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# Does Auditor Industry Expertise Affect Bank Loan Costs?

## Introduction

We examine the association between auditor industry specialization and features of loan contracts including interest rates, the number of covenants and the likelihood of collateral. Over the past two decades, US firms have come to rely on bank loans as a key source of external financing. At times, the amount of bank loan financing was larger than the total amount of equity and bond financing<sup>1</sup>. But since firms may be hesitant to provide complete and accurate information when applying for financing, banks face an adverse selection problem when making loans. Reducing information asymmetry between banks and borrowers can mitigate adverse selection.

Previous literature points out that accounting information can resolve information asymmetry and thus alleviate the adverse selection problem in loan contracting (Smith and Warner 1979; Watts and Zimmerman 1978, 1986, 1990; Armstrong, Guay and Weber 2010, etc). For instance, covenants associated with loan contracts are often based on accounting information about working capital or debt-to-equity ratios. In fact, banks are likely to strengthen price and non-price loan terms if borrowers provide poor quality accounting information (Bharath, Sunder and Sunder 2008).

As public watchdogs, in a sense, auditors help to ensure that firms provide accounting information that conforms with Generally Accepted Accounting Principles. Firms hiring good

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<sup>1</sup>For example, according to the Loan Pricing Corporation and Securities Industry and Financial Markets Association, in 2005, issuances of bank loans amounted to 1,500 billion U.S. dollars while stock issuances amounted to 115 billion U.S. dollars and issuances of corporate bonds amounted to 700 billion dollars.

auditors can improve the quality of their accounting information and obtain bank loans with favorable loan terms. Previous studies examine the role of auditing in bank loan contracting with respect to hiring auditors (Blackwell, Noland and Winters 1998; Minnis 2011), the size of audit firms (Kim and Song 2011), and audit opinions (Chen, He, Ma and Stice 2015).

Our study focuses on the role of industry specialist auditors in the bank loan contracting process. We predict that firms employing industry specialist auditors are more likely to receive bank loan contracts with more favorable price and non-price terms. Firms that retain industry specialist auditors can provide better quality accounting information by decreasing discretionary accruals and improving disclosure quality (Balsam, Krishnan and Yang 2003; Krishnan 2003; Dunn and Mayhew 2004). Banks can easily find out the names of auditors who have expertise in a specific industry through word-of-mouth or by investigating which auditors have large market shares in a particular industry or even by examining publicly available information (e.g. Chasan 2012). Banks may consider financial statements evaluated by these auditors to be more credible and valuable. Better accounting information enables banks to predict future cash flows of the borrower and reduce contracting and monitoring costs. Accordingly, banks may be more likely to loosen bank loan terms.

To test the association between industry specialist auditors and bank loan contracts, we examine a large sample of US companies from 2000 to 2010. We test three major loan terms: loan spreads (interests)<sup>2</sup>, the number of general and financial covenants, and requirements for collateral. We construct six proxies for auditor industry expertise to evaluate both the auditor's share in the particular industry and the auditor portfolio share. We control for many factors

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<sup>2</sup> According to the Dealscan database, the interest rate is the all-in loan spread drawn defined as the amount the borrower pays in basis point over LIBOR or LIBOR equivalent for each dollar drawn down for the bank loan.

relating to bank loan contracts, including firm and loan characteristics, macroeconomic terms, and industry and year effects.

Our empirical results are consistent with our predictions. We find that banks recognize the benefits of industry specialist auditors and award more favorable price and non-price terms to borrowers who retain these auditors. In fact, auditor industry expertise is associated with a reduction in interest rates, the number of covenants, and the likelihood of a loan being secured by collateral.

We perform several robustness tests, including firm-level regressions, the exclusion of firms with multiple facilities in one year, the regression analysis by industry, the Heckman two-stage models, the propensity score-matching method, alternative measures of auditor industry expertise, and regressions considering auditor switches. Results from these sensitivity tests support our major findings.

Our study adds to the literature on bank loan contracting and auditor industry expertise. First, we contribute to the literature about the role of auditing in bank loan contracting. Blackwell et al. (1998) and Minnis (2011) investigate whether hiring auditors affects bank loan contracting, especially interest rates. Kim and Song (2011) examine the relationship between auditor size and loan syndicate structure. Chen et al. (2015) show the link between audit opinions and price and non-price loan terms. We expand these studies by showing that auditor industry expertise provides incremental value to creditors after creditors consider other factors. Besides brand name, auditor industry expertise is another good measure of audit quality in terms of private debt costs.

Second, we contribute to the literature on economic consequences of auditor industry expertise. Previous studies examine accounting and economic outcomes of auditor industry expertise in terms of earnings quality (Balsam et al 2003; Krishnan 2003), fraudulent financial

reporting (Carcello and Nagy 2004), accounting restatements (Romanus, Maher, Fleming 2008), disclosure quality (Dunn and Mayhew 2004), and analyst forecast properties (Behn, Choi and Kang 2008). These studies demonstrate that auditor industry expertise improves accounting information quality and thus enhances the accuracy of earnings forecasts. Our study points to a decrease in bank loan costs as a key economic consequence of industry specialization. To our knowledge, our study is the first to investigate the impact of auditor industry expertise on the cost of private debts.

The rest of our study is organized as follows: In the next section, we review the literature and develop hypotheses. In the third section we construct our research model and then we explain our sample selection and descriptive statistics in the fourth section. The fifth section presents the regression results. The final section summarizes our findings.

## **Literature Review and Hypothesis Development**

### ***Auditor Industry Expertise***

Auditors with industry expertise, as well as big N auditors, have a better ability to improve the quality of accounting information than other auditors. Industry specialist auditors can provide better assurance than non-industry-specialist auditors because they are familiar with accounting policies and specialized contracts in specific industries (Craswell, Francis, and Taylor 1995).

Auditor industry expertise is usually measured by market share because auditors with large market shares can invest in specialization based on industry-based clientele (Craswell et al. 1995). Industry specialist auditors who have large market shares develop a reputation for industry expertise and are motivated to protect their reputation (Craswell et al. 1995). They may

resist pressure from clients and impose stricter standards on clients to reduce the risk of misleading reporting (Reynolds and Francis 2000).

Industry specialist auditors have two main areas of expertise. First, they can more readily compare the financial status of the client with the industry benchmark and are more likely to have databases of industry-specific best practices and risks (Krishnan 2003). Second, industry specialist auditors tend to invest heavily in human capital, information technology and auditing skills (Dopuch and Simunic 1982; Francis, Reichelt and Wang 2005).

The nature of industry specialization can be classified into product differentiation strategies and cost minimization strategies in different industries (Cahan, Jeter and Naiker 2011). Industry homogeneity and complexity are primary determinants of auditor specialization (Bills, Jeter and Stein 2015).

### ***Impact of Accounting and Auditing Quality on Loan Terms***

Armstrong, Guay and Weber (2010) point out that understanding the financial reporting system is crucial for creditors to determine the appropriate price and the extent and restrictiveness of covenants in debt contracts based on the risk of default. Provisions on debt covenants (for example, dividend restrictions, issuance of additional debts, capital expenditure limitations, and asset sale restrictions) are based on accounting information (Smith and Warner 1979; Watts and Zimmerman 1978, 1986, 1990). Initially, a firm may have difficulty in borrowing if its financial reports show unreliable asset values and performance measures that make predicting future cash flows or firm risk uncertain. In addition, the quality of accounting information determines the cost of debt capital. High quality accounting information reduces the cost of private debts, often resulting in lower interest rates, longer maturity, fewer covenants, and larger loan size.

Auditor assurance can reduce lenders' monitoring costs (Watts and Zimmerman 1986). Appointing high-quality auditors conveys good signals about borrowers' creditworthiness (Mansi, Maxwell and Miller 2004). Previous studies show that audit quality is used by banks to determine loan terms. Blackwell, Noland and Winters (1998) and Minnis (2011) show that since lenders consider audited financial statements (compared to unaudited financial statements) more informative, companies with audited financial statements receive lower interest rates. Kim and Song (2011) suggest that auditor size (i.e. big N auditors versus non-big N auditors ) matters to banks and thus companies hiring big N auditors have more lenders and obtain smaller proportions of syndicated loans from lead banks. Chen, He, Ma and Stice (2015) report that audit opinions communicate private information about clients' credit risk. They find that after the issuance of modified audit opinions, banks raise both price and non-price loan terms.

### ***Test of hypothesis***

Industry specialist auditors increase accounting information quality in various ways. Balsam, Krishnan and Yang (2003) and Krishnan (2003) show that specialist auditors can reduce the level of discretionary accruals, which increases the quality of earnings. Dunn and Mayhew (2004) point out that auditor industry expertise improves disclosure quality for companies in unregulated industries. Romanus, Maher and Fleming (2008) show that industry specialization decreases the likelihood of accounting restatement. Carcello and Nagy (2004) suggest that auditor industry specialization can prevent financial fraud, especially for small companies.

Best and Zhang (1993) find that banks resort to alternative information sources when evaluating firms. When the sources are reliable and show improving expected performance, banks do little further investigation. Studies suggest that audit quality plays a key role when banks set up loan contracts. Minnis (2011) reports that an independent audit relieves the problem

of adverse selection and moral hazard between preparers and users of financial statements. Kim and Song (2011) suggest that high-quality auditors (measured by big N auditors) can enhance the overall credibility of borrowers and the particular credibility of their financial statements. Chen et al. (2015) further show that audit opinions convey auditors' private information about a borrower's credit risk and financial health. Therefore, banks offer favorable loan terms or better structured syndicated loans when borrowers have good-quality auditors or receive clean audit opinions. We expect that audit opinions issued by industry specialist auditors can further resolve information asymmetry between borrowers and creditors and increase the credibility of borrowers' financial statements. It is relatively easy for banks to know if an auditor is well-known or has a large market share in the industry the borrower belongs to. Information about auditors with expertise in a specific industry may be publicly available<sup>3</sup>. Banks may consider financial statements audited by a specific auditor more valuable and trustworthy.

High quality accounting information and financial statements reduce uncertainty about future cash flows and thus decrease the cost of capital (Lambert, Leuz, Verrecchia 2007), allowing bank managers to predict future cash flows more precisely and evaluate the default risk (and determine appropriate loan terms). Banks can spend less on contracting costs because they do not need to gather financial information from other sources (Fortin and Pittman 2007). They also spend less on monitoring costs because better accounting information reduces the probability that companies may manipulate earnings to avoid debt covenant violations (DeFond and Jiambalvo 1994, Sweeney 1994). Accordingly, banks are more likely to lower costs in the

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<sup>3</sup> For example, an article from *CFO Journal* (Chasan 2012) shows that KPMG and Ernst & Young audit more than 70 percent of commercial banks. Ernst & Young and Pricewaterhouse Coopers audit nearly three-quarters of the information technology industry. Deloitte and PricewaterhouseCoopers audit 91.3 percent of the utilities sector. PricewaterhouseCoopers holds 49.3 percent of the energy sector's market value. Ernst & Young is the auditor for 79 percent of the telecommunications sector and 87 percent of the diversified telecommunications services industry by market capitalization.



loan contracting process. We first focus on the price terms of bank loans and predict a negative relation between the retention of industry specialist auditors and interest rates. The first hypothesis is:

H1: Interest rates are lower for companies retaining industry specialist auditors than for those retaining non-specialist auditors.

