

The Bank-Firm Relationship: A Trade-off Between Better Governance and Greater Information Asymmetry

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Abstract

Commercial banks acquire inside information about the firms they lend to. We study the impact of this informationally privileged position on the firm using a broad panel of U.S. firms over the 1993–2004 period. We consider two facets of the borrower-lender relationship: the information the bank gathers about the firm it lends to and the equity exposure the bank has by holding, either directly or indirectly, a stake in the firm it lends to. We show that a more intense relationship, by improving bank’s monitoring, ameliorates the quality of governance of the firm. It increases managerial turnover, abates rent-appropriation by managers, reduces their insider trading and curbs their incentives to initiate acquisitions. At the same time, however, the potential of the bank using its privileged information in the equity market increases adverse selection and reduces stock liquidity. Indeed, firms characterized by a more intense relationship with the bank display lower stock liquidity as well as trading volume and higher information asymmetry. Also, the behavior of the bank as insider crowds out institutional investors. The net effect on the firm’s value is positive – firms with more intense relationship display a higher Tobin’s Q. Moreover, a trading strategy based on the intensity of the bank-firm relationship yields roughly 6% per annum. Our results have normative implications for the role of banks in the development of financial markets.

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Commercial banks, by virtue of their lending activity, acquire inside information on the firms they lend to. What are the effects of this privileged position on the firm? Access to inside information allows the bank to better monitor, protecting its loan and indirectly improving corporate governance (Diamond, 1984, Bolton and Scharfstein, 1996, Holmstrom and Tirole, 1997, Boot and Thakor, 2000). However, this comes at the cost of endowing the bank with an informational advantage (Mayer, 1988, Sharpe, 1990, Rajan, 1992, Boot, 2000), which the bank may exploit in the equity market, thus effectively becoming an insider.

Indeed, even if commercial banks are not supposed to hold shares, still they may manage the portfolios held in trust on behalf of customers (Santos and Wilson, 2005). Moreover, commercial banks are in general part of bigger financial conglomerates with affiliated investment arms (investment banks, mutual funds, pension funds, insurance companies) that can trade on the basis of the information acquired by lending (Massa and Rehman, 2005). Growing evidence of “synergies accruing from being part of a financial conglomerate” provides supporting evidence of conglomerate-wide coordinated behavior (e.g., Puri, 1996, Schenone, 2004, Ritter and Zhang, 2005). The privileged position of the bank due to lending will increase information asymmetry and adverse selection for the stock of the borrowing firm, reducing the incentives of the investors to trade it and decreasing its liquidity.

Therefore, on the one hand a closer borrower-lender relationship helps to improve the governance of the firm, while on the other hand it exacerbates the information asymmetry around the firm’s stock. This induces a trade-off between governance and stock liquidity. So far, the literature has not focused on this trade-off between governance and liquidity induced by bank lending. However, this is of great significance, particularly because its implications for the development of financial markets are substantial. It is akin to the trade-off between liquidity and monitoring that originates in the presence of block-holders (Berle and Means, 1932, Coffee, 1991, Bhidé, 1993).

We study the bank-induced governance/liquidity trade-off empirically. We construct a dataset containing characteristics of bank loans for a broad panel of U.S. firms over the 1985–2004 period and we test how the intensity of the borrower-lender relationship affects the stock of the borrowing firm. We consider two facets of this relationship: informational advantage and equity exposure. We define informational advantage in terms of the information the bank gathers about the firm it lends to and equity exposure in terms of the equity stake that the bank has either directly or indirectly in the firm it lends to.

We rely upon the existing literature to construct two measures of informational advantage: “exclusivity” of the lender-borrower relationship and “proximity” between borrower and lender. Greater “exclusivity” of the lender-borrower relationship implies a more concentrated lending syndicate while greater “proximity” means the borrower and lender are geographically closer. The greater the exclusivity and proximity, the more informed the bank will be about the borrower.

