Audit Office Size, Client Characteristics and Cost of Bank Loans

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This study examines the association between the size of the audit office and the cost of their clients' bank loans. The results show that the loan spread of the client is negatively associated with the size of the audit office after controlling all other known loan characteristics and client characteristics. After using Propensity-Score Matching, the negative association disappears, and the results suggest that the difference in the cost of bank loans among the different size of audit offices is largely related to client characteristics. This study provides further evidence about the relationship between auditors and client bank loans.

INTRODUCTION

This study investigates two research questions. First, we investigate whether the size of audit office is associated with the cost of bank loans measured by loan spreads. Prior literature links higher audit quality with larger audit office sizes (Francis and Yu 2009; Choi et al. 2010), which results in decreased information risk and a decreased cost of external financing, thus lower loan spreads. This study fills the gap showing the relationship between audit office size and cost of debt. Using multiple regressions on private loan data, this study shows that the loan spread is negatively associated with the size of the audit office after controlling for related loan and company characteristics, consistent with the claims in Francis and Yu (2009) that larger offices provide higher quality audits.

Whether or not big audit offices are associated with low loan spreads is important to all companies, audit firms and bank loan creditors. However, self-selection bias has been a big concern for academic researchers who use non-experimental data because companies and audit firms cannot be randomly assigned to the treatment. Particularly in this case, selection bias, one form of endogeneity poses a big challenge in this study. It is possible that a negative association between the cost of bank loans and the size of audit offices is due to client characteristics instead of auditor office size (Lawrence et al. 2011). Specifically, client characteristics are not uniform across audit offices, and an endogeneity concern arises because some client characteristics might determine both the cost of debt, and the choice of audit firm size.

Our second research question examines whether the negative association between cost of bank loans and auditor office size can indeed be attributed to auditor office size or is due to differences in client characteristics between large office clients and small office clients. Following Rosenbaum and Rubin

(1983), Lawrence et al. (2011), and Francis et al. (2012), we use propensity-score matching models to control for differences in client characteristics among audit offices to estimate audit office size treatment effects. The lower bank loan spread associated with big audit office size disappears in the matched sample where large office clients and small office clients are matched using propensity score along size, ROA, and leverage et al. The result suggests that difference in loan spreads between large office clients and small office clients cannot be attributed to auditor office size. Rather it is due to differences in client characteristics. In other words, large companies with high profitability and lower leverage choose larger office auditors, and are also associated with lower bank loan costs.

The study contributes to current literature in two ways. First, we believe this is the first study to examine the association between the size of audit offices and the cost of bank loans in auditing research. The results suggest that the costs of bank loans are unlikely to be associated with audit office size. In fact, the underlying company characteristics are directly associated with the cost of bank loans. Second, the study adds to current discussions about selection bias literature by providing evidence of using the propensity-score matching method to mitigate selection bias (Tucker, 2011; Francis et al., 2012; Duong, et al., 2016).

This study is subject to the following caveats. First, the propensity-score matching method can only mitigate selection bias due to observables, and it cannot totally diminish the effect of selection bias. There could be other variables besides client characteristics that affects the association between loan costs and audit firm size. However, because it was not included in the analysis, the propensity-score matching method was unable to identify it, and instead might make us think too strongly that client characteristics are the sole driver. Second, the underlying issue of how to disentangle client characteristics from audit quality effect remains unresolved. Perhaps this study can encourage other researchers to discover alternative effective methodologies to resolve this important issue in auditing research.