We also investigate the impact of specialist auditors on the non-price terms of bank loans. These terms reduces information asymmetry and minimizes conflicts between borrowers and lenders (Graham, Li and Qiu 2008, Bharath et al. 2008). We focus on two major non-price terms: the number of general and financial covenants and the likelihood of collateral requirements.

The literature on covenants suggests that covenants can reinforce the monitoring of borrowers and reduce borrowers' adverse selection and moral hazard (e.g. Rajan and Winston 1995). The financial health of a firm is negatively related to the presence and intensity of covenants in loan contracts (Bradley and Roberts 2005). As industry specialist auditors improve the credibility of financial statements, banks can rely more readily on financial statements and reduce monitoring costs (DeFond and Jiambalvo 1994, Sweeney 1994). Banks may be less likely to use covenants to monitor borrowers associated with specialist auditors. As the structure of covenants includes both the number of covenants and their restrictiveness (Bradley and Roberts 2005), the "tightness" or restrictiveness may be more important than the number. Nevertheless, while better financial statement verification offers more "hard" or objective information for decision makers, financial statement ratios are more highly associated with loan prices (Minnis 2011). Banks may also rely on ratios in financial covenants when firms retain industry-specialist auditors. We predict that banks are likely to reduce the number of general covenants but not the number of financial covenants. The second group of hypotheses is as follows:

H2a: The number of general covenants is lower for companies retaining industry-specialist auditors than for companies retaining non-specialist auditors.

H2b: There is no difference in the number of financial covenants between companies retaining industry-specialist auditors and companies retaining non-specialist auditors.

The literature on collateral shows that high risk borrowers use more collateral (e.g. Berger and Udell, 1990). If lenders have enough information about the quality of borrowers, the use of collateral is positively related to the default risk of the borrowers (Berger and Udell 1990 and Jimenez, Salas and Saurina 2006). Further, a decrease in information asymmetry reduces the incidence of collateral (Berger, Espinosa-Vega, Frame and Miller 2011). Banks are then less likely to use collateral because audit opinions issued by specialist auditors increase the reliability of borrowers' financial statements (and decrease the default risk) and reduce asymmetric information between lenders and borrowers. We predict that banks are less likely to use collateral to monitor borrowers if the borrowers employ industry specialist auditors. The third hypothesis is as below:

H3: The likelihood of a loan being secured by collateral is lower for companies retaining industry-specialist auditors than for companies retaining non-specialist auditors.

## Research Design

### *Research model*

We create the following empirical model to investigate the impact of industry specialist auditors on bank loan terms:

$$\text{Loan Terms} = f(\text{Industry Specialist Proxies, Firm Characteristics, Loan Characteristics, Industry Effects, Year Effects}) \quad (1)$$

The dependent variables are proxies for price and non-price bank loan terms. The proxy for the price term is  $\text{Log}(\text{Loan Spreads})$ , the natural log of loan spreads. The proxies for the non-

price terms are *General Covenants*, *Financial Covenants*, *Secured*. *General Covenants* represents the number of general covenants for a bank loan while *Financial Covenants* shows the number of financial covenants attached to a bank loan. *Secured* is a dummy variable equaling one if the bank loan is secured by collateral, and zero otherwise.

The independent variables refer to proxies of auditor industry expertise. We use six proxies: *Dominance*, *Share*, *Mostcl*, *Sharecl*, *Shareaud* and *Shareclaud*. *Dominance* is a dummy variable equaling one if the auditor has the largest market share (measured by client sales) in an industry classified by Fama and French (1997)<sup>4</sup> and its market share is at least 10 percent greater than that of the auditor who has the second-largest market share, and zero otherwise. *Share* represents the market share of the auditor (measured by client sales) in the Fama-French industry. *Mostcl* is a dummy variable equaling one if the auditor has the largest number of clients in the Fama-French industry, and zero otherwise. *Sharecl* denotes the market share of the auditor (measured by number of clients) in the Fama-French industry. *Shareaud* denotes the total sales of the auditor's clients in the Fama-French industry divided by the total sales of all clients for that auditor (portfolio share by sales). *Shareclaud* represents the total number of the auditor's clients in the Fama-French industry divided by the total number of all clients for that auditor (portfolio share by number of clients). The first three measures are based on Balsam *et al.* (2003) and the last two are based on Krishnan (2003). These measures capture the notion that the extent of the auditor's business in the industry represents the auditor's industry expertise. These measures also consider both the number of clients and the relative size of clients.

We control for five firm-specific variables: *Leverage*, *Firm size*, *Profit*, *M/B ratio*, and *Z – score*. *Leverage* represents total debts divided by total assets. *Firm size* denotes the

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<sup>4</sup>Fama and French (1997) classify US industries into 48 groups, which are used by most top-tier accounting researchers. Many research papers published in the top three accounting academic journals use this industry classification.

natural log of total assets. *Profit* represents earnings before interest, taxes, depreciation and amortization divided by total assets. *M/B ratio* denotes market value of equity plus book value of debts divided by total assets. *Z – score* represents the modified Altman’s Z-score.<sup>5</sup> *Leverage*, *Firm size*, *Profit* and *M/B ratio* are included to control for companies’ financial condition closely tied to the default risk. Companies with low leverage, large firm size and high profits are associated with low default risk and have low borrowing costs (Bharath et al. 2008). *M/B ratio* measures firm growth. A company with better growth opportunities (large M/B ratios) is more likely to receive low interest rates (Graham et al. 2008). *Z – score* is selected to further control for default risk. A high Z-score represents good financial health and is related to low borrowing costs (Graham et al. 2008).

We further control for seven loan-specific variables: *Syndication*, *Log(maturity)*, *Loan size*, *Rating*, *Performance pricing*, *Prior relation*, and *Log(prior deals)*. *Syndication* equals 1 if the loan is syndicated and 0 otherwise. *Log(Maturity)* denotes the natural log of bank loan maturity in months. *Loan size* denotes the natural log of the amount of a bank loan. *Rating* represents the S&P debt rating from DealScan<sup>6</sup>. *Performance pricing* equals 1 if the loan contract shows performance pricing provisions and 0 otherwise. *Prior relation* equals 1 if the firm borrowed from the lead bank before the current bank loan was issued and 0 otherwise. *Log(prior deals)* denotes the natural log of the total number of previous loans initiated by the same firm within five years. *Syndication*, *Log(maturity)*, *Loan size*, *Rating*, and *Performance pricing* are chosen because previous studies indicate

<sup>5</sup> Following Graham et al. (2008), we use the modified Z-score, equal to  $(1.2 \times \text{Working capital} + 1.4 \times \text{Retained earnings} + 3.3 \times \text{EBIT} + 0.999 \times \text{Sales}) / \text{Total assets}$ .

<sup>6</sup> Based on Qian and Strahan (2007), *Rating* is a score whose range is between one and seven. A rating of seven indicates AAA rating, six indicates AA, five indicates A, four indicates BBB, three indicates BB, two indicates B, and one indicates all the ratings below B and missing ratings.

that loan-specific features are related to price and non-price terms of loan contracts (e.g. Qian and Strahan 2007, Bharath et al. 2008, Graham et al. 2008). Syndicated loans, which differ from bank loans, represent a combination of private and public debt (Dennis and Mullineaux 2000). Loan maturity is negatively related to default risk and interest rates while loan size is positively associated with interest rates (Bharath et al. 2008). Firms with low credit ratings tend to have high borrowing costs (Qian and Strahan 2007). Bank loans with performance pricing may have different interest rates (Graham et al. 2008). *Prior relation* and *Log(prior deals)* are included to control for the lock-up problem (Sharpe 1990 and Rajan 1992), which suggests that the prior relation between banks and borrowers changes the features of subsequent bank loan contracts.

We finally control for the influence of microeconomic cycles (*Credit spread* represents the difference between the yields on BAA and AAA corporate bonds; *Term spread* denotes the difference between the yields on ten-year and two-year Treasury bonds). We also control for loan purpose and loan types by using dummy variables for different loan purposes and loan types<sup>7</sup>. We use additional dummy variables to control for the effects of different years and industries.

## Sample Selection and Descriptive Statistics

### *Sample Selection*

Bank loan information comes from the Dealscan database by the Loan Pricing Corporation (LPC)<sup>8</sup>. For each year, a firm obtains one or several loan deals from the bank and each deal includes one or several facilities, which may have different contract terms. The basic level of

<sup>7</sup> We classify loan types into five categories: 364-day facility, revolver, revolver/term loan, term loan and others. We subgroup loan purposes into seven categories: acquisition lines, acquisition facility, corporate purpose, debt repayment, LBO/MBO, working capital and others.

<sup>8</sup> The Dealscan database provides different loan information for private firms and public firms, starting with data from 1986.

loans is at the facilities and our main regressions rely on the firm-year-facility observations. Therefore, the same industry specialist proxies and firm-specific variables are used several times for different facilities in one firm-year. The information for calculating auditor industry expertise and the accounting information are collected from the annual Compustat database. We match firms from Dealscan with firms from Compustat by using the link table in Chava and Roberts (2008).

Based on the literature on auditor industry expertise (Balsam et al. 2003, Krishnan 2003), we restrict our sample to firms audited by big N auditors to exclude the influence of brand name auditors. We exclude firms in the financial industry (SIC code 6000-6999) because accounting procedures and computation of accounting accruals in this industry are quite different from those in other industries (Sweeney 1994 and Becker, Defond, Jiambalvo and Subramanyam 1998). After deleting observations lacking necessary loan information, industry expertise or accounting information, our full sample consists of 25,463 firm-year-facility observations during the sample period from 2000 to 2010.

### ***Descriptive statistics***

Table 2 shows descriptive statistics (including mean, median, standard deviation, first and third quartiles) for each dependent variable, auditor industry expertise proxy, firm characteristic variable, and loan characteristic variable. All continuous variables are winsorized at the top and bottom one percent to exclude outliers. For the dependent variables, the mean (median) *Log(loan spreads)* is 4.94 (5.16), indicating that the mean (median) loan spread is 140 (175) basis points. The mean *Secured* of 0.75 shows that about 75 percent of the facilities are secured by collateral. On average, each facility has two general covenants (mean *General Covenants* is 2.47) and two financial covenants (mean *Financial Covenants* is 1.63). For the auditor industry expertise

proxies, the mean *Dominance* (0.21) almost equals the mean *Mostcl* (0.22), suggesting that the auditors with the largest number of clients also dominate in market share. The means (medians) *Shareaud* and *Shareclaud* are smaller than the means (medians) *Share* and *Sharecl*, showing that big N auditors diversify their business into different industries and yet occupy a relatively large market share in each industry.

