.063			
Dependent variable: Loan maturity No change in audit partners, but an audit firm change in downward and lateral directions: 102 No change in an audit partner and no change in an audit firm: 784 Total N: 886			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 13: The effect of downward & lateral audit firm changes (i.e., Big 4 to non-Big 4, Big 4 to Big 4, and non-Big 4 to non-Big 4) on debt financing

	Expected sign	Coefficient	Sig.
Constant	?	6.826	0.000***
Firm_Down/Lateral	+	0.229	0.076*
Man_Firm_Change	?	-0.080	0.702
Partner_Change	+	0.127	0.096*
Prior_MAO	+	0.231	0.600
Age	+	0.036	0.000***
Leverage	+	1.226	0.000***
Loan_Size	-	-0.412	0.000***
CFO	-	-1.096	0.025**
Current_Ratio	-	-0.003	0.853
Industry_Dummy	?	-0.286	0.026**
Year dummies: Included			
Cox & Snell R Square: 0.182 Nagelkerke R Square: 0.259			
Dependent variable: Collateral Downward & lateral audit firm changes: 784 No change in an audit firm: 3555 Total N: 4339			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 14: The effect of downward & lateral audit firm changes (i.e., Big 4 to non-Big 4, Big 4 to Big 4, and non-Big 4 to non-Big 4) on loan maturity

	Expected sign	Coefficient	Sig.
Constant	?	-5.731	0.000***
Firm_Down/Lateral	-	-0.354	0.013**
Man_Firm_Change	?	-0.307	0.199
Partner_Change	-	-0.170	0.080*
Prior_MAO	-	-0.256	0.575
Age	-	0.004	0.710
Leverage	-	0.063	0.797
Loan_Size	+	0.423	0.000***
CFO	+	0.789	0.172
Current_Ratio	+	-0.002	0.934
Industry_Dummy	?	-0.422	0.014**
Year dummies: Included			
R Square: 0.093			
Adjusted R Square: 0.086			
Dependent variable: Loan maturity			
Downward & lateral audit firm changes: 437			
No change in an audit firm: 1772			
Total N: 2209			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 15: The effects of audit firm changes (Big 10) on debt financing

	Expected sign	Coefficient	Sig.
Constant	?	6.867	0.000***
Firm_Up	?	-0.482	0.043**
Firm_Down	+	0.662	0.057*
Firm_Lateral	+	0.262	0.060*
Man_Firm_Change	?	-0.025	0.903
Partner_Change	+	0.134	0.081*
Prior_MAO	+	0.278	0.531
Age	+	0.036	0.000***
Leverage	+	1.263	0.000***
Loan_Size	-	-0.415	0.000***
CFO	-	-1.045	0.033**
Current_Ratio	-	-0.001	0.935
Industry_Dummy	?	-0.285	0.027**
Year dummies: Included			
Cox & Snell R Square: 0.184 Nagelkerke R Square: 0.263			
Dependent variable: Collateral Upward audit firm change: 108 Downward audit firm change: 76 Lateral audit firm change: 614 No change in an audit firm: 3555 Total N: 4353			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 16: The effects of audit firm changes (Big 10) on loan maturity

	Expected sign	Coefficient	Sig.
Constant	?	-5.655	0.000***
Firm_Up	?	0.469	0.081*
Firm_Down	-	-0.723	0.039**
Firm_Lateral	-	-0.498	0.001***
Man_Firm_Change	?	-0.307	0.196
Partner_Change	-	-0.181	0.061*
Prior_MAO	-	-0.297	0.513
Age	-	0.004	0.725
Leverage	-	0.076	0.756
Loan_Size	+	0.419	0.000***
CFO	+	0.846	0.142
Current_Ratio	+	-0.004	0.860
Industry_Dummy	?	-0.424	0.014**
Year dummies: Included			
R Square: 0.098 Adjusted R Square: 0.091			
Dependent variable: Loan maturity Upward audit firm change: 78 Downward audit firm change: 42 Lateral audit firm change: 318 No change in an audit firm: 1772 Total N: 2210			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 17: The effects of audit firm changes on debt financing in a change form

	Expected sign	Coefficient	Sig.
Constant	?	-2.686	0.001***
Firm_Up	?	-1.950	0.057*
Firm_Down	+	1.042	0.027**
Firm_Lateral	+	0.426	0.007***
Man_Firm_Change	?	-0.311	0.290
Partner_Change	+	0.619	0.000***
Prior_MAO	+	0.100	0.840
Age	+	0.002	0.888
Leverage	+	0.730	0.011**
Loan_Size	-	0.010	0.796
CFO	-	-0.796	0.271
Current_Ratio	-	-0.019	0.679
Industry_Dummy	?	-0.190	0.388
Year dummies: Included			
Cox & Snell R Square: 0.032 Nagelkerke R Square: 0.055			
Dependent variable: Collateral Upward audit firm change: 33 Downward audit firm change: 20 Lateral audit firm change: 409 No change in an audit firm: 2122 Total N: 2584			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 18: The effect of an audit partner change without an audit firm change on debt financing in a change form