RELATED STUDIES, HYPOTHESIS, AND RESEARCH QUESTION

Office-level of Audit Quality

Past research suggests it is important to study audit quality at the office level. After all, Big 4 accounting firms have decentralized organizations, and within the individual office units staff have intensive knowledge and experience sharing. Wallman (1996) and Reynolds and Francis (2000) argue that audit quality and audit independence should be considered at the office-level because in practice, the individual office is the unit which performs the audit and exercises decision-making power. Using a sample of Big N audit firms in Australia, Ferguson, Francis and Stokes (2003) examine how audit markets price firm-level industry expertise and office-level expertise. Their result shows that the audit market only gives a premium on the audit expertise when the auditor possesses industry expertise at *both* the city-level and the nation-level. When audit expertise exists only at the firm-level, their results do not indicate any premium. Similarly, Francis, Reichelt and Wang(2005) use a sample of Big 5 audit firms in the U.S. to test the pricing of Big N industry leadership, and find that office-level and firm-level industry expertise jointly affect audit fee.

At the engagement-office level, most recent studies show that audit quality is not identical across auditor office sizes (Francis and Yu 2009; Choi et al. 2010). In addition, evidence from Reichelt and Wang (2009) suggests that audit quality is higher when an auditor is an industry specialist at national and city-office level. Similarly, Li et al (2010) demonstrates that creditors who lend public loan for the companies view the audit which is done by city-level industry specialist auditors, either alone or jointly with nation-level specialist on average has higher quality, and the evidence is that the companies' cost of public debt is lower when the company is audited either by the city-level industry specialist auditors or by the joint (both city-level and nation-level) industry specialist.

Francis and Yu (2009) test the prediction that the larger offices of Big 4 auditors are associated with higher quality of audits. They use a sample of 6,568 U.S. firm-year observations from the period 2003 to 2005 that are audited by 285 unique Big 4 offices. Audit quality is a proxy for client accrual quality, benchmark earnings targets and auditor's propensity to issue a going-concern report. Specifically, they

predict that clients in larger offices are associated with smaller abnormal accruals, less likely to meet benchmark targets, and more likely to issue a going–concern report. In other words, larger offices are more likely to be less favorable towards a client's financial statements, and harsher about irregularities. Francis and Yu (2009) use OLS to test accruals, and the coefficient of the relevant office variable is significant negatively different from zero, indicating that larger offices are associated with smaller abnormal accruals. Probit models are used to perform two earnings benchmark tests, with 'small positive earnings' and 'small earnings increases' as the dependent variables. Results show that clients audited by larger offices are less likely to report small earnings and small earnings increases. An additional probit model demonstrates that auditors in larger offices are more likely to issue going-concern reports.

Audit Quality and Perceived Audit Quality

According to Watkins, Hillison and Morecroft (2004) audit quality framework, audit quality can be understood as two components: auditor reputation and auditor monitoring strength. Auditor reputation refers to perceived competence and perceived independence; while auditor monitoring strength refers to auditor competence and auditor independence. In academic research, audit quality is generally studied from one of these two angles: audit quality and perceived audit quality. Papers examining actual quality must use proxies to approach this unobservable quality and papers focusing on perceived audit quality generally studies the inferences made by different stakeholders.

Because audit quality cannot be directly observed, researchers have used several proxies for audit quality, such as audit size and audit fees. The most direct way to understand perceived audit quality is through survey. Lowensohn et al. (2007) survey 241 Florida local government finance directors and find that Big 5 auditors are not consistently associated with increased perceived audit quality. However, due to methodological constraints, we cannot survey every stakeholder to understand exactly how each perceives audit quality. Some researchers examine market reactions to infer the perceived audit quality from investors. Teoh and Wong (1993) compare the earnings response coefficient (ERC) between Big 8 and non-Big 8 audited firms, and find that ERCs of Big 8 clients are higher than that of non-Big 8 clients. Ghosh and Moon (2005) use ERCs as a proxy of perceived audit quality to test how tenure effect ERC. Their results are consistent with the prediction that investors perceive longer tenure as higher earnings quality. Also using earnings response coefficients to proxy for the perceived audit quality, Francis and Ke (2006) conduct another study to examine whether investors' perception of earnings quality has been affected by the SEC's recently mandated disclosure of fees for audit and nonaudit services paid by firms to their current auditors. Their study reports that investors perceive lower earnings quality for firms that paid their auditors high non-audit service fees.