For the firm characteristic variables, the means for *Leverage*, *Firm Size*, *Profit*, *Market-to-Book* and *Z-Score* are 31 percent, 6.59, 0.12, 1.78 and 1.52 respectively, indicating that our sample firms are relatively highly leveraged, large, profitable and less risky than average Compustat firms. For the loan characteristic variables, the means for *Syndication*, *Log(maturity)*, *Loan Size*, *Rating*, *Performance Pricing*, *Prior Relation* and *Log(Prior Deals)* are 0.86, 3.54, 18.19, 1.98, 0.41, 0.51 and 1.44 respectively, suggesting that the mean maturity is 35 months and the mean loan amount is \$79 million. The majority of loans are syndicated and about half include performance pricing provisions.

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 Insert Table 2 here  
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Table 3 shows the Pearson and Spearman correlations among independent variables of industry expertise proxies, dependent variables of loan terms, and firm characteristics. Five out of six industry expertise proxies (*Dominance*, *Share*, *Mostcl*, *Sharecl*, *Shareaud*) are negatively correlated with *Log(Loan Spreads)* at the one percent level. This is strong evidence that employing auditors with industry expertise is associated with lower interest rates. At least four out of six industry expertise proxies are negatively correlated with *Secured* at the one percent level, showing that increased industry expertise reduces the likelihood of being secured by collateral. Some industry expertise proxies are negatively correlated with *General Covenants* and

*Financial Covenants* at the one percent level, suggesting some evidence that retaining industry experts decreases the number of general or financial covenants. Consistent with the banking literature, *Log(Loan Spreads)* is positively related to *Leverage*, and negatively related to *Firm Size*, *Profit*, *Market-to-Book* and *Z-Score*.

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Insert Table 3 here  
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## **Empirical Results<sup>9</sup>**

### ***Effect of industry-specialist auditors on bank loan price term***

Table 4 shows the OLS regression results for the bank loan cost regressions. The standard errors of all OLS regressions are adjusted for the within-firm clustering to alleviate concerns over residual serial correlation. The dependent variable is the natural log of loan spreads and each column uses an individual proxy for auditor industry expertise. The results show that for each column, the estimated coefficient on auditor industry proxies (*Dominance*, *Share*, *Mostcl*, *Sharecl*, *Shareaud*, *Shareclaud*) is negative and significant. In particular, the coefficient of *Dominance* equals -0.046 and the coefficient of *Mostcl* equals -0.064, indicating that a firm retaining an auditor with the largest market share or the most clients in the Fama-French industry, has, on average, loan spreads about 4.5 percent (about 9 basis points) or 6.2 percent (about 13 basis points) lower, respectively, than a firm retaining other auditors<sup>10</sup>. The coefficients of *Share*,

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<sup>9</sup> Each regression includes a constant term. For reporting convenience, we do not show the coefficients of the constant terms in Tables 4 through 12.

<sup>10</sup> For firms retaining auditors with the largest market share in the Fama-French industry, the loan spreads decrease by 4.5% ( $1 - \exp(-0.046) = 0.045$ ) and thus the loan spreads decrease by approximately nine basis points on average (mean 208 basis points of observations not associated with *Dominance* multiplied by 4.5%). For firms having auditors with the most clients in the Fama-French industry, the loan spreads are reduced by about thirteen



*Sharecl*, *Shareaud*, and *Shareclaud* are -0.201, -0.313, -0.257 and -0.278 respectively, which shows that if these variables increase by 10 percent, loan spreads will decrease by approximately 1.8 percent ( $10 - \exp(-0.201) \times 10 = 1.82$ ), 2.7 percent ( $10 - \exp(-0.313) \times 10 = 2.69$ ), 2.3 percent ( $10 - \exp(-0.257) \times 10 = 2.27$ ), or 2.4 percent ( $10 - \exp(-0.278) \times 10 = 2.43$ ) respectively<sup>11</sup>.

The coefficients for both firm characteristics and loan features are consistent with the literature (e.g., Qian and Strahan 2007; Graham et al. 2008; Bharath et al. 2008). *Firm Size*, *Profit*, *Market-to-book* and *Z-Score* are all significantly negatively related to loan spreads, while *Leverage* is positively related to loan spreads, suggesting that firms with higher default risks pay higher interest rates. *Loan Size*, *Rating*, and *Prior Relation* are negatively related, while *Log(Prior Deals)* is positively related to loan spreads.

To sum up, the results in Table 4 strongly support our first hypothesis that loan prices are likely to decrease if the auditor has better industry expertise<sup>12</sup>. Lenders consider industry-specialist auditors a valuable determinant after considering the firm and loan characteristics of borrowers.

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basis points (mean 204 basis points of observations not associated with *Mostcl* multiplied by 6.2% ( $1 - \exp(-0.064)=0.062$ )).

<sup>11</sup>It is difficult to calculate the reduction in basis points of loan spreads because *Share*, *Sharecl*, *Shareaud*, and *Shareclaud* are not dummy variables and there is no control group to compare them with.

<sup>12</sup>Our unreported regression results on audit fees show that the percentage increase in audit fees is slightly higher than the percentage decrease in loan spreads when a firm retains an industry specialist auditor.

### *Effect of industry specialist auditors on bank loan non-price terms*

If banks have more trust in information provided by industry specialist auditors, they **would** not only lower the loan rate but also revise non-price contract terms. We investigate three major non-price loan properties: the number of general covenants, the number of financial covenants, and the likelihood of being secured by collateral.

#### *Number of covenants*

Table 5 shows the regression results for tests of the impact of industry specialist auditors on the number of general covenants or financial covenants in bank loan contracts. We run a negative binomial regression where the dependent variable is the number of general covenants (Panel A) or the number of financial covenants (Panel B)<sup>13</sup>. In Panel A, the estimated coefficients of *Dominance*, *Mostcl*, and *Sharecl* are significant and negative. The coefficient of *Dominance* equals -0.044 and the coefficient of *Mostcl* equals -0.055, suggesting that, on average, retaining industry specialist auditors, as measured by the largest market share, can decrease approximately 0.11 general covenants. Retaining industry expertise auditors when measured by the most clients can reduce approximately 0.14 general covenants<sup>14</sup>. In Panel B, the estimated coefficients of *Mostcl*, *Shareaud*, and *Shareclaud* are significant and negative. The coefficient of *Mostcl* equals -0.027, indicating that, on average, the retention of industry specialist auditors as measured by the most clients can reduce about 0.04 financial covenants (mean 1.64 financial covenants of observations not associated with *Mostcl* multiplied by 2.7%). The results partially support our

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<sup>13</sup> The counts of general covenants and financial covenants in each deal follow the Poisson distribution. The negative binomial regression is used to account for the Poisson variation.

<sup>14</sup> For firms having auditors with the largest market share in the Fama-French industry, the number of general covenants decreases by about 0.11 (mean 2.5 general covenants of observations not associated with *Dominance* multiplied by 4.4%). For firms hiring auditors with the most clients in the Fama-French industry, the number of general covenants is reduced by about 0.14 (mean 2.48 general covenants of observations not associated with *Mostcl* multiplied by 5.5%).

second hypothesis that banks impose fewer general covenants on loan contracts when borrowers employ specialist auditors.

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### *Collateral*

Table 6 shows the logistics regression results for the impact of auditor industry expertise on loan collateral requirements. The dependent variable is the likelihood of a loan being secured by collateral. Since some observations lack information about whether the loan was secured, the sample size is reduced to 17,733 firm-year-facility observations. The results indicate that when the independent variable is *Dominance*, *Share*, *Mostcl*, or *Sharecl*, there is a significant negative relationship between the likelihood of a loan being secured and the auditor's industry expertise, when different control variables are included. The results in Table 6 are generally consistent with our third hypothesis that banks are less likely to require collateral for borrowers who employ specialist auditors.

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Insert Table 6 here  
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### ***Robustness Test***

#### *Firm-level regressions*

In our sample, each observation is based on a facility-level bank loan, but a borrower may have several loan facilities each year and these facilities may not be independent. If we disregard the dependency among facilities, we may inflate the statistical significance. To solve this problem, we keep only one facility, with the largest loan for every firm-year and we drop other facilities in

the same firm-year. Therefore, our sample size is reduced to 16,114 observations while each observation is based on the firm-year level (instead of the firm-year-facility level). We rerun each of the regression analyses by using this firm-level sample.

Table 7 presents the regression results based on the reduced firm-level sample. Panel A focuses on loan price terms while Panels B, C, and D focus on non-price loan terms as reflected in the number of general covenants, the number of financial covenants, and collateral. Panel A shows that the estimated coefficient of each auditor industry expertise proxy is significant and negative. Panel B indicates that two expertise proxies (*Dominance* and *Mostcl*) have significantly negative coefficients while Panel C shows that three expertise proxies (*Mostcl*, *Shareaud*, and *Shareclaud*) have significantly negative coefficients. Panel D indicates that the estimated coefficients of three expertise proxies (*Dominance*, *Mostcl*, and *Sharecl*) are significant and negative. In general, the main results are qualitatively unchanged. Our major findings are confirmed that firms retaining industry-specialist auditors enjoy more favorable price and non-price terms<sup>15</sup>.

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 Insert Table 7 here  
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#### *Exclusions of firms with multiple facilities in a year*

Our sample includes 3,831 firms that each year have multiple facilities that may be correlated and increase the statistical significance. In this robustness test, we drop these firms and keep only firms with one facility in a year. This exclusion reduces our sample to 1,157 observations (1,157 firms).

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<sup>15</sup>We also use another firm-level sample by keeping the first facility for every firm-year. Our unreported regression results based on this reduced sample are similar to the results from Table 7.

Table 8 shows the regression results based on this sub-sample. Again, Panels A, B, C, and D stand for loan spreads, general covenants, financial covenants and collateral respectively. Panel A indicates that *Mostcl* has a significantly negative coefficient. In Panel B, none of the auditor industry expertise proxies has a significant coefficient and in Panel C only *Shareclaud* has a significantly negative coefficient. Panel D shows that only the estimated coefficient of *Mostcl* is significant and negative. Therefore, the impact of specialist auditors on loan price and non-price terms almost disappears after we drop the observations of firms with multiple facilities in a year. This indicates that our major findings apply to firms that get more than one loan during one year.