We measure equity exposure by using the overall investment in the borrowing firm by the financial conglomerate to which the bank belongs – i.e., the fraction of the ownership of the firm held on trust by the bank or held by the affiliated institutional investors (insurance companies, mutual funds, pension funds, investment banks, investment managers). The assumption is that the bank can control the voting rights of these shares as well as change its investment, affecting the price of the stock.

We expect that both the bank’s informational advantage and equity exposure increase information asymmetry in the market and reduce stock liquidity. Indeed, more information and the (direct or indirect) investment in firm’s stocks turn the bank into a potential insider. However, both informational advantage and equity exposure also improve governance. Indeed, more information helps the bank to monitor better (Diamond, 1984, James, 1987, Lummer and McConnell, 1989, Boot and Thakor, 2000) and increases its power vis-a-vis the

managers (Rajan, 1992). Equity exposure gives the bank control over a sizable chunk of the firm's voting rights, improving its ability to control (Santos and Wilson, 2005).

We then relate these measures of intensity of relationship to both stock characteristics (e.g., liquidity and information asymmetry) and governance-related characteristics (e.g., managers' risk-taking and discipline of managers). We use an appropriate instrumental variables technique to account for the fact that both, the borrowing decision as well as the characteristics of the loan, are endogenous, and constrained by firm and market characteristics. We also control for the potential reverse causality whereby more opaque firms may choose a closer bank and/or more exclusive relationship with the bank.

We find that a more intense relationship increases the stock's illiquidity and the information asymmetry in the equity market and lowers the stock's trading volume as well as investment in the firm by institutional investors. The effect is economically and statistically significant. Cross-sectionally, an increase of 10% in proximity raises the observed price impact of a trade by about 2%, increases information asymmetry in the stock market by nearly 20%, and reduces trading volume by 2%, lowering institutional trading by 2%. A 10% increase in exclusivity raises the observed price impact of a trade by roughly 4%, increases information asymmetry in the stock market by 9%, reduces trading volume by more than 5% and lowers institutional trading by 3%.

This effect on the stock can be attributed to the bank's potential role as insider. Indeed, equity exposure directly affects the liquidity of the firm's stock. An increase of 10% in equity exposure raises the price impact of trade by 6%, increases information asymmetry by 19%, and reduces trading volume by 4%, lowering institutional trading by 2%.

On the other side of the trade-off, we find evidence of the beneficial effects of a more intense relationship. In particular, a more exclusive relationship with the bank reduces the appropriation of the managers. Cross-sectionally, a 10% increase in exclusivity (equity

exposure) reduces the excess compensation of the managers with respect to their peers in the industry by about 8% and lowers managerial insider trading by 13% (7%). Moreover, a more intense relationship with the bank reduces the amount of money spent on M&As and accelerates managerial turnover. A 10% increase in exclusivity (equity exposure) reduces M&A expenditure by 38% (20%) and increases the probability of managerial turnover by 7% (4%). In other words, the disciplining effect of bank-lending is stronger in the case of a close relationship between borrower and lender and, to a lower degree, in the case in which the bank is more involved with the firm on the equity side.

A more intense relationship with the bank also decreases the uncertainty about the firm's cash flows. Cross-sectionally, a 10% increase in exclusivity reduces the variation in the firm's cash-flows by 33%. This translates into lower stock return volatility. An increase of 10% in proximity (exclusivity) reduces volatility by 1% (3%). A 10% rise in equity exposure reduces the variation in the firm's cash-flows by more than 6% and volatility by 1%.

What is the net effect on the firm's value? On the one hand, more constraints on the managers' wasteful ways imply higher stock prices. On the other hand, higher asymmetry and lower liquidity increase the required rate of return on the stock, reducing its price. We find that a more exclusive bank-lending relationship increases value. This is reflected in higher Tobin's Q and higher stock return following the inception of the loan. In particular, a 10% increase in the exclusivity (equity exposure) increases Tobin's Q by 3% (more than 1%). After the inception of the loan, the returns of firms entering a more exclusive relationship with the bank are positive. The increase in value is equal to 46 b.p. per month over 12 months, and a trading strategy yields roughly 6% over 12 months.