Audit Office Size and Cost of Bank Loans

According to the theoretical model of Easley and O'Hara (2004) and Lambert et al. (2007), investors will demand a higher expected return when they are facing greater information risk to protect themselves from an information disadvantage. Information risk refers to the risk arising from making decisions based on potentially faulty information including the higher potential for misstated financials with low-quality audits. Two recent papers (Francis and Yu 2009; Choi et al. 2010) provide empirical evidence that audit office sizes are positively associated with information quality.

However, there is no direct evidence showing whether banks also perceive larger office sizes as providing higher quality audits. Perceived audit quality from creditors is worth studying because creditors are the main capital market participants. According to Graham et al. (2008), more than fifty percent of total debt financing in the United States are from bank loans. Additional, Hodgdon and Porter (2017) provide evidence that auditors from different CPA firms assess the value of a bank's loan portfolio differently. In another words, audit quality exists diverse among different CPA firms. Based on prior theoretical work and most recent empirical evidence, we propose the following hypothesis:

H1: Controlling for other determinates, loan spread will be negatively associated with the size of audit office.

Selection Bias and Propensity-Score Matching

Using nonexperimental data without random assignment, this study faces a serious endogeneity problem. Intuitively, when clients seek an auditing firm and auditors choose whether to service a client, the selection procedure is not random. If two companies seeking an auditing firm are similar in most respects, but one company is larger with higher profit and lower leverage, then the larger company will tend to pick a larger audit office than its smaller competitor. One econometric tool, the Propensity-Score Matching model developed by Rosenbaum and Rubin (1983), can mitigate the selection-bias issue by matching samples based on the probability of choosing treatment. Two examples of recent accounting studies, Armstrong et al. (2010) and Lawrence et al. (2011) use the propensity-score matching model to address selection-bias. Interestingly, after using the propensity-score matching model, both of the two studies conclude that the results found in prior literature do not hold in their papers. Armstrong et al (2010) suggest that there is no association between CEO equity incentives and accounting irregularities. Lawrence et al.(2011) provide evidence that the effect of Big 4 auditors on audit quality can be attributed to client characteristics.

Following Lawrence et al (2011), we use the following logit model to estimate the probability of selecting large audit offices (defined as above the median size) as follows:

$$\text{BIG OFFICE}_{i,t} = \beta_0 + \beta_1 \text{LOG\_ASSETS}_{i,t} + \beta_2 \text{ROA}_{i,t} + \beta_3 \text{ LEVERAGE}_{i,t} + \varepsilon i \,. \quad (1)$$

where for firm i and fiscal year t:
BIG OFFICE = 1, if the client's auditor audit office is above the median audit office size, and 0 otherwise;
LOG_ASSETS = natural logarithm of total assets at the end of year t;
ROA = Return on Assets (net income divided by total assets)
LEVERAGE = total debt (long term plus short term) divided by total assets of the firm of year t
In order to mitigate selection-bias in this study, the research question is proposed as:

Research Question: Can the negative association between the audit office size and bank loan spreads be attributed to client characteristics?

EMPIRICAL MODEL AND VARIABLES

To investigate the effect of audit office size on bank loan spread, the following regression model is used:

$$AIS = \alpha + \beta_1 office + \beta_2 size + \beta_3 big4 + \beta_4 ROA + \beta_5 leverage + \beta_6 tangibility + \beta_7 O\text{-}score + \beta_8 loansize + \beta_9 performance + \beta_{10} term + \beta_{11} lmaturity + \beta_{12} tenure + \beta_{13} cityonly + \beta_{14} nationonly + \beta_{15} bothleader + \varepsilon i \quad (2)$$

Here in Equation (2), the dependent variable, *AIS*, drawn all-in-spread, is the cost of bank loan, measured as the basis point spread over the London Interbank Offered Rate (LIBOR) or LIBOR equivalent on a loan plus associated loan fees.