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Insert Table 8 here  
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### *Regression Analysis by Industry*

We establish the relationship between auditor industry specialization and a reduction in borrowing costs, but a further concern arises about whether the association between industry specialization and debt costs varies for different industries. We rerun the regressions on loan spreads for seven industries - agriculture and mining (SIC code 100-1499), construction (SIC code 1500-1999), manufacturing (SIC code 2000-3999), transportation and utilities (SIC code 4000-4999), trade (SIC code 5000-5999), services (SIC code 7000-8999), and public administration (SIC code 9000-9999).

Table 9 shows the regression results for the first six industries<sup>16</sup>. The manufacturing sector has the largest share of observations (11,749 firm-year-facility observations) while the services sector has the second largest share (4,148 firm-year-facility observations) and the trade sector has the third largest share (3,943 firm-year-facility observations). For regressions in the trade sector, four out of the six expertise proxies (*Dominance*, *Share*, *Mostcl* and *Shareaud*) have significant and negative coefficients. For regressions in the transportation and utilities sector, three expertise proxies (*Share*, *Mostcl* and *Sharecl*) have significant and negative coefficients. For regressions in the manufacturing sector, three expertise proxies (*Mostcl*, *Shareaud* and *Shareclaud*) have significant and negative coefficients.

To sum up, the relationship between industry specialization and borrowing costs differs across industries. The relationship applies mainly to the trade, transportation and utilities and manufacturing sectors. Our findings may be consistent with the notion that industry specialist auditors are not all the same and their strategies differ across industries (Cahan et al 2011).

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 Insert Table 9 here  
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### *Endogeneity*

Endogeneity reflects the concern that firms with better quality financial reporting may be more likely to hire industry specialist auditors. To address this issue, we use two well-accepted methodologies: the Heckman two-stage regressions and the propensity-score matching approach.

The Heckman two-stage selection model controls for the self-selection bias in firms' choices of specialist auditors. Initially, we run a first-stage probit model to regress the dummy variable of

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<sup>16</sup>We exclude regression results for the public administration sector because there are only 20 firm-year-facility observations and the results are not valid.

*Dominance* or *Mostcl* on leverage, firm size, profit, market-to-book ratio, z-score, year and industries. We obtain an inverse Mills ratio from this regression to account for the self-selection bias of specialist auditors. Then in the second stage we rerun all the regressions by adding the inverse Mills ratio as one control variable.

Panel A of Table 10 shows that the coefficients on *Dominance* and *Mostcl* are significantly negative for regressions on loan spreads and collateral. Both *Dominance* and *Mostcl* have significantly negative coefficients for regressions on general covenants and *Mostcl* has a significantly negative coefficient for regressions on financial covenants. After considering the endogeneity of the choice of industry-specialist auditors, the regression results still support our hypotheses that lenders charge lower risk premiums when firms retain specialists.

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Insert Table 10 here  
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We then apply the propensity-score matching process, which can mitigate the misspecification problems from nonlinearity by decreasing the correlations between the specialist variable and the matching variables (Minutti-Mezza 2013). We first run a logistic regression of either the *Dominance* or the *Mostcl* dummy variable on leverage, firm size, profit, market-to-book ratio, z-score, year and industries. Then we conduct a match of one-to-one nearest neighbor with replacement to come up with a control group that is not associated with industry-specialists. Hence each firm-year-facility observation with the specialist variable is paired with an observation without the specialist variable. We have a pooled sample of 10,574 firm-year-facility observations for the *Dominance* variable and 11,276 firm-year-facility observations for the *Mostcl* variable. We then rerun the regressions on loan spreads, covenants, and collateral.

Panel B of Table 10 shows that the coefficients on *Dominance* are significantly negative for the regressions on loan spreads, general covenants and collateral. The coefficients on *Mostcl* are significantly negative for the regressions on loan spreads and collateral and are significantly positive for the regression on financial covenants. The results hold after we reduce the sample selection bias by using the propensity-score matching approach.

In sum, results from both the Heckman and propensity-score matching approaches confirm our findings that retaining industry-specialist auditors helps firms obtain more favorable loans.

#### *Alternative measures of industry specialists*

Behn et al. (2008) state that auditor industry expertise may matter more for the audit quality of non-big N clients because those auditors have fewer clients and are less experienced. We use alternative measures of industry specialist auditors by expanding our sample to include firms audited by both big N auditors and non-big N auditors and by calculating the six industry expertise proxies based on this new sample. Our sample size increases to 26,773 firm-year-facility observations.

Table 11 shows that for the regressions on loan spreads, each industry expertise proxy has a significant and negative coefficient. The coefficients of four expertise proxies (*Dominance*, *Share*, *Mostcl* and *Sharecl*) are significant and negative for the regressions on general covenants while the coefficients of three expertise proxies (*Mostcl*, *Shareaud* and *Shareclaud*) are significant and negative for the regressions on financial covenants. Finally, for the regressions on collateral, four expertise proxies (*Dominance*, *Share*, *Mostcl* and *Sharecl*) have significant and negative coefficients. Therefore, the regression results based on alternative measures of industry expertise are consistent with our major findings.



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Insert Table 11 here  
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### *Auditor changes*

A borrower can switch its auditor over the course of a loan agreement. To investigate the impact of auditor changes on price and non-price loan terms, we add two dummy variables to our models: one to measure a switch from a non-specialist to a specialist and another to measure a switch from a specialist to a non-specialist<sup>17</sup>.

Table 12 shows the regression results when auditor changes are considered. Panels A, B, C, and D represent loan spreads, general covenants, financial covenants and collateral, respectively. Panel A indicates that for each expertise proxy, the dummy variable representing a switch from a specialist to a non-specialist has a significant and positive coefficient. Moreover, the magnitude of the coefficient showing a specialist-to-non-specialist switch is larger than that representing a non-specialist-to-specialist switch. The results indicate that a bank charges higher interest rates when a borrower switches from a specialist auditor to a non-specialist auditor and that the increase in interest rates is higher for a specialist-to-non-specialist switch than a non-specialist-to-specialist switch. Panels B and C show that only for the expertise proxy of *Share*, the coefficient of the dummy variable for a specialist-to-non-specialist switch is more positive than that for a non-specialist-to-specialist switch. Panel D indicates that for the proxy of *Sharecl*, the

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<sup>17</sup>For the *Dominance* and *Mostcl* variables, we define a switch from a non-specialist auditor to a specialist auditor if the value of *Dominance* or *Mostcl* changes from zero to one. Alternatively, a borrower changes from a specialist auditor to a non-specialist auditor if the value of *Dominance* or *Mostcl* decreases from one to zero. For the *Share*, *Sharecl*, *Shareaud*, and *Shareclaud* variables, we define a switch from a non-specialist to a specialist if the value of *Share* (*Sharecl*, *Shareaud* or *Shareclaud*) associated with a previous auditor is smaller than that associated with a current auditor. A borrower switches to a non-specialist auditor if the value of *Share* (*Sharecl*, *Shareaud* or *Shareclaud*) decreases after the auditor change.

dummy variable for a specialist-to-non-specialist switch has a more positive coefficient than the dummy variable for a non-specialist-to-specialist switch.

To sum up, the regression results show that banks raise debt costs if borrowers change their auditors from specialists to non-specialists. Our major findings are confirmed that compared with firms associated with other auditors, firms employing industry-specialist auditors receive more favorable loan terms.

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Insert Table 12 here  
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## **Conclusion**

In this study, we examine whether auditor industry expertise affects features of bank loans. We expect that industry specialist auditors have a better ability to detect intentional and unintentional accounting errors, helping to ensure that banks can rely on the accounting information to predict future cash flows and assess borrowers' ability to repay the principal and interests. Banks may also reduce loan-related contracting costs and monitoring costs based on better accounting information. Accordingly, banks have more trust in firms that retain industry specialists and offer loan contracts with more favorable price and non-price terms.

Our empirical results support our expectations. After controlling for firm and loan characteristics, macroeconomic conditions, industry and year effects, our regression analyses show that increased auditor industry expertise is related to lower loan spreads. In addition, increased auditor industry expertise is associated with a smaller number of covenants and a lower likelihood of a loan being secured by collateral. These findings are supported by firm-level

regressions, regressions excluding firms with multiple facilities, regressions by industries, Heckman two-stage regressions, the propensity-score matching approach, regressions using alternative specialist proxies, and regressions considering auditor changes.

To the best of our knowledge, our study is the first to link auditor industry specialization to bank lending decisions. Our study highlights the importance of auditor industry expertise to the bank loan contracting process, in addition to other key auditor characteristics. We show that auditor industry expertise is an additional determinant of bank loan costs. Our study also identifies a valuable economic outcome for a firm that retains an industry-specialist auditor: receiving more favorable bank loan contracts. This turns out to be another benefit of hiring an industry-specialist auditor and firms should take this into consideration when looking for auditors. Our study should be useful to firms that want to reduce costs of private debts, to creditors interested in seeking good-quality borrowers, and to researchers interested in identifying factors affecting bank loan terms.

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**TABLE 1**  
**Variable Definitions**

<b>Variable</b>	<b>Definition</b>
<i>Log(Loan Spreads)</i>	= The natural log of loan spread (AISD), which is the all-in spread drawn defined as the amount the borrower pays in basis point over LIBOR or LIBOR equivalent for each dollar drawn down for the bank loan.
<i>Secured</i>	= Dummy variable equal to one if the bank loan is secured, and zero otherwise.
<i>General Covenants</i>	= Number of general covenants attached to a bank loan.
<i>Financial Covenants</i>	= Number of financial covenants attached to a bank loan.
<i>Dominance</i>	= Dummy variable for industry dominance, which equals to 1 if the auditor has the largest market share (measured by client sales) in an industry classified by the Fama and French (1997) industry and its market share is at least 10 percent greater than that of the auditor who has the second-largest market share, and 0 otherwise.
<i>Share</i>	= Market share by client sales, which equals to the market share of the auditor (measured by client sales) in the Fama-French industry.
<i>Mostcl</i>	= Dummy variable for most clients, which equals to 1 if the auditor retains the most clients in the Fama-French industry, and 0 otherwise.
<i>Sharecl</i>	= Market share by number of clients, which equals to the market share of the auditor (measured by number of clients) in the Fama-French industry.
<i>Shareaud</i>	= Auditor portfolio share by client sales, which equals to the total sales of the auditor's clients in the Fama-French industry divided by total sales of all clients for that auditor.
<i>Shareclaud</i>	= Auditor portfolio share by number of clients, which equals to the total number of the auditor's clients in the Fama-French industry divided by total number of all clients for that auditor.
<i>Leverage</i>	= Total debt (long term debt plus debt in current liabilities) divided by total assets.
<i>Firm Size</i>	= The natural log of total assets.
<i>Profit</i>	= Earnings before interest, taxes, depreciation and amortization (EBITDA) divided by total assets.
<i>Market-to-Book</i>	= The market value of equity plus book value of debt divided by total assets.
<i>Z-Score</i>	= $1.2 \times \text{Working capital} + 1.4 \times \text{Retained earnings} + 3.3 \times \text{EBIT} + 0.999 \times \text{Sales}$ , divided by total assets.
<i>Syndication</i>	= Dummy variable which equals one if the loan is a syndicated

		loan, and zero otherwise.
<i>Log(Maturity)</i>	=	The natural log of bank loans' maturity in months, and zero otherwise.
<i>Loan size</i>	=	The natural log of the amount of a bank loan.
<i>Rating</i>	=	The S&P debt rating from Dealscan.
<i>Performance Pricing</i>	=	Dummy variable which equals one if the bank loan includes performance pricing provisions, and zero otherwise
<i>Prior Relation</i>	=	Dummy variable which equals one if the lead bank has once loaned to the firm before the current bank loan, and zero otherwise.
<i>Log(Prior Deals)</i>	=	The natural log of the total number of previous loans initiated by the same firm within the past five years.
<i>Credit Spreads</i>	=	The difference between the yields on BAA and AAA corporate bonds.
<i>Term Spreads</i>	=	The difference between the yields on 10-year and two-year Treasury bonds

