

Geographical Concentration and Creditor Coordination: Evidence from Syndicated Loan Covenants

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Abstract

This paper examines how the geographical distance between the lead and the participant bank lenders influences syndicated loan covenants. We find that greater distance is associated with the presence of covenants, the number of covenants, and the probability of covenant violation. These results hold when we use the introduction of new airlines to proxy the decrease in the travel time among lenders. Our results suggest that geographic proximity reduces agency conflicts among syndicated loan creditors.

JEL classification: G21, G32, M41

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1. Introduction

Creditor coordination is crucial for loan syndication. Throughout the process of the syndication, lead arrangers search for participant lenders to share risk, while participant lenders rely on the lead to screen borrowers in the loan initiation and monitor borrowers afterwards. The information asymmetry between the lead arranger and participant lenders will lead to agency conflicts. In particular, faced with a financial distress borrower, the lead lender may prefer to renegotiate the loan rather than accelerate the repayment, because either the lead arranger intends to seize the future rents (Boot and Thaker, 2000) or liquidating the borrower will weaken the lead lender's reputation (Gopalan et al., 2011). Prior studies have documented how the agency problems within syndicated lenders can be mitigated. For example, the participant lenders can require the lead arranger to hold a large proportion of the syndicated loan. (Sufi, 2007; Ivashina, 2009; Gopalan et al., 2011). This paper contributes to this stream of literature by providing evidence that geographic proximity among the creditors can help mitigate the information asymmetry among the creditors.

Our work is motivated by previous studies which demonstrate that the geographic proximity can mitigate agency conflicts between stakeholders and improve the performance. Degryse and Ongena (2005) find that the loan interest rate decreases with the distance between firms and lending banks, while it increases with the distance between firms and competing banks. However, this study has not considered the influence of geographic distance among creditors on the loan syndication. In this paper, we examine whether the distance affects creditor coordination problems captured by

loan covenants. .

We use the design of syndicated loan covenants to measure agency conflicts among the creditors. Loan covenants have a great impact on the behaviors of borrowers and lenders. A number of studies documents that strengthened monitoring provided by lenders after covenants violation, induced by ex-ante covenant strictness, has an influence on corporate governance activities, financial reporting practice and employment cuts (Chava and Roberts, 2008; Roberts and Sufi, 2009; Nini, Smith and Sufi, 2012; Ferreira, Ferreira and Mariano, 2018; Tan, 2013; Falato and Liang, 2016). Also, covenants are used as “trip wires” that lenders can intervene into the affairs of the borrowers (Dichev and Skinner, 2002) and thus covenant strictness is closely associated with lenders’ intervention. However, previous studies have paid little attention that the loan covenants could also proxy agency conflicts among the creditors. Dass, Nanda and Wang (2012) show that covenants are applied to prompt monitoring duty provided by the lead lenders. This paper explores the influences of geographic distance among creditors on the design of the loan covenants to reduce agency conflicts between lead and participant lenders.

A recent paper, Hollander and Verriest (2016), finds that when the geographic distance between lenders and borrowers is greater the covenant intensity is higher. However, whether the geographic concentration among creditors determines the design of syndicated loan covenants remains unclear. Regarding lead arranger’s divergent incentives, participant banks seek more control for the syndicated loan and the loan covenants enable to mitigate the conflicts of interest within the syndicate. The violation

of a covenant allows participant banks to intervene and call the loan. Thus, the agency conflicts among the creditors lead to strong ex-ante decision rights. Therefore, the covenants tend to be more restrictive. So, we expect that geographic concentration reduces agency conflicts and induces fewer covenant restrictions.

Overall, we find that greater distance between the lead manager and the participant banks is associated with that the presence of covenants, a greater number of covenants and a higher probability of covenant violation. These findings hold after we control for potential endogeneity problems with a novel instrument, the introduction of new airline routes among the states where lead and participant lenders locate. The related result suggests that agency conflicts among syndicated loan lenders are mitigated when travel time among lenders is exogenously reduced.

A large literature in banking has analyzed the effect of the geographical proximity on the relationship between borrowers and lenders. Degryse and Ongena (2005) find that loan rate decreases with the distance between firms and lending banks, while it increases with the distance between firms and competing banks. A recent paper, Hollander and Verriest (2016) find that covenant intensity is positively associated with the distance between the lender and the borrower. However, past work has not considered the influence of geographic distance among creditors on their covenant use. In this research, this issue is addressed by examining whether the distance affects agency conflicts between leader and participant bank lenders in syndicated loan covenants.

Our study contributes to two streams of literature. The first examines the effects of covenants on the conflict of interests among creditors. Dass et al. (2012) find that covenants are more likely to be included in contracts when conflicts of interest within the syndicate are greater. Lou and Otto (2018) find that coordination problems among creditors can increase firms' expected costs of financial distress and covenants can help reduce these costs. However, to our best knowledge, none of the previous studies has examined the relationship between geographic distance and creditor coordination with syndicated covenants design. Our research shows that the syndicated covenants tend to be less restrictive when their creditors are closely located to each other. The second stream of literature explores whether geographical distance among stakeholders helps to reduce stakeholder coordination problems. Huang (2014, 2016) investigates the relationship between geographic proximity among institutional shareholders and bidder announcement returns, CEO compensation, and CEO turnover. Huang and Kang (2016) find that the geographic concentration of institutional investors has positive influences on corporate governance and firm value. Huang, Kang and Zhang (2016) find that greater distance between large debtholders and large shareholders is associated with a higher likelihood of covenant default and larger dividend payout. However, it is unclear whether the geographic distance plays a role in mitigating agency problems among lenders. Our work joins this growing literature emphasizing the importance of geographic distance in understanding creditor coordination problems.

The remainder of the paper is organized as follows. Section 2 explains data

and variables. The effect of geographic concentration on restrictive covenants is discussed in Section 3. Identification tests including an endogeneity test and a simultaneity test are analyzed in Section 4. Section 5 compares capital covenants with performance covenants with geographic distance, while Section 6 discusses lead and participant lender relationship. Section 7 concludes.