Our paper makes several contributions. First of all, we quantify the impact of the intensity of lending relationship on the borrowing firm's stock price. The test is based on a trade-off between governance and liquidity that is similar to the trade-off between monitoring and liquidity arising in the presence of blockholders discussed in the corporate

governance literature (Berle and Means, 1932, Coffee, 1991, Bhidé, 1993). The more these shareholders collect information useful to monitor the managers, the more tempted they may be to exploit it themselves by investing in the stock. This reduces the liquidity of the stock, resulting in a trade-off between governance and liquidity. We test it in the context of the framework of the borrower-lender relationship. We separately identify the governance and the liquidity channel, showing how the benefits of the traditional role of monitoring by banks should be weighed against the negative effects of their role as potential insiders.

Second, our paper adds to a broader debate in financial intermediation. The banking literature has studied the differences between bank-based systems and market-based systems, and the implications of one prevailing as opposed to the other (e.g., Allen and Gale, 2000). It has also focused on the implications of the conflicts of interest due to underwriting or consulting activities of investments banks around M&A deals, IPOs as well as equity- and bond-issues. However, the informational and liquidity implications of the lending activity of commercial banks have hardly been considered. Not only does our paper provide that link but we also show that its impact on firm value can be sizable. If the very power that allows the banks to monitor better has an unfavorable impact on the stock market, then it may actually prevent systems based on a close relationship between banks and firms from developing a well-functioning stock-market. In the limit, the adverse-selection effects generated by the banks may dry up liquidity and diminish stock-market participation.

Third, we add another facet to the literature on liquidity. We are not aware of any study that relates stock market liquidity to the lending relationships between firms and banks, and the informational externalities that emerge. Previous studies have provided evidence of price support by the trading arm of a financial conglomerate after an IPO underwritten by the same conglomerate (Ellis, Michaely, and O'Hara, 2000) or of the price effects that the flow of information within financial conglomerates has around IPOs (Schenone, 2004). We directly focus on the steady-state equilibrium liquidity resulting from the lending relation.

More importantly, our findings also provide some normative insights. After the abolition of the Glass-Steagall Act, the possibility of banks directly trading on the basis of information acquired through lending activity has increased tremendously. However, the role of banks as insiders has gone largely unnoticed. While regulatory measures (such as Fair Disclosure) have been passed to level the playing field between investors and insiders, little attention has been paid to the information that accrues to banks by virtue of their lending activity. Our results suggest that the effects of this on market liquidity may be relevant.

The remainder of the paper is structured as follows. Section 2 lays out the hypotheses. Section 3 describes the sample and the variables. Section 4 describes the econometric methodology. Sections 5, 6, and 7 report the main findings. A brief conclusion follows.

2. Hypothesis and testable propositions

We now lay out our hypotheses. We argue that bank lending induces a trade-off between governance and liquidity for the borrowing firm that increases with the “intensity” of the borrower-lender relationship.

We start by defining intensity. We consider two aspects of intensity: informational advantage and equity exposure. We define informational advantage in terms of the information the bank gathers about the firm it lends to. We define equity exposure in terms of the equity stake that the bank has either directly or indirectly in the firm it lends to.

Informational advantage is defined in line with the existing literature on relationship lending and multiple-bank lending. We focus on two dimensions of it: exclusivity and proximity. Exclusivity is related to the size or concentration of the lending syndicate. The smaller the size of the syndicate – i.e., the greater the “exclusivity” of the lender-borrower relationship – the better/more information will the bank collect. An extreme case of “exclusive” relationship is relationship lending (Mayer 1988, Sharpe, 1990, Rajan, 1992, Boot, 2000, Boot and Thakor, 2000).