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**TABLE 2**  
**Descriptive Statistics**

<b>Variables</b>	<b>Mean</b>	<b>1st Quartile</b>	<b>Median</b>	<b>3rd Quartile</b>	<b>Std. Dev.</b>
<i>Log(Loan Spreads)</i>	4.94	4.32	5.16	5.62	0.97
<i>Secured</i>	0.75	0	1	1	0.44
<i>General Covenants</i>	2.47	0	1	5	2.94
<i>Financial Covenants</i>	1.63	0	1	3	1.86
<i>Dominance</i>	0.21	0	0	0	0.41
<i>Share</i>	0.21	0.13	0.19	0.27	0.12
<i>Mostcl</i>	0.22	0	0	0	0.42
<i>Sharecl</i>	0.17	0.13	0.16	0.20	0.06
<i>Shareaud</i>	0.11	0.03	0.08	0.17	0.09
<i>Shareclaud</i>	0.12	0.04	0.06	0.24	0.11
<i>Leverage</i>	0.31	0.15	0.29	0.43	0.23
<i>Firm Size</i>	6.59	5.17	6.55	7.96	1.99
<i>Profit</i>	0.12	0.08	0.12	0.17	0.13
<i>Market-to-Book</i>	1.78	1.13	1.42	1.96	1.34
<i>Z-Score</i>	1.52	0.76	1.61	2.43	1.91
<i>Syndication</i>	0.86	1	1	1	0.35
<i>Log(Maturity)</i>	3.54	3.00	3.64	4.11	0.77
<i>Loan size</i>	18.19	17.03	18.42	19.52	1.81
<i>Rating</i>	1.98	1	1	3	1.38
<i>Performance Pricing</i>	0.41	0	0	1	0.49
<i>Prior Relation</i>	0.51	0	1	1	0.50
<i>Log(Prior Deals)</i>	1.44	1.10	1.39	1.95	0.74
<i>Credit Spreads</i>	0.87	0.68	0.81	0.95	0.30
<i>Term Spreads</i>	0.89	0.17	0.54	1.73	0.88

The table presents descriptive statistics for every variable for 25,463 firm-year-facility observations for the sample period 2000 through 2010. Mean, median, first quartile, third quartile and standard deviation (STD) are reported. All continuous variables are winsorized at the top and bottom one percent level.

**Table 3**  
**Pearson and Spearman Correlations**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<i>1.Dominance</i>		<b>0.758</b>	<b>0.161</b>	<b>0.344</b>	<b>0.187</b>	-0.012	<b>-0.099</b>	<b>-0.077</b>	<b>-0.019</b>	-0.010	<b>-0.025</b>	<b>0.159</b>	0.001	0.010	-0.012
<i>2.Share</i>	<b>0.670</b>		<b>0.215</b>	<b>0.525</b>	<b>0.183</b>	<b>-0.047</b>	<b>-0.124</b>	<b>-0.100</b>	0.005	0.028	-0.014	<b>0.265</b>	0.015	-0.007	<b>-0.026</b>
<i>3.Mostcl</i>	<b>0.160</b>	<b>0.207</b>		<b>0.589</b>	<b>0.091</b>	<b>0.082</b>	<b>-0.043</b>	<b>-0.019</b>	<b>-0.006</b>	<b>-0.015</b>	<b>0.033</b>	<b>0.026</b>	0.000	-0.009	-0.001
<i>4.Sharecl</i>	<b>0.300</b>	<b>0.510</b>	<b>0.595</b>		<b>0.052</b>	<b>-0.019</b>	<b>-0.088</b>	<b>-0.092</b>	<b>-0.001</b>	<b>-0.016</b>	<b>0.062</b>	<b>0.238</b>	-0.016	<b>-0.053</b>	<b>-0.055</b>
<i>5.Shareaud</i>	<b>0.185</b>	<b>0.235</b>	<b>0.087</b>	<b>0.086</b>		<b>0.820</b>	<b>-0.063</b>	-0.015	-0.005	<b>-0.066</b>	<b>0.067</b>	<b>0.039</b>	<b>0.036</b>	<b>-0.017</b>	0.021
<i>6.Shareclaud</i>	<b>0.016</b>	<b>0.037</b>	<b>0.124</b>	<b>0.067</b>	<b>0.797</b>		-0.011	0.015	0.015	0.006	<b>0.022</b>	-0.065	<b>0.021</b>	0.052	0.002
<i>7. Log(Loan Spreads)</i>	<b>-0.091</b>	<b>-0.121</b>	<b>-0.038</b>	<b>-0.070</b>	<b>-0.060</b>	0.004		<b>0.620</b>	<b>0.141</b>	<b>0.227</b>	<b>0.182</b>	<b>-0.506</b>	<b>-0.255</b>	<b>-0.109</b>	<b>-0.221</b>
<i>8. Secured</i>	<b>-0.077</b>	<b>-0.103</b>	<b>-0.019</b>	<b>-0.055</b>	<b>-0.019</b>	0.016	<b>0.580</b>		<b>0.135</b>	<b>0.138</b>	<b>0.159</b>	<b>-0.387</b>	<b>-0.178</b>	<b>-0.063</b>	<b>-0.166</b>
<i>9. General Covenants</i>	<b>-0.002</b>	<b>-0.050</b>	<b>-0.010</b>	<b>-0.049</b>	0.007	-0.013	<b>0.067</b>	<b>0.087</b>		<b>0.629</b>	<b>0.130</b>	<b>0.088</b>	<b>0.072</b>	<b>-0.025</b>	-0.007
<i>10. Financial Covenants</i>	<b>-0.002</b>	<b>-0.060</b>	<b>-0.016</b>	<b>-0.062</b>	<b>-0.050</b>	<b>-0.020</b>	<b>0.158</b>	<b>0.115</b>	<b>0.685</b>		<b>0.026</b>	<b>-0.095</b>	<b>0.022</b>	0.006	-0.011
<i>11.Leverage</i>	<b>-0.022</b>	<b>-0.017</b>	<b>0.043</b>	<b>0.058</b>	<b>0.097</b>	<b>0.017</b>	<b>0.174</b>	<b>0.155</b>	<b>0.103</b>	-0.015		<b>0.100</b>	<b>-0.045</b>	<b>-0.119</b>	<b>-0.329</b>
<i>12.Firm Size</i>	<b>0.152</b>	<b>0.267</b>	<b>0.024</b>	<b>0.185</b>	<b>0.066</b>	<b>-0.061</b>	<b>-0.492</b>	<b>-0.380</b>	<b>0.135</b>	<b>-0.076</b>	<b>0.164</b>		<b>0.193</b>	<b>-0.048</b>	<b>0.061</b>
<i>13.Profit</i>	<b>-0.020</b>	-0.003	0.003	<b>-0.026</b>	<b>0.045</b>	<b>0.038</b>	<b>-0.335</b>	<b>-0.223</b>	<b>0.049</b>	0.007	<b>-0.137</b>	<b>0.098</b>		<b>0.080</b>	<b>0.619</b>
<i>14.Market-to-Book</i>	-0.000	-0.001	<b>-0.029</b>	<b>-0.041</b>	<b>-0.019</b>	<b>0.046</b>	<b>-0.225</b>	<b>-0.145</b>	<b>0.019</b>	<b>0.016</b>	<b>-0.255</b>	<b>0.038</b>	<b>0.439</b>		<b>-0.053</b>
<i>15.Z-Score</i>	<b>-0.026</b>	<b>-0.054</b>	-0.010	<b>-0.069</b>	<b>0.022</b>	<b>0.025</b>	<b>-0.275</b>	<b>-0.198</b>	<b>-0.041</b>	<b>-0.017</b>	<b>-0.407</b>	<b>-0.077</b>	<b>0.501</b>	<b>0.142</b>	

This table shows the Pearson and Spearman correlations for each variable. The upper (lower) diagonal reports Pearson (Spearman) correlations. All bolded correlations are significant at  $p < 0.01$  for the two-tailed test.

**TABLE 4**  
**Relation between Industry-Specialist Auditors and Loan Spreads**

<b>Dependent Variable = Natural Log (Loan Spreads)</b>	<b>DOMINANCE</b>	<b>SHARE</b>	<b>MOSTCL</b>	<b>SHARECL</b>	<b>SHAREAUD</b>	<b>SHARECLAUD</b>
Independent Variable	-0.046** (-2.25)	-0.201*** (-2.80)	-0.064*** (-3.21)	-0.313* (-1.89)	-0.257** (-2.37)	-0.278*** (-2.85)
<i>Firm Characteristics</i>						
Leverage	0.603*** (16.26)	0.602*** (16.24)	0.608*** (16.42)	0.606*** (16.36)	0.613*** (16.40)	0.614*** (16.45)
Firm Size	-0.141*** (-15.55)	-0.140*** (-15.48)	-0.142*** (-15.72)	-0.141*** (-15.52)	-0.142*** (-15.63)	-0.143*** (-15.70)
Profit	-0.837*** (-8.99)	-0.837*** (-8.99)	-0.833*** (-8.92)	-0.839*** (-8.98)	-0.838*** (-8.99)	-0.839*** (-9.00)
Market-to-book	-0.047*** (-6.29)***	-0.047*** (-6.31)	-0.047*** (-6.29)	-0.047*** (-6.32)	-0.047*** (-6.34)	-0.047*** (-6.30)
Z-score	-0.018*** (-2.99)	-0.018*** (-3.00)	-0.018*** (-2.95)	-0.018*** (-2.92)	-0.017*** (-2.89)	-0.017*** (-2.86)
<i>Loan Characteristics</i>						
Syndication	-0.009 (-0.42)	-0.008 (-0.38)	-0.010 (-0.49)	-0.009 (-0.44)	-0.011 (-0.52)	-0.010 (-0.49)
Log(Maturity)	0.009 (0.79)	0.009 (0.81)	0.009 (0.84)	0.009 (0.83)	0.010 (0.90)	0.010 (0.94)
Loan Size	-0.082*** (-10.93)	-0.082*** (-10.92)	-0.082*** (-10.92)	-0.082*** (-10.93)	-0.081*** (-10.74)	-0.081*** (-10.80)
Rating	-0.127*** (-13.85)	-0.127*** (-13.89)	-0.128*** (-14.02)	-0.128*** (-13.97)	-0.128*** (-13.97)	-0.128*** (-14.02)
Performance Pricing	-0.008 (-0.58)	-0.008 (-0.55)	-0.008 (-0.56)	-0.008 (-0.52)	-0.009 (-0.61)	-0.008 (-0.58)