2. Data and Variables

2.1. Data

The main dataset sources are Thomson Reuters' *Dealscan* and *Compustat* (Fundamentals Yearly). We use the *Dealscan-Compustat link* (2017 version) to merge loans from the *Dealscan* and accounting information in the *Compustat* Database (Chava and Roberts, 2008). *Dealscan* contains covenants, lenders, yield spreads, maturities, and other loan characteristics. Our sample of loans is between 1994 and 2017 since information on covenants is limited before 1994. We require the borrowers to locate in the U.S. and are not in the financial industry. In *Dealscan*, the information of covenants is given at the package level. Therefore, we treat the package as the unit of analysis. For facilities with different information within a package, we calculate the average of loan terms. To construct the measures of geographic concentration, we focus on the loan package which contains sole lead lender. After the process of filtering, our final sample consists of 20,376 loan packages.

To obtain the geographic information of lenders, we record lenders' names

from the *Dealscan*. Due to the limited address information of lenders in the *Dealscan*, we search the google map to collect the zip code of the headquarters of bank loan lenders manually. Information on the latitude and longitude of lenders comes from the Census 2010 U.S. Gazetteer Files.

2.2. Measures of Geographic Concentration

Based on Huang and Kang (2017), we construct the following four measures to capture the geographic concentration between lead and participant bank lenders: 1) *Ew Distances*¹, the logarithm of the equally-weighted physical distance between leader and participant bank lenders pairs; 2) *Vw Distances*, the logarithm of the ownership-weighted physical distance between leader and participant bank lenders; 3) *Ew Std LatLon*, the sum of standard deviations of leader and participant bank lenders' latitudes and longitudes; 4) *Vw Std LatLon*, the sum of the ownership-weighted standard deviations of leader and participant bank lenders' latitudes and longitudes. The Appendix provides a detailed description of the construction of geographic concentration measures.

2.3. Measures of Restrictive Covenants

We use *Covenant Dummy*, *Number of Covenants* and *Covenant Tightness* to capture the restrictiveness of covenants. *Covenant Dummy* equals one if any covenants are contained within the package otherwise zero. *Number of Covenants* is the number of

¹ Distance (miles) between a lead lender and one participant lender: $3,949.99 \arccos(\sin(lon_p) \sin(lon_l) + \cos(lon_p) \cos(lon_l) \cos(lat_p - lat_l))$, where (lat_p, lon_l) and (lat_l, lon_l) are the latitudes and longitudes in radians for participants i and lead lender l , respectively.

quantitative covenants which ranges between zero and eight (the maximum in the sample). *Covenant Tightness* measures the ex-ante probability of covenants violation based on Murfin (2012). Restricted by financial covenants, borrowers need to maintain financial performance within pre-determined ranges. When the restrictions of covenants are closer to the borrower's current financial ratio, the covenants will be triggered more often. In this case, lenders will obtain more control rights. Specifically, consider a covenant that regulates a minimum value \underline{r} or the financial r that is normally distributed with zero mean and σ standard deviation:

$$r' = r + \epsilon \sim N(0, \sigma^2)$$

If a covenant regulates that lenders get control right when $r' < \underline{r}$, then

$$p = 1 - \Phi\left(\frac{r - \underline{r}}{\sigma}\right)$$

captures the ex-ante probability of lender control, where Φ is the standard normal cumulative distribution function. In this paper, we calculate the tightness of covenants as the average level across all financial covenants within a package.

Overall, the agency conflicts among creditors are more severe when any quantitative covenant exist in a loan, the number of covenants is larger or the ex-ante probability of covenants violation is higher.

2.4. Control Variables

We select loan-specific and borrower-specific characteristics variables based

on Dass et al. (2012). Loan terms include: 1) *Loan Size*, the logarithm of the loan amount; 2) *Loan's Maturity*, the logarithm of the loan's maturity; 3) *LIBOR (Drawn)*, the yield spread over LIBOR that is paid on drawn funds; 4) *Secured* or *Senior*, whether the loan is secured or senior, respectively. The borrower-specific variables are in the fiscal year before the loan contract date. These variables are *Book Leverage*, *Cash Holdings*, *Return on Assets*, *Tobin's Q*, *Tangibility Ratio*, *Capital Expenditures* and *KZ Index*. All continuous control variables are winsorized at the 1% level.

The regression model includes industry, contract year, and borrower-rating fixed effects.

The categories of industries are based on 48 Fama and French industries. The groups of credit rating are based on long-term S&P credit ratings: Group 1 is for ratings CCC and below. Groups 2, 3, and 4 are for ratings B, BB, and BBB, respectively. Group 5 is for ratings A and above. All groups include the “-” and “+” variations of the mentioned ratings.

2.5. Descriptive Statistics

Panel A of Table 1 displays the descriptive statistics. 54.0% of loan packages contain at least one quantitative covenant. The average number of covenants is 1.426. The average level of *Covenant Tightness* is 0.125. Half of the syndicated loans are secured (0.497) and most of the loans are senior (0.998). The mean loan size is \$119 million (18.597 in logarithm). The average maturity of loans is 37 months. The LIBOR(Drawn) is on average 200 basis point. For the borrower-characteristics, the

change in book leverage of sample firms is -0.006 on average. The mean value of fractions of cash equivalents and tangible assets of total assets are 0.111 and 0.352 respectively. The ratio of capital expenditure divided by tangible assets is 0.239 on average. The sample firms have a mean Tobin's q of 1.754, a mean ROA of 0.022 and a mean of KZ index of 0.937. The descriptive statistics of the control variables are in line with the results reported in previous work. (e.g. Dass et al., 2012)

Panel B of Table 1 shows the correlation among dependent variables. The three dependent variables are significantly positively correlated.

3. Restrictive Covenants and Geographic Concentration

The empirical results start from the logit regression of *Covenant Dummy*. The main explanatory variables of interests in this model are geographic concentration measures between lead and participant lenders within the syndicated loans. Firm and loan control variables are included.

The logit model is shown as follows:

$$\begin{aligned}
 \text{Covenant Dummy} = & \alpha + \beta_1 \text{Geographic Concentration} + \gamma_1 \text{LOAN} + \gamma_2 \text{FIRM} \\
 & + \delta_i + \phi_j + \varphi_t + \epsilon
 \end{aligned} \tag{1}$$

where δ_i , ϕ_j and φ_t are contract year, industry, and credit rating dummies, respectively.