Proximity captures the geographical distance between the borrower and the lender. A shorter distance increases the ability to collect relevant inside (“soft”) information (Berger *et al.*, 2005). The conjecture of geographical proximity as a proxy for inside information is supported by plenty of recent evidence (Coval and Moskowitz, 1999, Garmaise and Moskowitz, 1999, Grinblatt and Keloharju, 2001). For example, Coval and Moskowitz (1999) show the existence of a positive relation between proximity and information. Geography “offers a unique method of identifying ... informed investors” (Coval and Moskowitz, 2001). Proximity reduces the cost of understanding both, the firm’s business as well as the ability of its management. Better acquaintance with the firm’s managers and frequent interaction amongst them within social settings outside work foster understanding and create inside knowledge. In the banking industry, proximity is considered a way of overcoming the severity of the asymmetric information problem between the bank and the firm. The precision of the signal received by the bank about the borrower’s quality decreases in distance (Diamond, 1984, Petersen and Rajan, 1994, Berger and Udell, 1995, Hauswald and Marquez, 2000, Sufi, 2005).

Equity exposure is related to the overall equity position that the bank has directly or indirectly in the borrowing firm. Banks can directly hold a stake by selecting the investments for their trust portfolios. While historically US lawmakers have prohibited banks from investing in the stock of firms for their own account, banks can still make these investments through their trust business.¹ Banks must select trust investments within the confines of the federal and state law and their supervisors’ regulations. “Despite this regulatory framework, banks are still left with significant discretion in the choice of their trust investments. Federal law generally defers to state trust law and does not substantively regulate bank trust investments. As for the State trust law ... all states recognize the duty of loyalty and the duty of care. This rule, however, is quite general. According to this rule,

¹Bank trust services include provision of depository accounts, selection of investments, exercise of the voting rights of the stock held in trust.

investments must be part of an overall investment strategy which pursues risk diversification, and no investment is imprudent per se. ... Some trust settlors or pension-plan sponsors choose to retain investment discretion for themselves. Others, however, choose to give the trustee full investment discretion” (Santos and Wilson, 2005).

Banks can also hold positions indirectly through their affiliated partners – i.e., through members of the same financial conglomerate. For example, commercial banks part of financial conglomerates seem to use their investment arm (mutual funds) to invest on the basis of the information acquired in their lending capacity (Massa and Rehman, 2005). In general, there is growing evidence of coordinated behavior within financial conglomerates (e.g., Puri 1996, Schenone, 2004, Ritter and Zhang, 2005).

The intensity of the borrower-lender relationship – i.e., informational advantage and equity exposure – affects the ability of the bank to monitor the managers of the firm as well as to reap information-based gains by directly trading in the financial market. The link between ability to monitor and informational advantage has been amply documented (Diamond, 1984, Ramakrishnan and Thakor, 1984, Fama, 1985, Boyd and Prescott, 1986, Williamson, 1986, Boot and Thakor, 2000). Similarly, consensus exists that bank monitoring, even if aimed at protecting the loans, still improves overall firm governance (James, 1987, Slovin, Sushka, and Hudson, 1988, Lummer and McConnel, 1989). Banks “acquire private information about loans and enhance the value of investment projects” (Diamond, 1984). Bank lending helps to improve the quality of the firm’s projects and reduces the management’s incentive to default strategically (Bolton and Scharfstein, 1996). Overall, the presence of banks improves corporate governance, preventing the managers from investing sub-optimally (Holmstrom and Tirole, 1997, Jensen, 1986).²

² The equity markets are aware of this effect. Indeed, the willingness of the bank to finance the firm provides a positive signal to the market (Wansley *et al.*, 1993, Bhattacharya and Thakor, 1993). The announcement of a new loan leads to a significantly positive abnormal return for the stock of the borrowing firm (James, 1987, Slovin *et al.*, 1992).

Equity exposure also increases the ability of the bank to monitor as banks can control the voting rights of the stocks they hold in trust. “Banks have full discretionary voting power over shares acquired for their collective investment funds. When they act as investment managers for assets not placed in these funds, they are also often granted authority to vote the shares acquired with these assets” (Santos and Wilson, 2005).³ The ability to control the voting rights of the firm even affects the conditions of the loans and the covenants required (Santos and Wilson, 2005).