Following Francis and Yu (2009), office, measures the office size based on aggregated client audit fees (in millions of US dollars) of a practice office in a specific fiscal year. Control variables can be divided into three categories: client-specific variables; loan-specific variables, and auditor-specific variables.

Client-specific Variables

Size: measured as the Natural log of client total assets measured in millions of US dollars
ROA = Return on Assets (net income divided by total assets)
Leverage = the total debt (long term plus short term) divided by total assets
Tangibility= Net property, plant, and equipment divided by total assets

O-Score (A value of default risk, as defined by Ohlson (1980)) = -1.32 - 0.407*size + 6.03*(total liabilities/total assets) – 1.43*(current assets – current liabilities) / + 0.076*(current liabilities / current assets) – 1.72*1 or 0 (1 if total liabilities is greater than total assets, 0 otherwise) – 0.521*(current year net income – last year's net income) / (the absolute value of current year's net income + the absolute value of last year's net income)

Loan-specific Variables

Loansize: Natural log of the loan facility amount, measured in millions of US dollars
Performance: A dummy variable that equals one if the loan uses performance pricing and zero otherwise
Term: A dummy variable that equals one if the loan facility is a term loan and zero otherwise
Lmaturity: Natural log of the maturity of the loan in months

Auditor-specific Variables

Big4: a dummy variable which is equal to 1 if the incumbent auditor of a borrowing firm is one of Big 4 auditors
Tenure: measured by the number of years of the auditor-client relationship
Cityonly: a dummy variable if the auditor's industry share is ranked number one at the city-level only and not at the city-level and zero otherwise. Industry is defined based on the two-digit SIC code.
Nationonly: a dummy variable if the auditor's industry share is ranked number one at the nation-level only and not at the city-level and zero otherwise. Industry is defined based on the two-digit SIC code.
Bothleader: a dummy variable if the auditor's industry share is ranked number one both at the nation-level and at the city-level and zero otherwise. Industry is defined based on the two-digit SIC code.

The dependent variable *AIS* measures the cost of bank loans, and the interested variable *office* measures the size of audit office. The coefficient captures the difference in the loan spread charged to different size of audit office. Therefore, H1 implies $\beta_1 < 0$. Additionally, β_1 will become insignificant if the association we observe can be attributed to client characteristics in the matched sample.

SAMPLE AND DESCRIPTIVE STATISTICS

Sample and Data

Samples were constructed from three databases: Audit Analytics, DealScan and Compustat. Auditor-specific variables are from Audit Analytics database. DealScan database consists of Loan-specific variables. Financial Statement Data obtained from Compustat. Sample construction starts with Audit Analytics for the six-year period of 2003-2008. During the sample period, the audit offices have passed through the reconstruction period after the 2002 Sarbanes-Oxley Act (SOX) and the structures of audit office are stabilized. Following Francis and Yu (2009), engagement office is determined from the audit report filing with SEC as reported in Audit Analytics. The variables office size, city-level audit specialist and nation-level audit specialist are calculated by using the full population of observations with audit fee data. Office size is the sum of the audit fees in millions of US dollars of all clients of a local engagement office in the fiscal year. As a sensitivity test, we also use the number of clients of a local engagement office in the fiscal year to measure office size, and find all empirical results do not change qualitatively.

Consistent with prior studies (Johnson et al. 2002; Francis et al. 2009), auditor tenure and auditor industry specialists are included as control variables. Following Francis, Reichelt, and Wang (2005), and Francis and Yu (2009), Reichelt and Wang (2010), we employ industry specialist as city-level and nation-level industry specialist. As prior studies have found tenure and auditor industry specialization to be positively associated with audit quality, both are predicted to be negatively associated with loan spreads.