Table 2 reports the results obtained from the above model. Across the first four columns, the coefficients of geographic concentration measures are all significantly positive at the 1% level. That is, quantitative covenants are less likely contained in a loan contract when the geographic distance between leader and participant lenders is closer. It implies that geographic proximity induces less restrictive covenants, thus reduces the conflicts between leader and participant lenders. To assess the economic significance, we calculate the change of the probability that at least one covenant is contained in the loan package as one-standard-deviation increases in *Ew Distances*, with other variables at the level of the sample mean. This computation shows that the predicted probability changes from 21% to 24%. This increase accounts for 5% of the unconditional sample mean of *Covenant Dummy*, which suggests the economic effect of geographic concentration is significant as well.

Additionally, model (1) includes a variety of variables used in previous studies as control variables. Hollander and Verriest (2016) find that loan contracts include more covenants when the distances between lenders and borrowers are remote. Interestingly, the distances between lead lenders and borrowers do not seem to have explanatory power for covenant dummy in our model. The coefficients of *Distance* in column (5) through (8) are not statistically significant. After controlling for the distances between lead lenders and borrowers, the distances between leaders and participant lenders still have significant positive coefficients. Additionally, we find that the probability that loan package contains at least one covenant is lower in larger loans (*Loan's Size*), higher when the maturity of loan package is longer (*Loan's Maturity*), lower when *LIBOR*

(Drawn) is higher (*LIBOR(Drawn)*) and higher when the loan is secured (*Secured*). All these coefficients are both statistically and economically significant. Estimates for most of the control variables are generally consistent with the empirical findings of Dass et al. (2012).

The results of *Covenant Number* are shown in Table 3. The coefficients of all the four concentration measures are significantly positive at the 1% level in regression (1) through (8). The economic impact of geographic concentration is not trivial. For example, the coefficient of *Ew Distances* in column (1) is 0.040, which means that ceteris paribus, a one-standard-deviation increase in *Ew Distances* is associated with an increase in the number of quantitative covenants of 0.157. This number makes up 10.9% of the sample mean of the number of covenants. After the distances between lead lenders and borrowers are controlled, the coefficients of concentration measures remain significantly positive. It consistently suggests that the conflicts between the lead and participant bank lenders are attenuated with geographic proximity.

The results of *Covenant Tightness* are shown in Table 4. The coefficients of all geographic concentration measures are significantly positive at the 1% level across all columns. A one-standard-deviation increase in *Ew Distances* induces a 0.008 increase in covenant tightness, with other variables controlled. This number accounts for 6.3% of the sample mean of *Covenant Tightness*. Therefore, geographic proximity weakens the agency problem so that the covenant strictness imposed on the borrower is attenuated.

4. Identification Tests

4.1. Endogeneity Test: Airline Shock

One may be concerned about the potential endogeneity problem: lead lenders do not randomly select participant lenders to complete the syndicated loans. The potential endogeneity is generally driven by unobservable characteristics of lenders that affect both their geographic locations and the coordination problems among lenders. To address the endogeneity issue, we use the introduction of new airline routes between the lead and participant lenders to capture exogenous changes in the geographic concentration. The construction process is mainly based on Giroud (2013). The indicator variable *Airline Shock* takes one if any airline route, which reduces the travel time between the cities in which the lead and participant lenders are located, is introduced one year before the facility start date of the loan contract, and zero otherwise.²

A potential problem in using the introduction of new airline routes is that new routes are not randomly introduced. For the states where borrowers and lenders locate in, the local economy could influence the introduction of airlines and the design of loan contracts at the same time. To solve this problem, we control variables that capture the economic status at the year of syndicated loan issued. The related variables are the unemployment rate and the personal income of the city in which the borrower is located.

² The data source of airlines is the T-100 Domestic Segment dataset. New airline routes include two categories: (1) “Direct to Direct”: a new direct flight replaces an original optimal flight; (2) “Road to Flight”: a new direct flight replaces car travel as the previously optimal route. The data source of car travel is MS Mappoint.

The regression result is shown in Table 5. *Airline Shock* is the key independent variable of interest. We find that the coefficients of *Airline Shock* are all negative for the three measures of restrictive covenants (*Covenant Dummy*, *Covenant Number* and *Covenant Tightness*). Especially, for *Covenant Dummy* and *Covenant Tightness*, the coefficients are statistically significant at least at the 5% level. This result suggests that coordination problems among syndicated loan lenders are mitigated when the travel time among lenders is exogenously reduced. Thus, it confirms that the geographic concentration mitigates the potential coordination problems among bank loan lenders.

4.2 Simultaneity Test

Loan terms may be designed simultaneously. Following Degryse and Ongena (2005), we use a stratification approach to address the potential bias driven by simultaneity.

The sample is split based on *LIBOR(Drawn)*, *Loan's Maturity* and *Secure*. If our previous results were mainly driven by the simultaneity bias, we should find the coefficients of the geographic concentration variables are significantly different across subsamples. However, the results in Table 6 show no simultaneity bias of *LIBOR(Drawn)* and *Secured* in our models. In panel A, we split the whole sample based on the median of *LIBOR (Drawn)*. For *Covenant Tightness*, the coefficients are 0.002 ($P < 0.05$) and 0.003 ($P < 0.01$) for both the lower *LIBOR (Drawn)* and the higher *LIBOR (Drawn)* samples. The coefficients in the models with *Covenant Dummy* and *Covenant Number* as dependent variables do not vary a lot either. In panel B, we divide the whole

sample based on whether the loan is secured. Specifically, for *Covenant Tightness*, the coefficients are 0.003 for both the not secured loan and the secured loan samples. The situation is same for models about *Covenant Dummy* and *Covenant Number*. In panel C, the sample is divided by the median level of the *Loan's Maturity*. Across the columns, the coefficients are all positive. Above all, the stratification result presents *LIBOR(Drawn)*, and *Secure* does not drive serious simultaneity in our models.