At the same time, however, the intensity of the borrower-lender relationship may have a detrimental effect on the liquidity of the stock of the borrowing firm. A higher intensity increases the information advantage of the bank vis-à-vis the other providers of capital and the financial markets as a whole. The bank can exploit this information by trading in the stock market. This will widen the asymmetry of information between the firm and the market, raising adverse selection and drying up stock liquidity. The impact of the bank on the market will be a function of both the informational advantage and the equity exposure, i.e., the fraction of the capital of the firm the bank directly or indirectly controls. These considerations allow us to define our testable restrictions. We posit that:

H1: A more intense borrower-lender relationship increases information asymmetry and reduces firm stock liquidity.

H2: A more intense borrower-lender relationship improves firm governance.

Regarding H1, there may be an alternative channel based on the impact of the bank on the cash flows of the firm. The information monopoly of the bank (informational advantage) as well as the ability to control the voting rights of the stocks held (equity exposure) by increasing the bank’s bargaining power allow it to extract rents from the borrowing firm

³ Santos and Rumble (2005) show that the largest 100 banks in the country control on average 10% of the voting rights of S&P 500 firms. “For several firms in the S&P 500 index the top banks altogether control more than 20% of their voting rights and there are several firms in the country in which these banks control more than 60% of their voting rights.”

(Sharpe, 1990, Rajan, 1992, von Thadden, 1992, Padilla and Pagano, 1997). This also has negative effects on the firm’s incentives to invest (Rajan, 1992, von Thadden, 1995, Kracaw and Zenner, 1998). A more intense borrower-lender relationship increases the likelihood that financing is terminated due to liquidity shocks to the lender (Detragiache, *et al.*, 2000). Banks may even strategically prefer less information dissemination, inducing the borrowing firms to be less transparent (Perrotti and Von Thadden, 2000).

The possibility of cashflow distortions and rent appropriation as well as lower disclosure should increase uncertainty for the shareholders. The net effect is that a more intense relationship with the bank may increase uncertainty about the firm. Standard theory (e.g., Kyle, 1985) posits that higher uncertainty, by raising the scope for action for the existing insiders reduces stock liquidity. If this channel were operative, we would expect a *more intense borrower-lender relationship to increase firm uncertainty*.

The net effect of the governance/liquidity trade-off on firm-value is uncertain *a priori*. If the better-governance effect prevails, then more intense borrower-lender relationship would increase the stock price while if the informational asymmetry aspect prevails, a more intense relationship would reduce the stock price.

3. Data and Definitions of Main Variables

3.1 Data description

We draw data from several different sources and merge them to construct our final sample. Primarily, our data is built upon two groups of companies – one consists of all the firms that have a loan contract between 1985–2004 period and the other consists of all Compustat firms over the 1991–2004 period. We now describe how we constructed our final sample.

We start with data on firms’ lending relationships. The data on the firms’ loan contracts are collected from Loan Pricing Corporation’s (LPC) *DealScan* database. We pick all loan contracts over the period 1985–2004 between borrowers and lenders located in the United

States. These data provide us with information such as the size of the loan, the date when the contract is effective, and the tenor of the loan, etc. For our study, an important item in LPC data is the location of the borrowing firm at the time of the loan contract.

The other, larger component of our basic sample consists of Compustat firms between 1991–2004, for which we have historical location (as opposed to their current location) and some identifying variables available.⁴ These firms act as a complementary group to the borrowers found in LPC, and the two together constitute our basic sample.

For all the banks listed as members of the lending syndicate in our LPC data, we obtain location of the parent company (or “bank holding company”) either from Federal Reserve’s *Report of Condition and Income* (a.k.a. “Call Reports”), or Federal Deposit Insurance Corporation’s (FDIC) *Institution Directory*, or else Bureau van Dijk’s *BankScope* database. In order to obtain these locations, banks are matched by name as well as the year in which the loan becomes active (the time dimension is added in order to account for possible changes in the banks’ location). The name-matching is first done using an algorithm designed for this purpose and then further enhanced by eye-matching, i.e., by searching for the remaining (unmatched) LPC-banks in the above three databases and identifying their parent company’s location.