After obtaining the auditor-specific variables, dataset is merged with Compustat to obtain financial statement related variables. Some client- specific variables that are known to be related with bank loan spread from previous literature are included. Size variable is expected to be negatively associated with loan spread. ROA (leverage) is expected to be negatively (positively) associated with the cost of bank loan. Tangibility is expected to be negatively associated with loan spread. O-score is the Ohlson (1980)

default-risk measure for the firm. The higher O-score suggest higher default-risk. Thus, the coefficient on O-Score is expected to be positive.

In the last step the DealScan database was merged to acquire loan information. DealScan is uniquely advantageous because it allows the identification of each unique facility between borrower and bank(s). Following Chava et al. (2008) and Kim et al.(2011), each facility is considered as a separate observation for this sample, as many loan characteristics and loan spreads vary across facilities. Following loan contracting literature (Bharath et al. 2008; Graham et al.2008; Vasvari 2008; Kim et al. 2011) several loan-specific characteristics are included as control variables in Equation (2) because they are related to the loan spreads. Graham et.al. (2008) indicate that lenders charge lower interest rates for larger loan facilities and shorter-maturity loans. Hence, we expect a positive coefficient for lmaturity and a negative coefficient for loansize. Loan contracts are expected to include performance pricing and have lower interest rates. Thus, the coefficient on performance is expected to be negative. To control for different types of loans, term or revolver, we use term dummy control variables. The final sample includes 7,856 facility-year for 2,235 firms over 2003-2008 period.

Descriptive Statistics

Table 1 presents descriptive statistics for all the variables. Consistent with Duong, et al. (2016), we winsorize all the continue variables at the top and bottom one percent. As shown in Table 1, the mean and median of the drawn all-in spread over the LIBOR (*AIS*) are around 184 and 155 bps. The mean and median of the office variable are $65.4 million and $35.6 million. All the variables statistics are consistent with the sample statistics of previous studies (Francis and Yu. 2009; Li et al. 2010; Kim et al. 2011)

TABLE 1
POOLED FACILITY-YEAR DESCRIPTIVE STATISTICS (2003–2008)

Variables	N	Mean	Median	Std. Dev.	Min	Max
AIS(bps)	7856	183.704	155.000	143.528	5.000	1,655.000
Office	7856	65.377	34.558	95.003	0.037	637.738
Big4	7856	0.906	1.000	0.292	0.000	1.000
Tenure	7856	9.888	7.000	8.359	1.000	35.000
Cityonly	7856	0.426	0.000	0.494	0.000	1.000
Nationonly	7856	0.066	0.000	0.248	0.000	1.000
Bothleader	7856	0.248	0.000	0.432	0.000	1.000
ROA	7856	0.084	0.081	0.081	-0.347	0.335
Leverage	7856	0.318	0.296	0.207	0.000	0.983
Tangibility	7856	0.322	0.255	0.245	0.015	0.898
O-Score	7856	-0.844	-0.899	1.326	-3.650	2.991
Loansize	7856	18.866	19.036	1.520	14.221	21.822
Size	7856	7.341	7.312	1.720	2.947	11.003
Performance	7856	0.556	1.000	0.497	0.000	1.000
Term	7856	0.278	0.000	0.448	0.000	1.000
Lmaturity(months)	7856	3.762	4.094	0.621	1.609	4.564

Correlation Matrix

Table 2 reports Pearson Correlation Coefficients among all the variables. As shown in Table 2, *AIS* is negatively correlated with *office* at ($p<0.001$) significant level. At ($p<0.001$) significant level, the variable *AIS* is negatively correlated with ROA, loansize, firmsize, performance, tenure and bothleader variables; *AIS* is positively correlated with variables of leverage, O-Score, term, and loan maturity. The correlations noted above are consistent with prior literature.