5. Capital Covenants versus Performance Covenants

In the above analysis, we treat different types of covenants equally. In fact, the terms of covenants contain a variety of accounting ratios. Furthermore, there are significant distinctions in the monitoring role of different covenants (Christensen and Nikolaev, 2012). Thus, to examine which kind of covenant is influenced more by the geographic concentration, we divide the covenants into two categories: performance covenants and capital covenants, based on Christensen and Nikolaev (2012). According to their theory, capital covenants mainly ensure that shareholders “skin in the game” to align incentives of shareholders with those of debtholders *ex-ante*, while performance covenants can be used by lenders to detect early signals of distress and therefore to renegotiate the contract *ex-post* early. Capital covenants facilitate *ex-ante* alignment of interests of shareholders and debtholders, while performance covenants require lenders to monitor the borrower more closely. In our prediction, performance covenants have a more important role in solving coordination problems among bank lenders. Specifically,

we use an indicator variable *PC Dummy*, whether the number of performance covenants is larger than that of capital covenants, to represent the importance of the two types of covenants.

The result is shown in Table 7. The coefficients of the geographic concentration measures are all significantly positive at the 1% level. This result confirms our prediction that the probability that more performance covenants than capital covenants are contained in the package loan is higher when the distances among bank loan lenders are more disperse. In conclusion, performance covenants, are influenced more by the geographic concentration.

6. Lead and Participant Lender Relationship

Besides the geographic distance among creditors in the syndicated loan, the relation between the lead lender and participant lenders also has an influence on the loan terms. Li (2017) points out that the relationship between the lead lender and the borrower or between the lead and participants mitigate the information asymmetry problems faced by the participant lenders in the syndicated loan.

Based on Li (2017), we focus on how relationships influence the covenant terms. In Table 8, the coefficients of lead-participant lender relationship (*PLR*) are significantly negative in the models of *Covenant Dummy* and *Covenant Number*. This result shows that, when participants have prior collaboration experience with the lead lenders, the covenant terms will be loosened. With *PLR* contained in the model, the

coefficients of *Ew distances* remain significantly positive at the 1% level, which implies the geographic distance plays an important role after the relationship between the lead and participant lender is considered.

7. Conclusion

In this paper, we investigate the impact of geographic concentration between the lead and the participant lenders within syndicated loans on debt covenants. We argue that the geographic concentration decreases information asymmetry between the lead and participant lenders, which help mitigate the agency problem. Consistent with this argument, we show that greater distance induces strict covenants in the loan package. These results are robust to using alternative measures of geographic concentration among creditors within the syndicated loans, to control potential simultaneity problems and to mitigate endogeneity bias with the introduction of new airlines as an exogenous shock. These empirical findings suggest that geographic proximity reduces agency conflicts among syndicated loan creditors.

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Appendix: Variables Definitions.

The appendix provides detailed descriptions of all the variables used in the tables.

Variable	Definition
Loan Characteristics:	
Covenant Dummy	Equals one if any covenants are found in a given loan, and zero otherwise
Number of Covenants	The number of financial covenants in a loan package
Covenant Tightness	The probability of a covenant violation. According to Murfin (2012), for a covenant that stipulates a minimum value \underline{r} for the financial ratio r that is normally distributed with standard deviation σ , tightness can be calculated as: $p = 1 - \Phi\left(\frac{r_t - \underline{r}}{\sigma}\right)$ <p>where Φ denotes the cumulative standard normal distribution function. (If the covenants stipulate r to a maximum ratio, the numerator in the parentheses is multiplied by minus one).</p> <p>The slack is calculated using the difference between the financial ratio³ in the quarter prior to the loan start date and the covenant trigger. σ is quarterly standard deviation of twelve quarters prior to the date of loan origination. Finally, a loan's covenant tightness is the average tightness across all financial covenants.</p>
Loan Size	The logarithm of the loan amount, which is the mean of the amounts of all facilities within the package.
Loan's Maturity	The logarithm of the loan's maturity counted in the number of months plus one, which is the mean of the maturities of all facilities within the package.
LIBOR (Drawn)	The yield spread over LIBOR that is paid on drawn funds, which is the mean of the LIBOR of all facilities within the package.
Secured	Equals one if the loan is secured, and zero otherwise
Senior	Equals one if the loan is senior, and zero otherwise
PC Dummy	Equals one if the number of performance covenants is larger than that of capital covenants, and zero otherwise. Performance covenants : (1) Cash interest coverage ratio; (2) Debt service coverage ratio; (3) Level of EBITDA; (4) Fixed charge coverage ratio;(5) Interest coverage ratio; (6) Debt to EBITDA; and (7) Senior debt to EBITDA.

³ Demerjian and Owens (2016) specify standard covenant definitions using Compustat data that minimize measurement error for all Dealscan covenants. The definition of financial ratio is based on their study.

Capital covenants: (1) Quick ratio; (2) Current ratio; (3) Debt-to-equity ratio; (4) Loan-to-value ratio; (5) Debt-to-tangible net worth ratio; (6) Leverage ratio; (7) Senior leverage ratio; (8) Net Worth; and (9) Tangible Net Worth.

PLR

Equals one if participant has joined the lead arranger's syndicate in the prior year for any borrower, and zero otherwise

Geographic Concentration

Ew distance

The logarithm of the equally-weighted physical distance between leader and participant bank lenders pairs. Specifically, if the geographic distances between the lead and participant lenders are $dist_{lp1}, dist_{lp2}, \dots, \text{and } dist_{lpj}$, then *Ew Distance* is the logarithm of the average of these distances.

Vw distance

The logarithm of the ownership-weighted physical distance between leader and participant bank lenders pairs. Specifically, if the geographic distances between the lead and participant lenders are $dist_{lp1}, dist_{lp2}, \dots, \text{and } dist_{lpj}$, then *Vw Distance* is the logarithm of the average of $w_1 * dist_{lp1}, w_2 * dist_{lp2}, \dots, \text{and } w_j * dist_{lpj}$, where w_j is the bank allocation of participant lender j divided by the bank allocation of all participant lenders.

Ew Std LatLon

The sum of standard deviations of leader and participant bank lenders' latitudes and longitude. Specifically, if the latitudes of the participant banks are $lat_1, lat_2, \dots, \text{and } lat_j$ and their longitudes are $lon_1, lon_2, \dots, \text{and } lon_j$, then *Ew Std LatLon* is $\sqrt{\frac{1}{j} \sum_{i=1}^{i=j} (lat_i - lat_l)^2} + \sqrt{\frac{1}{j} \sum_{i=1}^{i=j} (lon_i - lon_l)^2}$, where j is the number of the participant banks within a package loan, lat_l and lon_l are the latitude and longitude of the lead bank lender, respectively.