	Expected sign	Coefficient	Sig.
Constant	?	-1.986	0.037**
Partner_Change_Firm_NoChange	+	0.860	0.000***
Man_Partner_Change	?	-0.225	0.400
Prior_MAO	+	0.716	0.253
Age	+	-0.005	0.738
Leverage	+	0.657	0.017**
Loan_Size	-	-0.026	0.573
CFO	-	-1.405	0.086*
Current_Ratio	-	-0.002	0.961
Industry_Dummy	?	-0.302	0.223
Year dummies: Included			
Cox & Snell R Square: 0.030 Nagelkerke R Square: 0.053			
Dependent variable: Collateral An audit partner change without an audit firm change: 1195 No change in an audit partner and no change in an audit firm: 927 Total N: 2122			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 19: The effect of no change in audit partners, but an audit firm change on debt financing in a change form

	Expected sign	Coefficient	Sig.
Constant	?	-0.572	0.706
Partner_NoChange_Firm_Change	+	1.524	0.000***
Man_Firm_Change	?	-0.638	0.246
Prior_MAO	+	0.569	0.491
Age	+	0.007	0.801
Leverage	+	0.588	0.070*
Loan_Size	-	-0.101	0.170
CFO	-	1.518	0.279
Current_Ratio	-	-0.087	0.518
Industry_Dummy	?	0.407	0.288
Year dummies: Included			
Cox & Snell R Square: 0.052 Nagelkerke R Square: 0.102			
Dependent variable: Collateral No change in audit partners, but an audit firm change: 109 No change in an audit partner and no change in an audit firm: 927 Total N: 1036			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 20: The effects of audit firm changes on debt financing in a change form with firm fixed effect

	Expected sign	Coefficient	Sig.
Constant	?	-36.809	1.000
Firm_Up	?	-1.418	0.248
Firm_Down	+	3.937	0.006***
Firm_Lateral	+	0.892	0.001***
Man_Firm_Change	?	-0.604	0.182
Partner_Change	+	0.788	0.000***
Prior_MAO	+	-0.960	0.448
Age	+	4.138	1.000
Leverage	+	1.178	0.143
Loan_Size	-	0.084	0.345
CFO	-	1.827	0.149
Current_Ratio	-	0.046	0.807
Year dummies: Included Firm fixed effect: Included			
Cox & Snell R Square: 0.348 Nagelkerke R Square: 0.594			
Dependent variable: Collateral Upward audit firm change: 33 Downward audit firm change: 20 Lateral audit firm change: 409 No change in an audit firm: 2122 Total N: 2584			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 21: The effect of an audit partner change without an audit firm change on debt financing in a change form with firm fixed effect

	Expected sign	Coefficient	Sig.
Constant	?	-37.618	1.000
Partner_Change_Firm_NoChange	+	1.299	0.000***
Man_Partner_Change	?	-0.590	0.159
Prior_MAO	+	-36.578	0.998
Age	+	4.230	1.000
Leverage	+	1.127	0.154
Loan_Size	-	0.069	0.545
CFO	-	0.328	0.836
Current_Ratio	-	0.331	0.164
Year dummies: Included Firm fixed effect: Included			
Cox & Snell R Square: 0.360 Nagelkerke R Square: 0.633			
Dependent variable: Collateral An audit partner change without an audit firm change: 1195 No change in an audit partner and no change in an audit firm: 927 Total N: 2122			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 22: The effect of no change in audit partners, but an audit firm change on debt financing in a change form with firm fixed effect

	Expected sign	Coefficient	Sig.
Constant	?	-19.654	1.000
Partner_NoChange_Firm_Change	+	4.456	0.000***
Man_Firm_Change	?	-1.664	0.315
Prior_MAO	+	-37.180	0.999
Age	+	-0.064	1.000
Leverage	+	3.473	0.402
Loan_Size	-	-0.238	0.349
CFO	-	3.526	0.384
Current_Ratio	-	0.758	0.486
Year dummies: Included			
Firm fixed effect: Included			
Cox & Snell R Square: 0.411			
Nagelkerke R Square: 0.816			
Dependent variable: Collateral No change in audit partners, but an audit firm change: 109 No change in an audit partner and no change in an audit firm: 927			
Total N: 1036			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 23: The effects of audit firm changes on debt financing with SOE