Prior Relation	-0.038*** (-4.12)	-0.039*** (-4.15)	-0.038*** (-4.10)	-0.039*** (-4.20)	-0.038*** (-4.05)	-0.038*** (-4.05)
Log(Prior Deals)	0.153*** (11.95)	0.153*** (11.95)	0.154*** (12.03)	0.154*** (12.02)	0.153*** (11.98)	0.153*** (12.04)
<i>Macroeconomic Terms</i>						
Credit Spread	0.306*** (10.63)	0.307*** (10.71)	0.300*** (10.41)	0.306*** (10.66)	0.304*** (10.57)	0.305*** (10.61)
Term Spread	0.150*** (13.67)	0.151*** (13.76)	0.150*** (13.68)	0.151*** (13.71)	0.151*** (13.76)	0.151*** (13.73)
<i>Control For</i>						
Loan Purposes	Yes	Yes	Yes	Yes	Yes	Yes
Loan Types	Yes	Yes	Yes	Yes	Yes	Yes
Year Effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	25,463	25,463	25,463	25,463	25,463	25,463
R-squared	0.549	0.549	0.550	0.550	0.549	0.549

This table presents the OLS regression results on the effect of industry-specialist auditors on bank loan price terms. The dependent variable is the natural log of loan spread (AISD), which is the all-in spread drawn defined as the amount the borrower pays in basis point over LIBOR or LIBOR equivalent for each dollar drawn down for the bank loan. T-statistics are in parentheses. Significance at ten, five, and one percent levels is indicated by \*, \*\*, and \*\*\* respectively. All standard errors are adjusted for within-firm clustering.

**TABLE 5**  
**Relation between Industry-Specialist Auditors and Covenant Restrictions**

<b>Panel A: General Covenants</b>		<b>Dependent Variable = Number of General Covenants</b>					
		DOMINANCE	SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD
Independent Variable		-0.044** (5.03)	-0.069 (0.90)	-0.055*** (7.96)	-0.573*** (15.67)	0.013 (0.02)	0.055 (0.36)
<i>Firm Characteristics</i>							
Leverage		0.252*** (38.09)	0.253*** (38.50)	0.257*** (39.71)	0.256*** (39.43)	0.254*** (38.67)	0.253*** (38.38)
Firm Size		-0.098*** (111.53)	-0.098*** (112.44)	-0.099*** (114.51)	-0.097*** (110.52)	-0.099*** (114.79)	-0.099*** (114.31)
Profit		-0.070 (0.56)	-0.068 (0.52)	-0.067 (0.51)	-0.071 (0.58)	-0.068 (0.53)	-0.069 (0.54)
Market-to-book		-0.010 (2.16)	-0.010 (2.21)	-0.010 (2.17)	-0.011 (2.38)	-0.010 (2.17)	-0.010 (2.21)
Z-score		-0.029*** (16.59)	-0.029*** (16.69)	-0.028*** (16.21)	-0.028*** (15.85)	-0.029*** (16.60)	-0.029*** (16.70)
<i>Loan Characteristics</i>							
Syndication		1.183*** (1042.86)	1.182*** (1041.94)	1.181*** (1038.28)	1.182*** (1041.77)	1.182*** (1041.13)	1.183*** (1042.52)
Log(Maturity)		0.019 (1.75)	0.019 (1.91)	0.019 (1.89)	0.018 (1.63)	0.020 (1.99)	0.020 (1.97)
Loan Size		0.104*** (122.21)	0.104*** (122.48)	0.105*** (123.38)	0.104*** (121.97)	0.104*** (122.29)	0.104*** (122.29)
Rating		-0.084*** (133.96)	-0.084*** (133.84)	-0.084*** (134.70)	-0.084*** (134.55)	-0.084*** (133.31)	-0.084*** (133.11)
Performance Pricing		1.017***	1.016***	1.017***	1.018***	1.016***	1.017***

Prior Relation	(3430.20) -0.004 (0.07)	(3428.62) -0.004 (0.07)	(3432.45) -0.004 (0.07)	(3439.80) -0.006 (0.13)	(3424.92) -0.004 (0.06)	(3428.02) -0.004 (0.06)
Log(Prior Deals)	0.201*** (211.44)	0.200*** (210.33)	0.201*** (211.39)	0.202*** (213.91)	0.200*** (209.99)	0.200*** (209.84)
<i>Macroeconomic Terms</i>						
Credit Spread	-0.569*** (180.59)	-0.569*** (180.68)	-0.575*** (184.16)	-0.568*** (179.86)	-0.571*** (182.02)	-0.572*** (182.40)
Term Spread	-0.224*** (186.99)	-0.223*** (185.87)	-0.225*** (188.06)	-0.223*** (185.75)	-0.224*** (186.47)	-0.223*** (186.24)
<i>Control For</i>						
Loan Purposes	Yes	Yes	Yes	Yes	Yes	Yes
Loan Types	Yes	Yes	Yes	Yes	Yes	Yes
Year Effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	25,463	25,463	25,463	25,463	25,463	25,463
Pearson Chi-Square	32384.96	32372.57	32390.90	32396.22	32360.55	32370.99

### Panel B: Financial Covenants

#### Dependent Variable = Number of Financial Covenants

	DOMINANCE	SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD
Independent Variable	-0.012 (0.50)	0.101 (2.50)	-0.027* (2.69)	0.137 (1.20)	-0.536*** (38.07)	-0.183** (5.89)
<i>Firm Characteristics</i>						
Leverage	0.064* (3.72)	0.067** (4.06)	0.066** (3.97)	0.064** (3.82)	0.076** (95.34)	0.070** (4.44)
Firm Size	-0.124*** (249.60)	-0.125*** (254.15)	-0.124*** (250.82)	-0.125*** (252.90)	-0.123*** (249.08)	-0.124*** (253.13)

Profit	-0.111 (2.51)	-0.110 (2.46)	-0.110 (2.45)	-0.110 (2.44)	-0.108 (2.38)	-0.112 (2.55)
Market-to-book	0.010** (4.33)	0.010** (4.34)	0.010** (4.32)	0.010** (4.35)	0.010** (3.93)	0.010** (4.36)
Z-score	-0.008 (2.54)	-0.008 (2.46)	-0.008 (2.46)	-0.008 (2.59)	-0.008 (2.18)	-0.008 (2.27)
<i>Loan Characteristics</i>						
Syndication	0.360*** (175.90)	0.358*** (174.60)	0.359*** (175.08)	0.359*** (175.61)	0.355*** (171.95)	0.359*** (175.39)
Log(Maturity)	0.059*** (23.65)	0.060*** (24.47)	0.059*** (23.70)	0.060*** (24.32)	0.060*** (24.44)	0.059*** (24.24)
Loan Size	-0.018** (5.40)	-0.018** (5.28)	-0.018** (5.31)	-0.018** (5.25)	-0.017** (4.31)	-0.018** (5.07)
Rating	-0.103*** (250.68)	-0.102*** (250.02)	-0.103*** (251.47)	-0.102*** (250.36)	-0.104*** (259.01)	-0.103*** (252.71)
Performance Pricing	0.963*** (4069.99)	0.963*** (4068.21)	0.963*** (4070.44)	0.963*** (4065.98)	0.961*** (4062.02)	0.963*** (4067.27)
Prior Relation	-0.012 (0.76)	-0.012 (0.71)	-0.012 (0.75)	-0.012 (0.71)	-0.011 (0.63)	-0.012 (0.72)
Log(Prior Deals)	0.131*** (126.01)	0.131*** (125.36)	0.131*** (126.19)	0.130*** (124.61)	0.132*** (127.53)	0.131*** (126.17)
<i>Macroeconomic Terms</i>						
Credit Spread	-0.160*** (19.50)	-0.162*** (19.93)	-0.162*** (20.01)	-0.161*** (19.74)	-0.158*** (18.92)	-0.159*** (19.29)
Term Spread	-0.321*** (468.56)	-0.321*** (469.40)	-0.321*** (469.17)	-0.321*** (468.02)	-0.321*** (467.99)	-0.321*** (468.28)
<i>Control For</i>						
Loan Purposes	Yes	Yes	Yes	Yes	Yes	Yes
Loan Types	Yes	Yes	Yes	Yes	Yes	Yes
Year Effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	25,463	25,463	25,463	25,463	25,463	25,463
Pearson Chi-Square	29134.75	29111.55	29117.68	29125.87	29118.55	29125.35

This table presents the negative binomial regression results on the effect of industry-specialist auditors on the number of general and financial covenants. The dependent variables are *Number of General Covenants*, which is the number of general covenants attached to the bank loans, and *Number of Financial Covenants*, which is the number of financial covenants attached to the bank loans. Wald Chi-Square is in parentheses. Significance at the ten, five, and one percent level is indicated by \*, \*\*, and \*\*\* respectively.