Vw Std LatLon

The sum of the ownership-weighted standard deviations of leader and participant bank lenders' latitudes and longitudes. Specifically, if the latitudes of the participant banks are $lat_1, lat_2, \dots, \text{and } lat_j$ and their longitudes are $lon_1, lon_2, \dots, \text{and } lon_j$, then *VW Std LatLon* is $\sqrt{\frac{1}{j} \sum_{i=1}^{i=j} w_i (lat_i - lat_l)^2} + \sqrt{\frac{1}{j} \sum_{i=1}^{i=j} w_i (lon_i - lon_l)^2}$, where j is the number of the participant banks within a package loan, w_i w_j is the bank allocation of participant lender j divided by the bank allocation of all participant lenders, lat_l and lon_l are the latitude and longitude of the lead bank lender, respectively.

Airline Shock

An indicator that takes one if at least one airline route, which reduces the travel time between the cities where the lead and participant lenders locate in separately, is introduced one year prior to the facility start date of the loan contract, and zero otherwise.

Borrower Characteristics:

Distance	The logarithm of the distance between the borrower and the lead lender.
Book Leverage Change	The difference between the book leverage in the previous two years and that in the year prior to the covenants initiate date. Book leverage is defined as the sum of long-term debt and debt in current liabilities, scaled by assets
Cash Holdings	Cash holdings and short-term investments, scaled by lagged assets
Return on Assets	Income before extraordinary items, scaled by lagged assets
Tobin's Q	the sum of assets and market equity less book equity and deferred taxes, scaled by assets
Tangibility Ratio	The net property, plant, and equipment, scaled by assets
Capital Expenditures	capital expenditures divided by the net property, plant, and equipment
KZ Index	$3.139 (Book\ Leverage) + 0.283 (Tobin's\ Q) - 1.002(Cashflow) - 39.368 \times (Dividends) - 1.315 \times (Cash\ Holdings)$, where <i>Cashflow</i> is the sum of income before extraordinary items, depreciation and amortization, scaled by lagged assets; <i>Dividends</i> is total dividends, scaled by lagged assets.

Table 1: Descriptive Statistics

This table presents descriptive statistics of the variables and correlation of covenant measures. We categorize the variables into covenant measures, geographic concentration, loan characteristics, loan characteristics, and borrower characteristics. The Appendix provides detailed variable descriptions. The sample period is from 1994 to 2017.

Panel A: Descriptive Statistics of Variables					
	Units	N	Mean	Median	Std. Dev.
Covenant Measures:					
Covenant Dummy	0/1	20376	0.540	1.000	0.498
Number of Covenants	Integer	20376	1.426	1.000	1.566
Covenant Tightness	Probability	17481	0.125	0.000	0.242
Geographic Concentration:					
<i>Ew distances</i>	Ln(miles)	20376	4.984	7.593	3.913
<i>Vw distances</i>	Ln(miles)	20376	1.811	0.000	3.331
<i>Ew Std LatLon</i>	Degree	14506	2.424	2.706	1.159
<i>Vw Std LatLon</i>	Degree	14506	0.635	0.000	0.981
<i>Airline Shock</i>	0/1	20376	0.097	0.000	0.296
Loan Characteristics:					
Loan Size	Ln(dollars)	20374	18.597	18.644	1.320
Loan's Maturity	Ln(1+months)	18664	3.627	3.761	0.637
LIBOR (Drawn)	Basis points	18140	200.431	175.000	142.494
Secured	0/1	20376	0.497	0.000	0.500
Senior	0/1	20376	0.998	1.000	0.049
Borrower Characteristics:					
Distance	Ln(miles)	16099	8.281	8.631	1.164
Book Leverage Change	Ratio	17840	-0.006	-0.004	0.277
Cash Holdings	Ratio	19071	0.111	0.040	0.197
Return on Assets	Ratio	19069	0.022	0.040	0.147
Tobin's Q	Ratio	16204	1.754	1.443	1.018
Tangibility Ratio	Ratio	19855	0.352	0.287	0.255
Capital Expenditures	Ratio	19561	0.239	0.190	0.176
KZ Index		15977	0.937	0.895	1.333

Panel B: Correlation of Covenant Measures

	Covenant Dummy	Number of Covenants	Covenant Tightness
Covenant Dummy	1.000		
Number of Covenants	0.840*** (0.000)	1.000	
Covenant Tightness	0.557*** (0.000)	0.521*** (0.000)	1.000

Table 2: Logit Regression of Covenant Dummy on Geographic Concentration Measures

The table presents linear probability regressions of *Covenant Dummy* on Geographic Concentration Measures. The dependent variables is *Covenant Dummy*, an indicator that equals one if any covenants are contained in the loan contract, and zero otherwise. The main independent variables of interest are geographic concentration measures. The sample period is from 1994 to 2017. Industry, year, and borrower-rating dummies are included in all the regressions. Robust standard errors in parentheses. ***, **, * represent significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Ew Distances</i>	0.044*** (0.006)				0.048*** (0.008)			
<i>Vw Distances</i>		0.225*** (0.008)				0.236*** (0.009)		
<i>Ew Std LatLon</i>			0.145*** (0.024)				0.194*** (0.033)	
<i>Vw Std LatLon</i>				0.858*** (0.034)				0.901*** (0.038)
Distance					-0.001 (0.021)	-0.007 (0.022)	0.012 (0.025)	-0.003 (0.026)
<i>Loan Characteristics:</i>								
Loan Size	-0.020 (0.022)	-0.052** (0.022)	0.164*** (0.028)	0.193*** (0.029)	-0.038 (0.026)	-0.076*** (0.025)	0.144*** (0.032)	0.177*** (0.034)
Loan's Maturity	0.201*** (0.039)	0.202*** (0.040)	0.303*** (0.047)	0.338*** (0.050)	0.186*** (0.044)	0.178*** (0.046)	0.296*** (0.052)	0.327*** (0.056)
LIBOR (Drawn)	-0.003*** (0.000)	-0.002*** (0.000)	-0.003*** (0.000)	-0.002*** (0.000)	-0.003*** (0.000)	-0.002*** (0.000)	-0.003*** (0.000)	-0.002*** (0.000)
Secured	1.654*** (0.054)	1.715*** (0.056)	1.769*** (0.063)	1.828*** (0.067)	1.691*** (0.060)	1.759*** (0.063)	1.842*** (0.070)	1.909*** (0.075)
Senior	-0.673 (0.496)	-0.474 (0.517)	-1.847* (1.115)	-1.395 (1.114)	-0.941 (0.587)	-0.741 (0.615)	-1.773 (1.110)	-1.333 (1.086)
<i>Borrower Characteristics:</i>								
Book Leverage Change	0.069 (0.076)	0.055 (0.078)	0.142 (0.093)	0.138 (0.098)	0.073 (0.084)	0.064 (0.085)	0.174* (0.104)	0.182* (0.107)
Cash Holdings	-0.315**	-0.270*	-0.414**	-0.387**	-0.397**	-0.351**	-0.690***	-0.702***