TABLE 2
PEARSON CORRELATION COEFFICIENTS
N = 7856

	AIS	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(2) Office	**(0.121)**	1.000													
(3) Big4	**(0.192)**	**0.201**	1.000												
(4) ROA	**(0.319)**	**0.085**	**0.096**	1.000											
(5) Leverage	**0.255**	**(0.024)**	0.008	**(0.093)**	1.000										
(6) Tangibility	0.005	**(0.12)**	**0.027**	**(0.074)**	**0.230**	1.000									
(7) O-score	**0.357**	**(0.032)**	**(0.100)**	**(0.219)**	**0.702**	**0.118**	1.000								
(8) Loan size	**(0.428)**	**0.148**	**0.307**	**0.191**	**0.081**	**0.138**	**(0.191)**	1.000							
(9) Size	**(0.038)**	**0.173**	**0.351**	**0.112**	**0.092**	**0.179**	**(0.252)**	**0.770**	1.000						
(10) Performance	**(0.232)**	-0.009	**0.042**	**0.109**	**(0.119)**	**(0.029)**	**(0.095)**	**0.117**	(0.013)	1.000					
(11) Tenure	**(0.185)**	**0.038**	**0.192**	**0.065**	**(0.111)**	**(0.042)**	**(0.109)**	**0.176**	**0.226**	**0.019**	1.000				
(12) City only	0.002	**(0.109)**	**0.047**	**0.029**	**0.043**	(0.017)	**0.022**	**0.038**	**0.038**	(0.005)	**0.019**	1.000			
(13) Nation only	**(0.026)**	**0.084**	**0.086**	**0.024**	**(0.019)**	0.018	(0.008)	**(0.021)**	**(0.021)**	(0.008)	0.008	**(0.228)**	1.000		
(14) *Both leader*	**(0.081)**	**0.065**	**0.186**	0.014	**0.025**	**0.048**	(0.004)	**0.127**	**0.185**	(0.007)	**0.074**	**(0.495)**	**(0.152)**	1.000	
(15) *Term*	**0.322**	**(0.038)**	**(0.050)**	**(0.065)**	**0.241**	**(0.037)**	**0.172**	**(0.102)**	**(0.062)**	**(0.196)**	**(0.087)**	0.010	(0.006)	(0.017)	1.000
(16) *L maturity*	**0.057**	-0.005	**0.020**	**0.051**	**0.155**	0.004	**0.074**	**0.090**	(0.018)	**0.101**	**(0.042)**	0.012	(0.002)	(0.001)	**0.247**

REGRESSION RESULTS

Table 3 reports the results of Fama McBeth regression with industry dummy in Equation (2). The t-statistics are based on Newey-West robust standard errors to correct for heteroscedasticity and the third-order autocorrelation (Newly and West 1987). As shown in Table 2, the coefficient on office is significantly negative at five percent level, which is consistent with H1 prediction. The results indicate that, on average, a one dollar increase in audit office size is associated with 0.022 bps decrease in loan spread.

For the control variables related to loan-specific and client-specific factors, all of them are consistent with previous loan studies, except O-Score. One interesting finding here is that none of the auditor-specific variables are significant. Similarly, Francis and Yu (2009) found that none of the control variables of audit industry specialist, at city-level and at nation-level were significant. It is impossible to compare with other studies because none of the other studies include both audit office variable and audit industry specialist in their examination. Francis (2011) reveals this phenomenon that the underlying driver of the association between audit industry specialist and audit quality is the audit office size.

TABLE 3
FULL SAMPLE REGRESSION RESULTS

Variables	Prediction	
test variable		
Office	-	-0.022**
		(-3.83)
Loan-specific variables		
loansize	-	-21.200***
		(-46.96)
term	+	57.948***
		(27.21)
loan maturity	+	9.413***
		(5.08)
performance	-	-38.491***
		(-9.14)
client-specific variables		
size	-	-10.502***
		(-11.99)
ROA	-	-357.74***
		(-18.30)
leverage	+	138.510***
		(4.65)
tangibility	-	-30.566*
		(-2.52)
O-Score	+	6.020
		(1.22)

auditor-specific variables		
big4	-	-3.451
		(-0.80)
tenure	-	-0.691
		(-1.86)
cityonly	-	-0.552
		(-0.11)
nationonly	-	-9.809
		(-0.73)
bothleader	-	-4.482
		(-0.52)
Intercept and Industry		
Intercept		643.482***
		(18.15)
Industry fixed effect		Included
N		7856
Adjust R2		0.426

Table 3 reports the results of Fama McBeth regression in Equation (2). The t-statistics are based on Newey-West robust standard errors to correct for heteroscedasticity and the third-order autocorrelation.