**TABLE 6**  
**Relation between Industry-Specialist Auditors and Collateral Requirements**

<b>Dependent Variable = Dummy (Loan Secured by Collateral)</b>		<b>DOMINANCE</b>	<b>SHARE</b>	<b>MOSTCL</b>	<b>SHARECL</b>	<b>SHAREAUD</b>	<b>SHARECLAUD</b>
Independent Variable	-0.124** (4.72)	-0.392* (3.41)	-0.157*** (7.92)	-1.067*** (7.12)	0.031 (0.01)	-0.329 (1.56)	
<i>Firm Characteristics</i>							
Leverage	2.072*** (202.60)	2.074*** (203.02)	2.090*** (206.40)	2.085*** (205.22)	2.082*** (204.07)	2.096*** (206.44)	
Firm Size	-0.540*** (362.98)	-0.539*** (360.28)	-0.544*** (370.81)	-0.540*** (364.46)	-0.545*** (372.06)	-0.545*** (372.87)	
Profit	-3.905*** (147.26)	-3.895*** (146.56)	-3.880*** (145.51)	-3.902*** (147.30)	-3.902*** (146.76)	-3.891*** (146.28)	
Market-to-book	-0.011 (0.44)	-0.012 (0.47)	-0.012 (0.48)	-0.012 (0.50)	-0.012 (0.46)	-0.012 (0.48)	
Z-score	-0.203*** (68.77)	-0.203*** (69.27)	-0.203*** (68.99)	-0.202*** (68.54)	-0.203*** (69.01)	-0.202*** (68.25)	
<i>Loan Characteristics</i>							
Syndication	0.676*** (51.43)	0.675*** (51.35)	0.669*** (50.42)	0.669*** (50.56)	0.670*** (50.67)	0.669*** (50.52)	
Log(Maturity)	0.327*** (65.51)	0.328*** (65.92)	0.329*** (66.18)	0.328*** (65.75)	0.329*** (66.55)	0.330*** (66.67)	
Loan Size	-0.229*** (60.70)	-0.228*** (60.41)	-0.227*** (59.87)	-0.230*** (61.10)	-0.227*** (59.87)	-0.226*** (59.32)	
Rating	-0.199*** (95.91)	-0.200*** (96.30)	-0.200*** (96.68)	-0.200*** (96.62)	-0.198*** (94.58)	-0.199*** (95.92)	
Performance Pricing	-0.643*** (137.62)	-0.641*** (136.66)	-0.643*** (137.93)	-0.639*** (135.83)	-0.644*** (138.00)	-0.644*** (138.05)	
Prior Relation	0.098** (4.10)	0.099** (4.15)	0.100** (4.25)	0.098** (4.06)	0.101** (4.36)	0.102** (4.43)	
Log(Prior Deals)	0.551*** (189.26)	0.549*** (188.61)	0.550*** (188.97)	0.554*** (191.03)	0.548*** (187.57)	0.548*** (187.58)	
<i>Macroeconomic Terms</i>							

Credit Spread	0.431*** (13.33)	0.435*** (13.59)	0.420*** (12.68)	0.435*** (13.58)	0.426*** (13.07)	0.427*** (13.11)
Term Spread	-0.018 (0.18)	-0.015 (0.12)	-0.020 (0.21)	-0.014 (0.11)	-0.018 (0.16)	-0.017 (0.16)
<i>Control For</i>						
Loan Purposes	Yes	Yes	Yes	Yes	Yes	Yes
Loan Types	Yes	Yes	Yes	Yes	Yes	Yes
Year Effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	17,733	17,733	17,733	17,733	17,733	17,733
Pseudo R-squared	0.331	0.331	0.331	0.331	0.331	0.331

This table presents the logitistics regression results on the effect of industry-specialist auditors on loan collateral requirements. The dependent variables are *Secured*, which is a dummy variable equal to one if the bank loan is secured. Wald Chi-Square is in parentheses. Significance at the ten, five and one percent level is indicated by \*, \*\*, and \*\*\* respectively.

**TABLE 7**  
**Impacts of Industry-specialist Auditors on Loan Price and Non-Price Terms:**  
**Firm-Level Regressions**

<b>Panel A: Loan Spreads</b>		DOMINANCE		SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD
Independent Variable	-0.052*** (-2.65)	-0.052*** (-2.65)	-0.202*** (-2.96)	-0.071*** (-3.74)	-0.318** (-1.98)	-0.273*** (-2.68)	-0.294*** (-3.19)	
<i>All Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	16,114	16,114	16,114	16,114	16,114	16,114	16,114	16,114
R-squared	0.559	0.559	0.559	0.559	0.559	0.559	0.559	0.559
<b>Panel B: General Covenants</b>		DOMINANCE		SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD
Independent Variable	-0.052** (4.38)	-0.052** (4.38)	-0.014 (0.02)	-0.167*** (41.38)	-0.248 (1.78)	-0.015 (0.01)	0.021 (0.03)	
<i>All Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	16,114	16,114	16,114	16,114	16,114	16,114	16,114	16,114
Pearson Chi-Square	21873.65	21857.76	21937.26	21861.78	21856.18	21860.77		

**Panel C: Financial Covenants****Dependent Variable = Number of Financial Covenants**

	DOMINANCE	SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD
Independent Variable	-0.032 (2.43)	0.106 (1.87)	-0.091*** (17.61)	0.220 (1.95)	-0.588*** (29.40)	-0.191** (4.10)
<i>All Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	16,114	16,114	16,114	16,114	16,114	16,114
Pearson Chi-Square	18726.71	18722.63	18706.58	18729.61	18693.33	18719.55

**Panel D: Secured by Collateral****Dependent Variable = Dummy (Loan Secured by Collateral)**

	DOMINANCE	SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD
Independent Variable	-0.126* (3.30)	-0.379 (2.17)	-0.191*** (7.94)	-1.397*** (7.91)	0.333 (0.87)	-0.129 (0.17)
<i>All Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	11,115	11,115	11,115	11,115	11,115	11,115
Pseudo R-squared	0.335	0.334	0.335	0.335	0.334	0.334

This table presents the OLS, logistics and negative binomial regressions results on the effect of industry-specialist auditors on loan spreads, number of covenants, and collateral requirements by using a reduced sample where only the largest loan for each firm each year is kept. T-statistics or Wald Chi-Square are in parentheses. Significance at the ten, five and one percent level is indicated by \*, \*\*, and \*\*\* respectively. For OLS regressions, standard errors are adjusted for within-firm clustering.

**TABLE 8**  
**Impacts of Industry-specialist Auditors on Loan Price and Non-Price Terms:**  
**Exclusion of Firms with Multiple Facilities in a Year**

<b>Panel A: Loan Spreads</b>									
<b>Dependent Variable = Natural Log (Loan Spreads)</b>									
	DOMINANCE	SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD			
Independent Variable	-0.032 (-0.66)	-0.018 (-0.93)	-0.133** (-2.54)	-0.665 (-1.32)	0.071 (0.31)	0.016 (0.07)			
<i>All Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes			
No. of Obs.	1,157	1,157	1,157	1,157	1,157	1,157			
R-squared	0.405	0.405	0.409	0.406	0.405	0.405			
<b>Panel B: General Covenants</b>									
<b>Dependent Variable = Number of General Covenants</b>									
	DOMINANCE	SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD			
Independent Variable	0.240 (1.28)	0.122 (0.03)	-0.062 (0.14)	1.500 (1.12)	0.043 (0.00)	-0.040 (0.00)			
<i>All Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes			
No. of Obs.	1,157	1,157	1,157	1,157	1,157	1,157			
Pearson Chi-Square	1412.32	1382.83	1418.27	1347.04	1408.57	1407.23			

**Panel C: Financial Covenants****Dependent Variable = Number of Financial Covenants**

	DOMINANCE	SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD
Independent Variable	0.120 (1.61)	0.493 (1.53)	-0.073 (0.61)	0.905 (1.26)	-0.612 (1.58)	-0.799* (3.27)
<i>All Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	1,157	1,157	1,157	1,157	1,157	1,157
Pearson Chi-Square	1189.20	1186.03	1198.52	1185.14	1199.12	1205.29

**Panel D: Secured by Collateral****Dependent Variable = Dummy (Loan Secured by Collateral)**

	DOMINANCE	SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD
Independent Variable	-0.009 (0.00)	-0.789 (0.42)	-0.821*** (8.69)	1.857 (0.53)	1.747 (1.49)	0.805 (0.42)
<i>All Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	910	910	910	910	910	910
Pseudo R-squared	0.187	0.187	0.196	0.190	0.188	0.187

This table presents the OLS, logistics and negative binomial regressions results on the effect of industry-specialist auditors on loan spreads, number of covenants, and collateral requirements by using a reduced sample in which only firms having one facility in a year are kept. T-statistics or Wald Chi-Square are in parentheses. Significance at the ten, five and one percent level is indicated by \*, \*\*, and \*\*\* respectively. For OLS regressions, standard errors are adjusted for within-firm clustering.

**TABLE 9**  
**Impacts of Industry-specialist Auditors on Loan Price Terms:**  
**Regressions in Different Industries**

<b>Panel A: Agriculture and Mining</b>									
<b>Dependent Variable = Natural Log (Loan Spreads)</b>									
	DOMINANCE	SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD			
Independent Variable	-0.048 (-0.63)	-0.358* (-1.86)	-0.026 (-0.32)	-0.528 (-0.32)	-0.699 (-1.54)	-0.502** (-0.30)			
<i>All Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes			
No. of Obs.	1,502	1,502	1,502	1,502	1,502	1,502			
R-squared	0.529	0.533	0.544	0.531	0.545	0.531			
<b>Panel B: Construction</b>									
<b>Dependent Variable = Natural Log (Loan Spreads)</b>									
	DOMINANCE	SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD			
Independent Variable	-0.047 (-0.35)	-0.521 (-0.71)	-0.080 (-0.82)	-0.073 (-0.09)	-0.620 (-0.64)	-0.612*** (-0.43)			
<i>All Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes			
No. of Obs.	220	220	220	220	220	220			
R-squared	0.676	0.679	0.644	0.677	0.643	0.694			

**Panel C: Manufacturing**

<b>Dependent Variable = Natural Log (Loan Spreads)</b>							
	DOMINANCE	SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD	
Independent Variable	0.008 (0.26)	0.017 (0.19)	-0.052** (-1.97)	0.065 (0.30)	-0.456*** (-3.98)	-0.415*** (-3.08)	
<i>All Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	
No. of Obs.	11,749	11,749	11,749	11,749	11,749	11,749	
R-squared	0.588	0.591	0.596	0.591	0.598	0.594	

**Panel D: Transportation and Utilities**

<b>Dependent Variable = Natural Log (Loan Spreads)</b>							
	DOMINANCE	SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD	
Independent Variable	-0.059 (-1.10)	-0.447** (-2.00)	-0.087* (-1.84)	-0.662** (-2.21)	-0.339 (-1.23)	-0.525 (-0.48)	
<i>All Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	
No. of Obs.	3,875	3,875	3,875	3,875	3,875	3,875	
R-squared	0.478	0.484	0.483	0.485	0.482	0.486	



**Panel E: Trade**

<b>Dependent Variable = Natural Log (Loan Spreads)</b>							
	DOMINANCE	SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD	
Independent Variable	-0.116*** (-2.81)	-0.370** (-2.21)	-0.083** (-2.16)	0.053 (0.13)	-0.500** (-2.23)	0.278 (0.26)	
<i>All Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	
No. of Obs.	3,943	3,943	3,943	3,943	3,943	3,943	
R-squared	0.580	0.581	0.577	0.579	0.577	0.579	

**Panel F: Services**

<b>Dependent Variable = Natural Log (Loan Spreads)</b>							
	DOMINANCE	SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD	
Independent Variable	-0.074* (-1.73)	-0.135 (-0.79)	-0.066 (-1.28)	0.660 (0.72)	0.535 (0.82)	0.523 (0.35)	
<i>All Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	
No. of Obs.	4,148	4,148	4,148	4,148	4,148	4,148	
R-squared	0.461	0.463	0.473	0.464	0.473	0.466	

This table presents the OLS regressions results on the effect of industry-specialist auditors on loan spreads in different industries. T-statistics are in parentheses. Significance at the ten, five and one percent level is indicated by \*, \*\*, and \*\*\* respectively. For OLS regressions, standard errors are adjusted for within-firm clustering.