	(0.145)	(0.147)	(0.193)	(0.197)	(0.166)	(0.168)	(0.211)	(0.214)
Return on Assets	0.867***	0.971***	0.897***	1.011***	0.933***	1.063***	1.063***	1.273***
	(0.171)	(0.175)	(0.255)	(0.271)	(0.200)	(0.205)	(0.288)	(0.311)
Tobin's Q	0.055**	0.052**	0.055*	0.052	0.054*	0.046	0.065*	0.056
	(0.026)	(0.026)	(0.032)	(0.033)	(0.030)	(0.030)	(0.036)	(0.037)
Capital Expenditures	0.162	0.055	0.167	0.016	0.132	0.032	0.120	-0.025
	(0.125)	(0.129)	(0.147)	(0.155)	(0.139)	(0.144)	(0.163)	(0.173)
Tangibility Ratio	0.049	-0.029	0.021	-0.091	-0.025	-0.098	-0.027	-0.141
	(0.151)	(0.158)	(0.192)	(0.204)	(0.169)	(0.177)	(0.212)	(0.226)
KZ Index	-0.105***	-0.097***	-0.091***	-0.078***	-0.115***	-0.106***	-0.103***	-0.084***
	(0.019)	(0.020)	(0.023)	(0.024)	(0.021)	(0.022)	(0.026)	(0.027)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rating Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R2	0.173	0.231	0.187	0.256	0.173	0.239	0.191	0.268
Observations	12,845	12,845	9,611	9,611	10,456	10,456	7,971	7,971

Table 3: Regression of Covenant Number on Geographic Concentration Measures

The table presents regressions of *Covenant Number* on geographic concentration measures. *Covenant Number* is the number of covenants contained in a loan contract. The main independent variables of interest are geographic concentration measures. The sample period is from 1994 to 2017. Industry, year, and borrower-rating dummies are included in all the regressions. Robust standard errors in parentheses. ***, **, * represent significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Ew Distances</i>	0.040*** (0.004)				0.041*** (0.004)			
<i>Vw Distances</i>		0.083*** (0.003)				0.085*** (0.004)		
<i>Ew Std LatLon</i>			0.080*** (0.013)				0.092*** (0.019)	
<i>Vw Std LatLon</i>				0.293*** (0.013)				0.300*** (0.014)
Distance					-0.004 (0.012)	-0.003 (0.012)	-0.013 (0.014)	-0.017 (0.014)
<i>Loan Characteristics:</i>								
Loan Size	-0.058*** (0.012)	-0.050*** (0.012)	-0.002 (0.015)	0.012 (0.015)	-0.081*** (0.014)	-0.073*** (0.013)	-0.019 (0.017)	-0.001 (0.017)
Loan's Maturity	0.209*** (0.022)	0.218*** (0.021)	0.252*** (0.026)	0.262*** (0.026)	0.193*** (0.024)	0.202*** (0.024)	0.238*** (0.029)	0.248*** (0.028)
LIBOR (Drawn)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.000*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.000** (0.000)
Secured	0.961*** (0.030)	0.928*** (0.030)	1.050*** (0.035)	1.010*** (0.034)	0.986*** (0.033)	0.952*** (0.033)	1.077*** (0.038)	1.034*** (0.037)
Senior	-0.151 (0.277)	-0.037 (0.279)	-0.660 (0.427)	-0.520 (0.443)	-0.275 (0.296)	-0.156 (0.301)	-0.598 (0.422)	-0.459 (0.440)
<i>Borrower Characteristics:</i>								
Book Leverage Change	-0.009 (0.048)	-0.013 (0.048)	0.002 (0.058)	0.005 (0.058)	0.006 (0.052)	0.004 (0.052)	0.017 (0.062)	0.022 (0.061)
Cash Holdings	-0.140	-0.137	-0.095	-0.085	-0.278***	-0.273***	-0.323***	-0.317***

	(0.091)	(0.090)	(0.125)	(0.123)	(0.095)	(0.094)	(0.125)	(0.122)
Return on Assets	1.271***	1.300***	1.098***	1.115***	1.204***	1.237***	1.169***	1.196***
	(0.098)	(0.098)	(0.149)	(0.149)	(0.115)	(0.114)	(0.159)	(0.158)
Tobin's Q	-0.041***	-0.044***	-0.043**	-0.046***	-0.030*	-0.034**	-0.034*	-0.039**
	(0.014)	(0.014)	(0.017)	(0.017)	(0.016)	(0.016)	(0.019)	(0.018)
Capital Expenditures	0.013	-0.037	0.021	-0.049	-0.022	-0.068	-0.032	-0.100
	(0.074)	(0.072)	(0.086)	(0.084)	(0.081)	(0.079)	(0.094)	(0.091)
Tangibility Ratio	0.060	0.035	0.044	0.003	0.028	0.000	-0.018	-0.060
	(0.089)	(0.088)	(0.111)	(0.109)	(0.098)	(0.097)	(0.119)	(0.117)
KZ Index	-0.019*	-0.012	-0.009	-0.001	-0.027**	-0.019	-0.012	-0.002
	(0.011)	(0.011)	(0.013)	(0.013)	(0.012)	(0.012)	(0.015)	(0.014)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rating Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R2	0.162	0.167	0.170	0.177	0.166	0.171	0.173	0.180
Observations	11,057	11,057	8,405	8,405	8,983	8,983	6,944	6,944