	Expected sign	Coefficient	Sig.
Constant	?	6.747	0.000***
Firm_Up	?	-0.595	0.052*
Firm_Down	+	1.183	0.073*
Firm_Lateral	+	0.246	0.072*
Man_Firm_Change	?	-0.064	0.763
Partner_Change	+	0.129	0.093*
Prior_MAO	+	0.208	0.636
Age	+	0.039	0.000***
Leverage	+	1.329	0.000***
Loan_Size	-	-0.407	0.000***
CFO	-	-0.954	0.052*
Current_Ratio	-	-0.004	0.841
SOE	?	-0.316	0.000***
Industry_Dummy	?	-0.324	0.012**
Year dummies: Included			
Cox & Snell R Square: 0.187 Nagelkerke R Square: 0.266			
Dependent variable: Collateral Upward audit firm change: 60 Downward audit firm change: 26 Lateral audit firm change: 712 No change in an audit firm: 3555 Total N: 4353			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 24: The effect of an audit partner change without an audit firm change on debt financing with SOE

	Expected sign	Coefficient	Sig.
Constant	?	7.409	0.000***
Partner_Change_Firm_NoChange	+	0.207	0.014**
Man_Partner_Change	?	-0.071	0.707
Prior_MAO	+	0.201	0.713
Age	+	0.037	0.000***
Leverage	+	1.580	0.000***
Loan_Size	-	-0.449	0.000***
CFO	-	-1.259	0.022**
Current_Ratio	-	-0.003	0.899
SOE	?	-0.365	0.000***
Industry_Dummy	?	-0.283	0.048**
Year dummies: Included			
Cox & Snell R Square: 0.203 Nagelkerke R Square: 0.285			
Dependent variable: Collateral An audit partner change without an audit firm change: 1949 No change in an audit partner and no change in an audit firm: 1606 Total N: 3555			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Table 25: The effect of no change in audit partners, but an audit firm change on debt financing with SOE

	Expected sign	Coefficient	Sig.
Constant	?	7.774	0.000***
Partner_NoChange_Firm_Change	+	0.516	0.073*
Man_Firm_Change	?	0.583	0.186
Prior_MAO	+	-0.150	0.812
Age	+	0.039	0.004***
Leverage	+	1.349	0.000***
Loan_Size	-	-0.456	0.000***
CFO	-	-1.912	0.012**
Current_Ratio	-	-0.027	0.467
SOE	?	-0.367	0.005***
Industry_Dummy	?	-0.232	0.236
Year dummies: Included			
Cox & Snell R Square: 0.205 Nagelkerke R Square: 0.286			
Dependent variable: Collateral No change in audit partners, but an audit firm change: 193 No change in an audit partner and no change in an audit firm: 1606 Total N: 1799			

*, ** and *** denote significance at 0.10, 0.05 and 0.01 levels, respectively

Appendix: Definitions of all variables

Collateral	a dummy variable equal to one if bank debt is backed by any collaterals and zero otherwise
Firm_Up	a dummy variable equal to one if an audit firm changes from non-Big N to Big N and zero otherwise
Firm_Down	a dummy variable equal to one if an audit firm changes from Big N to non-Big N and zero otherwise
Firm_Lateral	a dummy variable equal to one with an audit firm changes from Big N to Big N and non-Big N to non-Big N and zero otherwise
Partner_NoChange_Firm_Change	a dummy variable equal to one in the situation that no change in audit partners, but an audit firm change and zero for no change in an audit firm and audit partners
Partner_Change_Firm_NoChange	a dummy variable equal to one in the situation that an audit partner change without an audit firm change and zero for no change in an audit firm and audit partners
Man_Firm_Change	a dummy variable equal to one if there is a mandatory audit firm change and zero otherwise
Man_Partner_Change	a dummy variable equal to one if there is a mandatory audit partner change and zero otherwise
Partner_Change	a dummy variable equal to one if there is an audit partner change and zero otherwise
Firm_Change	a dummy variable equal to one if there is an audit firm change and zero otherwise
Partner_NoChange_Firm_Down/Lateral	a dummy variable equal to one in the situation that no change in audit partners, but an audit firm change in downward and lateral directions and zero for no change in an audit firm and audit partners
Firm_ Down/Lateral	a dummy variable equal to one if an audit firm changes from Big N to non-Big N, Big N to Big N, and non-Big N to non-Big N and zero otherwise
Loan_Maturity	the length of the loan term
Prior_MAO	a dummy variable equal to one if the company received modified audit opinion in the previous year and zero otherwise
Age	the number of years since listed

Leverage	total liabilities to total assets ratio
Loan_Size	a natural logarithm of the loan size
CFO	cash flows from operations scaled by total assets
Current_Ratio	current assets to current liabilities ratio
SOE	a dummy variable equal to one if the firm is a state-owned enterprise and zero otherwise
Industry_Dummy	a dummy variable equal to one if the company is in the manufacturing sector and zero otherwise
Year dummies	Year dummies from 2007-2014

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