**TABLE 10**  
**Impacts of Industry-specialist Auditors on Loan Price and Non-Price Terms:**  
**Endogeneity**

<b>Panel A: Heckman Approach</b>											
<b>Dependent Variable</b>	<b>Natural Log (Loan Spreads)</b>	<b>Number of Covariates</b>			<b>Number of Financial Covariates</b>			<b>Dummy (Loan Secured by Collateral)</b>			
		<b>DOMINANCE</b>	<b>MOSTCL</b>	<b>DOMINANCE</b>	<b>MOSTCL</b>	<b>DOMINANCE</b>	<b>MOSTCL</b>	<b>DOMINANCE</b>	<b>MOSTCL</b>	<b>DOMINANCE</b>	<b>MOSTCL</b>
Independent Variable	-0.05** (-2.27)	-0.06*** (-3.14)	-0.03* (3.11)	-0.05*** (7.81)	-0.01 (0.05)	-0.03* (2.81)	-0.15** (6.38)	-0.21*** (13.70)	Yes	Yes	Yes
Inverse Mills Ratio	0.69 (0.48)	-2.96** (-2.56)	-16.69*** (150.70)	1.31 (0.97)	-13.66*** (127.58)	-1.85 (2.62)	-4.91 (1.25)	-13.79*** (13.74)	Yes	Yes	Yes
<i>All Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	25,463	25,463	25,463	25,463	25,463	25,463	17,733	17,733	17,733	17,733	17,733
R / Pseudo R	0.55	0.55	32330.67	32377.79	29010.28	32552.26	0.33	0.33	0.33	0.33	0.33
Chi-Square											
<b>Panel B: Propensity-Score Matching</b>											
<b>Dependent Variable</b>	<b>Natural Log (Loan Spreads)</b>	<b>Number of Covariates</b>			<b>Number of Financial Covariates</b>			<b>Dummy (Loan Secured by Collateral)</b>			
		<b>DOMINANCE</b>	<b>MOSTCL</b>	<b>DOMINANCE</b>	<b>MOSTCL</b>	<b>DOMINANCE</b>	<b>MOSTCL</b>	<b>DOMINANCE</b>	<b>MOSTCL</b>	<b>DOMINANCE</b>	<b>MOSTCL</b>
Independent Variable	-0.05* (-1.94)	-0.04** (-2.00)	-0.06** (6.10)	-0.03 (1.18)	-0.00 (0.00)	0.04* (3.69)	-0.17** (5.77)	-0.16** (5.21)	Yes	Yes	Yes
<i>All Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	10,574	11,276	10,574	11,276	10,574	11,276	6,844	6,844	6,844	6,844	7,488

R / Pseudo R							
/ Pearson	0.56	0.57	14011.22	14715.27	12344.54	13089.76	0.37
Chi-Square							0.36

This table address the endogeneity issue by using the Heckman self-selection model and the propensity score-matching approach. T-statistics or Wald Chi-Square are in parentheses. Significance at the ten, five and one percent level is indicated by \*, \*\*, and \*\*\* respectively. For OLS regressions, standard errors are adjusted for within-firm clustering.

**TABLE 11**  
**Impacts of Industry-specialist Auditors on Loan Price and Non-Price Terms:**  
**Alternative Measures of Auditor Industry Specialization**

<b>Panel A: Loan Spreads</b>		<b>DOMINANCE</b>		<b>SHARE</b>		<b>MOSTCL</b>		<b>SHARECL</b>		<b>SHAREAUD</b>		<b>SHARECLAUD</b>	
Independent Variable		-0.048** (-2.37)		-0.186*** (-2.87)		-0.063*** (-3.20)		-0.250* (-1.81)		-0.168* (-1.88)		-0.215** (-2.33)	
<i>All Controls</i>	Yes		Yes		Yes		Yes		Yes		Yes		Yes
No. of Obs.		26,773		26,773		26,773		26,773		26,773		26,773	
R-squared		0.548		0.548		0.548		0.548		0.548		0.548	
<b>Panel B: General Covenants</b>		<b>DOMINANCE</b>		<b>SHARE</b>		<b>MOSTCL</b>		<b>SHARECL</b>		<b>SHAREAUD</b>		<b>SHARECLAUD</b>	
Independent Variable		-0.054*** (7.62)		-0.145*** (4.66)		-0.059*** (9.26)		-0.620*** (23.32)		-0.031 (0.11)		0.060 (0.47)	
<i>All Controls</i>	Yes		Yes		Yes		Yes		Yes		Yes		Yes
No. of Obs.		26,773		26,773		26,773		26,773		26,773		26,773	
Pearson Chi-Square		33838.25		33829.37		33849.49		33834.44		33815.15		33829.35	

**Panel C: Financial Covenants****Dependent Variable = Number of Financial Covenants**

	DOMINANCE	SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD
Independent Variable	-0.020 (1.44)	-0.006 (0.01)	-0.036** (4.81)	-0.141 (1.74)	-0.368*** (24.72)	-0.164** (5.21)
<i>All Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	26,773	26,773	26,773	26,773	26,773	26,773
Pearson Chi-Square	30424.91	30417.12	30400.54	30419.41	30408.49	30417.55

**Panel D: Secured by Collateral****Dependent Variable = Dummy (Loan Secured by Collateral)**

	DOMINANCE	SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD
Independent Variable	-0.146*** (6.67)	-0.654*** (10.88)	-0.175*** (9.95)	-1.561*** (18.50)	0.320 (1.42)	-0.200 (0.61)
<i>All Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	18,851	18,851	18,851	18,851	18,851	18,851
Pseudo R-squared	0.326	0.326	0.326	0.327	0.326	0.326

This table presents the OLS, logistics and negative binomial regressions results on the effect of industry-specialist auditors on loan spreads, number of covenants, and collateral requirements when we use alternative measures of industry specialization that includes both big N and non-big N auditors. T-statistics or Wald Chi-Square are in parentheses. Significance at the ten, five and one percent level is indicated by \*, \*\*, and \*\*\* respectively. For OLS regressions, standard errors are adjusted for within-firm clustering.

**TABLE 12**  
**Impacts of Industry-specialist Auditors on Loan Price and Non-Price Terms:**  
**Auditor Changes**

<b>Panel A: Loan Spreads</b>						
<b>Dependent Variable = Natural Log (Loan Spreads)</b>						
	DOMINANCE	SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD
Independent Variable	-0.046** (-2.20)	-0.189*** (-2.61)	-0.068*** (-3.30)	-0.301* (-1.80)	-0.251** (-2.31)	-0.275*** (-2.81)
Non-specialist to Specialist	0.026 (0.57)	0.055** (2.11)	0.109** (2.33)	0.070*** (2.63)	0.045 (1.36)	0.053 (1.01)
Specialist to Non-specialist	0.128* (1.96)	0.174*** (4.19)	0.182*** (2.81)	0.142*** (3.47)	0.123*** (4.15)	0.086*** (2.81)
<i>All Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	25,463	25,463	25,463	25,463	25,463	25,463
R-squared	0.549	0.550	0.550	0.550	0.550	0.550

  

<b>Panel B: General Covenants</b>						
<b>Dependent Variable = Number of General Covenants</b>						
	DOMINANCE	SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD
Independent Variable	-0.040** (3.86)	-0.041 (0.32)	-0.062*** (9.75)	-0.567*** (15.13)	0.017 (0.03)	0.053 (0.33)
Non-specialist to Specialist	-0.047 (0.46)	-0.069* (3.01)	0.003 (0.35)	-0.005 (0.02)	-0.038 (0.56)	0.032 (0.45)
Specialist to Non-specialist	0.114 (1.47)	0.139** (6.05)	0.046 (0.25)	0.018 (0.10)	0.025 (0.36)	0.055 (0.65)
<i>All Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	17,733	17,733	17,733	17,733	17,733	17,733
Pearson Chi-Square	32385.59	32391.19	32410.45	32399.11	32359.54	32372.47

**Panel C: Financial Covenants**

Independent Variable	<b>Dependent Variable = Number of Financial Covenants</b>						
	DOMINANCE	SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD	
Non-specialist to Specialist	-0.020 (1.38)	0.109 (2.09)	-0.034** (4.02)	0.114 (0.82)	-0.534*** (37.74)	-0.182** (5.78)	
Specialist to Non-specialist	0.026 (1.05)	0.016 (0.26)	0.025 (1.04)	0.007 (0.08)	0.021 (0.26)	0.030 (0.58)	
<i>All Controls</i>	0.088 (1.30)	0.083* (3.17)	0.088 (1.32)	0.010 (0.05)	0.048 (1.60)	0.042 (1.49)	
No. of Obs.	Yes	Yes	Yes	Yes	Yes	Yes	
Pearson Chi-Square	17,733	17,733	17,733	17,733	17,733	17,733	
	29145.21	29111.66	29106.68	29123.46	29118.19	29127.54	

**Panel D: Secured by Collateral**

Independent Variable	<b>Dependent Variable = Dummy (Loan Secured by Collateral)</b>						
	DOMINANCE	SHARE	MOSTCL	SHARECL	SHAREAUD	SHARECLAUD	
Non-specialist to Specialist	-0.139** (5.64)	-0.399* (3.48)	-0.183*** (10.31)	-1.030** (6.54)	0.011 (0.00)	-0.342 (1.67)	
Specialist to Non-specialist	0.283 (0.84)	0.119 (0.69)	0.148 (0.20)	0.087 (0.51)	0.057 (0.38)	0.045 (0.26)	
<i>All Controls</i>	0.330 (0.99)	0.142 (0.62)	0.174 (0.37)	0.307* (2.76)	0.114 (0.51)	0.113 (0.51)	
No. of Obs.	Yes	Yes	Yes	Yes	Yes	Yes	
Pseudo R-squared	25,463	25,463	25,463	25,463	25,463	25,463	
	0.331	0.331	0.332	0.331	0.331	0.331	

This table presents the OLS, logistics and negative binomial regressions results on the effect of industry-specialist auditors on loan spreads, number of covenants, and collateral requirements when two types of auditor switches (a non-specialist-to-specialist switch or a specialist-to-non-specialist switch) are included. T-statistics or Wald Chi-Square are in parentheses. Significance at 10%, 5%, and 1% level is indicated by \*, \*\*, and \*\*\* respectively. For OLS regressions, standard errors are adjusted for within-firm clustering.