Table 4: Regression of Covenant Tightness on Geographic Concentration Measures

The table presents linear probability regressions of *Covenant Tightness* on geographic concentration measures. The dependent variable is *Covenant Tightness*, the ex-ante probability of a covenant violation based on Murfin (2012). The main independent variables of interest are geographic concentration measures. The sample period is from 1994 to 2017. Industry, year, and borrower-rating dummies are included in all the regressions. Robust standard errors in parentheses. ***, **, * represent significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Ew Distances</i>	0.002*** (0.001)				0.002*** (0.001)			
<i>Vw Distances</i>		0.006*** (0.001)				0.006*** (0.001)		
<i>Ew Std LatLon</i>			0.005** (0.002)				0.007** (0.003)	
<i>Vw Std LatLon</i>				0.021*** (0.003)				0.021*** (0.003)
Distance					-0.003 (0.002)	-0.003 (0.002)	-0.003 (0.002)	-0.003 (0.002)
<i>Loan Characteristics:</i>								
Loan Size	-0.005** (0.002)	-0.005** (0.002)	0.003 (0.003)	0.004 (0.003)	-0.006** (0.003)	-0.006** (0.003)	0.001 (0.003)	0.003 (0.003)
Loan's Maturity	0.012*** (0.004)	0.012*** (0.004)	0.012*** (0.004)	0.013*** (0.004)	0.011** (0.004)	0.011*** (0.004)	0.011** (0.005)	0.012** (0.005)
LIBOR (Drawn)	0.000** (0.000)	0.000*** (0.000)	0.000** (0.000)	0.000*** (0.000)	0.000* (0.000)	0.000** (0.000)	0.000** (0.000)	0.000*** (0.000)
Secured	0.124*** (0.005)	0.122*** (0.005)	0.123*** (0.006)	0.119*** (0.006)	0.128*** (0.006)	0.125*** (0.006)	0.125*** (0.006)	0.120*** (0.007)
Senior	0.020 (0.059)	0.026 (0.060)	-0.159 (0.108)	-0.154 (0.113)	-0.017 (0.068)	-0.011 (0.070)	-0.156 (0.110)	-0.151 (0.114)
<i>Borrower Characteristics:</i>								
Book Leverage Change	0.009 (0.009)	0.008 (0.009)	0.009 (0.011)	0.009 (0.011)	0.006 (0.011)	0.005 (0.010)	0.009 (0.012)	0.009 (0.012)
Cash Holdings	-0.061***	-0.059***	-0.047**	-0.046**	-0.059***	-0.058***	-0.057***	-0.056***

	(0.015)	(0.015)	(0.019)	(0.019)	(0.016)	(0.016)	(0.020)	(0.020)
Return on Assets	-0.138***	-0.136***	-0.158***	-0.156***	-0.132***	-0.130***	-0.158***	-0.155***
	(0.023)	(0.023)	(0.030)	(0.030)	(0.026)	(0.026)	(0.033)	(0.033)
Tobin's Q	-0.008***	-0.008***	-0.009***	-0.010***	-0.013***	-0.013***	-0.012***	-0.012***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Capital Expenditures	-0.004	-0.007	-0.008	-0.013	0.000	-0.003	-0.009	-0.014
	(0.014)	(0.014)	(0.015)	(0.015)	(0.015)	(0.015)	(0.017)	(0.017)
Tangibility Ratio	0.004	0.002	-0.006	-0.009	0.004	0.003	-0.012	-0.015
	(0.018)	(0.018)	(0.020)	(0.020)	(0.020)	(0.020)	(0.022)	(0.022)
KZ Index	0.014***	0.015***	0.015***	0.016***	0.015***	0.016***	0.016***	0.016***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.003)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rating Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R2	0.162	0.167	0.170	0.177	0.166	0.171	0.173	0.180
Observations	11,057	11,057	8,405	8,405	8,983	8,983	6,944	6,944

Table 5: Identification: Airline Shock

The table presents the effects of airline shock on coordination problem measures (*Covenant Dummy*, *Covenant Number*, and *Covenant Tightness*). The main independent variable of interest is *Airline Shock*. *Airline Shock* is an indicator that takes one if at least one airline route, which reduces the travel time between the states where the lead and participant lenders locate, is introduced one quarter prior to or at the same quarter to the date of loan origination, and zero otherwise. The sample period is from 1994 to 2017. In column (2), (4) and (6), unemployment rate and personal income of the states in which the borrowers are located are included in the models. Industry, year, and borrower-rating dummies are included in all the regressions. Robust standard errors in parentheses. ***, **, * represent significance at the 1%, 5% and 10% levels, respectively.

	Covenant Dummy		Covenant Number		Covenant Tightness	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Airline Shock</i>	-0.192*** (0.071)	-0.219*** (0.074)	-0.054 (0.040)	-0.065 (0.041)	-0.017** (0.007)	-0.015** (0.007)
<i>Ew Distances</i>	0.049*** (0.008)	0.046*** (0.008)	0.042*** (0.004)	0.043*** (0.005)	0.002*** (0.001)	0.002*** (0.001)
Distance	-0.003 (0.021)	-0.021 (0.022)	-0.004 (0.012)	-0.007 (0.013)	-0.003 (0.002)	-0.004 (0.002)
<i>Loan Characteristics:</i>						
Loan Size	-0.038 (0.026)	-0.034 (0.027)	-0.081*** (0.014)	-0.084*** (0.015)	-0.006** (0.003)	-0.007** (0.003)
Loan's Maturity	0.187*** (0.044)	0.171*** (0.046)	0.193*** (0.024)	0.185*** (0.026)	0.011** (0.004)	0.009* (0.004)
LIBOR (Drawn)	-0.003*** (0.000)	-0.003*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	0.000* (0.000)	0.000* (0.000)
Secured	1.689*** (0.060)	1.797*** (0.063)	0.985*** (0.033)	1.037*** (0.035)	0.127*** (0.006)	0.133*** (0.006)
Senior	-0.956 (0.587)	-0.837 (0.603)	-0.279 (0.297)	-0.206 (0.307)	-0.019 (0.068)	-0.019 (0.069)
<i>Borrower Characteristics:</i>						
Book Leverage Change	0.074 (0.084)	0.063 (0.088)	0.007 (0.052)	-0.004 (0.053)	0.006 (0.011)	0.005 (0.011)
Cash Holdings	-0.394** (0.166)	-0.387** (0.175)	-0.278*** (0.095)	-0.275*** (0.097)	-0.059*** (0.016)	-0.057*** (0.017)
Return on Assets	0.933*** (0.200)	0.991*** (0.205)	1.203*** (0.115)	1.242*** (0.118)	-0.132*** (0.026)	-0.135*** (0.027)
Tobin's Q	0.055* (0.030)	0.068** (0.031)	-0.030* (0.016)	-0.023 (0.017)	-0.013*** (0.003)	-0.013*** (0.003)
Capital Expenditures	0.134 (0.139)	0.120 (0.146)	-0.022 (0.081)	-0.036 (0.085)	0.000 (0.015)	-0.006 (0.016)
Tangibility Ratio	-0.015 (0.169)	-0.087 (0.177)	0.030 (0.098)	-0.004 (0.102)	0.005 (0.020)	-0.001 (0.021)
KZ Index	-0.116*** (0.021)	-0.112*** (0.022)	-0.027** (0.012)	-0.023* (0.012)	0.015*** (0.002)	0.017*** (0.003)
Unemployment Rate & Personal income of borrowers	No	Yes	No	Yes	No	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Rating Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R2	0.173	0.159	0.273	0.272	0.166	0.166
Observations	10,456	9,724	10,456	9,724	8,983	8,334