PROPENSITY-SCORE MATCHING SAMPLE

Table 4 presents propensity-score matched sample. The number of observations decreased to 5115 after using PSM matching model in equation 1.

TABLE 4
PROPENSITY-SCORE MATCHED FACILITY-YEAR DESCRIPTIVE STATISTICS

Variable	N	Mean	Median	Std Dev	Minimum	Maximum
AllInDrawn	5115	177.693	150.000	139.856	5.000	1,655.000
Office	5115	73.714	46.231	99.792	0.108	637.738
big4	5115	0.936	1.000	0.244	0.000	1.000
ROA	5115	0.087	0.082	0.077	-0.347	0.335
leverage	5115	0.313	0.294	0.197	0.000	0.983
tangibility	5115	0.323	0.256	0.245	0.015	0.897
O-Score	5115	-0.877	-0.890	1.275	-3.650	2.991
loansize	5115	18.958	19.113	1.401	14.221	21.822
size	5115	7.423	7.392	1.540	2.947	11.003
performance	5115	0.574	1.000	0.495	0.000	1.000
tenure	5115	10.003	7.000	8.424	1.000	35.000
cityonly	5115	0.421	0.000	0.494	0.000	1.000
nationonly	5115	0.072	0.000	0.258	0.000	1.000
bothleader	5115	0.250	0.000	0.433	0.000	1.000
term	5115	0.273	0.000	0.445	0.000	1.000
lmaturity	5115	3.783	4.094	0.612	1.609	4.564

Table 5 reports the results of Fama McBeth regression for propensity-score matched sample. The t-statistics are based on Newey-West robust standard errors to correct for heteroscedasticity and the third-order autocorrelation (Newly and West1987). The coefficient on *office* becomes insignificant. All other coefficients retain the same quality, except O-Score.

TABLE 5
MATCHED SAMPLE REGRESSION RESULTS

Variables	**Prediction**	
test variable		
Office	-	-0.012
		(-1.57)
Loan-specific variables		
loansize	-	-20.511***
		(-8.72)
term	+	54.462***
		(11.59)
loan maturity	+	11.024***
		(6.25)
performance	-	-37.708***
		(-9.23)
client-specific variables		
size	+	-11.517***
		(-5.34)
ROA	-	-354.52***
		(-7.43)
leverage	+	94.270***
		(7.41)
tangibility	-	-19.836
		(-0.68)
O-Score	+	11.740**
		(2.81)
auditor-specific variables		
big4	-	1.017
		(0.13)
tenure	-	-0.959
		(-1.47)
cityonly	-	1.604
		(0.42)
nationonly	-	-17.285
		(-1.07)
bothleader	-	-5.004
		(-0.62)
Intercept and Industry		
Intercept		629.246***
		(10.51)
Industry dummy		Included
N		5115
Adjust R2		0.417

Table 5 reports the results of Fama McBeth regression in Equation (2). The t-statistics are based on Newey-West robust standard errors to correct for heteroscedasticity and the third-order autocorrelation.

CONCLUSION

This study investigates the association between the audit office size and the cost of bank loan. The results from the regression analysis suggest that audit office size is negatively associated with the cost of bank loans. However, the treatment effect of audit office on bank loans disappears after using matching models to control client variables. The results suggest that the association between audit office size and cost of bank loans should be attributed to client characteristics, more specifically, client size, client ROA and client leverage.

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