Table 6: Stratification Tests with *LIBOR (Drawn)*, *Loan's Maturity* and *Secure*.

The table presents estimates of *Covenant Dummy*, *Covenant Number* and *Covenant Tightness* on geographic concentration measures⁴ in the samples stratified by *LIBOR (Drawn)*, *Loan's Maturity* and *Secure*. The control variables are the same as those in Table 2. Industry, year, and borrower-rating dummies are included in all the regressions. Robust standard errors in parentheses. ***, **, * represent significance at the 1%, 5% and 10% levels, respectively.

Panel A: Split Variable: *LIBOR (Drawn)*

	Covenant Dummy		Covenant Number		Covenant Tightness	
	<Median	>Median	<Median	>Median	<Median	>Median
<i>Ew Distances</i>	0.052*** (0.011)	0.050*** (0.011)	0.030*** (0.006)	0.053*** (0.006)	0.002** (0.001)	0.003*** (0.001)
Control Variables	Included	Included	Included	Included	Included	Included
Adjusted R2	0.168	0.224	0.286	0.269	0.129	0.138
Observations	5,727	4,721	5,734	4,722	4,938	4,045

Panel B: Split Variable: *Secured*

	Covenant Dummy		Covenant Number		Covenant Tightness	
	Not Secure	Secure	Not Secure	Secure	Not Secure	Secure
<i>Ew Distances</i>	0.027** (0.011)	0.083*** (0.011)	0.013** (0.007)	0.065*** (0.006)	0.003*** (0.001)	0.003** (0.001)
Control Variables	Included	Included	Included	Included	Included	Included
Adjusted R2	0.118	0.167	0.168	0.227	0.0441	0.0923
Observations	4,957	5,498	4,957	5,499	4,386	4,597

Panel C: Split Variable: *Loan's Maturity*

	Covenant Dummy		Covenant Number		Covenant Tightness	
	<Median	>Median	<Median	>Median	<Median	>Median
<i>Ew Distances</i>	0.005 (0.011)	0.084*** (0.011)	0.024*** (0.006)	0.056*** (0.007)	0.000 (0.001)	0.003*** (0.001)
Control Variables	Included	Included	Included	Included	Included	Included
Adjusted R2	0.199	0.193	0.309	0.284	0.215	0.169
Observations	5,191	5,263	5,191	5,265	4,460	4,523

⁴ We only present the result of *Ew Distances* in Table 6. The results of *Vw Distances*, *Ew Std LatLon* and *Vw Std LatLon* are almost identical to that of *Ew Distances* and are available from the authors.

Table 7: Additional Analysis: Performance Covenants and Capital Covenants

The table presents estimates of linear probability regression in which the dependent variable is *PC Dummy*, which equals one if the number of performance covenants is larger than that of capital covenants and zero otherwise. The main independent variables of interest are geographic concentration measures. The sample period is from 1994 to 2017. The control variables are the same as those in Table 2. Industry, year, and borrower-rating dummies are included in all the regressions. Robust standard errors in parentheses. ***, **, * represent significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Ew Distances</i>	0.057*** (0.006)				0.061*** (0.008)			
<i>Vw Distances</i>		0.089*** (0.006)				0.087*** (0.007)		
<i>Ew Std LatLon</i>			0.144*** (0.024)				0.172*** (0.033)	
<i>Vw Std LatLon</i>				0.319*** (0.026)				0.311*** (0.028)
Distance					0.017 (0.022)	0.022 (0.022)	0.020 (0.026)	0.023 (0.026)
Control Variables	Included	Included	Included	Included	Included	Included	Included	Included
Adjusted R2	0.177	0.184	0.194	0.204	0.173	0.181	0.191	0.201
Observations	12,845	12,845	9,600	9,600	10,456	10,456	7,960	7,960

Table 8: Additional Analysis: covenant terms on participant-lead lender relationship

The table presents regressions of *Covenant Dummy*, *Covenant Number* and *Covenant Tightness* on participant-lead lender relationship. *PLR* is an indicator variable that equals to one if participant has joined the lead arranger's syndicate in the prior year for any borrower, and zero otherwise. The control variables are the same as those in Table 2. Industry, year, and borrower-rating dummies are included in all the regressions. Robust standard errors in parentheses. ***, **, * represent significance at the 1%, 5% and 10% levels, respectively.

	Covenant Dummy	Covenant Number	Covenant Tightness
<i>Ew Distances</i>	0.083*** (0.010)	0.047*** (0.006)	0.004*** (0.001)
<i>PLR</i>	-0.152** (0.075)	-0.106** (0.046)	0.005 (0.008)
Control Variables	Included	Included	Included
Year Dummies	Yes	Yes	Yes
Rating Dummies	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Adjusted R2	0.189	0.291	0.171
Observations	9,611	9,611	8,405