Once the location of borrowing firms as well as lending banks is known, we calculate the distance between the two entities. To do that, we first identify the geographical coordinates (i.e., latitude and longitude) for each borrower and lender. These county-level coordinates are obtained from the *Gazetteer Files* of Census 2000 of the U.S. and plugged into the formula for calculating the spherical distance. The formula for calculating spherical distance $d_{i,j}$ between bank i and firm j , as identified by their respective latitudes and longitudes, is:

$$d_{i,j} = \arccos(\deg_{latlon}) \cdot r$$

⁴ Compustat location data is available at county-level and therefore, we are confined to county-level location details for the loan-taking firms and lending banks as well.

where $\text{deg}_{\text{latlon}}$ is given by:

$$\cos(\text{lat}_i) \cdot \cos(\text{lon}_i) \cdot \cos(\text{lat}_j) \cdot \cos(\text{lon}_j) + \cos(\text{lat}_i) \cdot \sin(\text{lon}_i) \cdot \cos(\text{lat}_j) \cdot \sin(\text{lon}_j) + \sin(\text{lat}_i) \cdot \sin(\text{lat}_j)$$

and lat and lon refer to the latitude and longitude in radians; r is the radius of Earth. (We convert latitudes and longitudes from degrees to radians by multiplying them with $\pi/180$.)

Accounting variables through the tenor (or life) of each loan for the borrowing firm are obtained from the CRSP-Compustat Merged (CCM) database. In order to be able to associate the borrowing firms in LPC with their respective annual accounting data in CCM, we have to aggregate all the loans-specific information for each borrower across the multiple loan contracts within a given fiscal year. However, before this merge is accomplished, we extract PERMNO's and NCUSIP's for the borrowing firms from the CRSP database; we do this by matching the firm's Ticker and/or name in a given year. After having obtained the corresponding Permno's, we utilize these in matching the CCM accounting data.

Information regarding the local banking market (i.e., the county where the borrower is located) is obtained using branch-level deposits data from FDIC's *Summary of Deposits*. The earliest available Summary of Deposits is dated June 1994 and is reported for the preceding one year; hence, using this data puts a constraint on the extent of our sample through time. 13F Reports are used to obtain the fraction of borrowing company's outstanding shares held by financial institutions (as long as the holding is greater than 5% of the total shares outstanding). Next, we obtain the average number of analysts following the borrowing company's stock; this information is provided in the I/B/E/S *Summary* data. The Governance Index a la Gompers, Ishii and Metrick (2003) is obtained from the Investor Responsibility Research Center's (IRRC) database. For calculating aggregate volatility of returns and our measure of illiquidity, we use CRSP Daily data. Average trading volume is calculated using CRSP Monthly data.

We report summary statistics for our variables in Table 1. We can see that in our sample, the median market capitalization of is about \$500m. Nearly half of the loan-taking firms are listed on the NYSE. Our sample is therefore not made of small firms. The firms in our sample have an average (median) borrowing relationship with seven (four) banks. They borrow on average (median) 28% (27%) of their assets. They are on average (median) located 1,200 kilometers or 750 miles (900 km or 560 miles) away from their lenders. Approximately 25% of firms in our sample are located in large metropolitan areas. We take the following six major cities or metropolitan areas in the U.S. because of their large capital markets – Boston, Chicago, Los Angeles, New York, Philadelphia, and San Francisco.

The median firm sums 9 points out of the 24 that compose the Governance Index, a number very similar to the figures reported in Gompers, Ishii and Metrick (2003). Our mean statistic for Illiquidity is 0.18, which is lower than the mean statistic of 0.32 reported in Amihud (2002); this value rises to 0.49 for the overall sample. This is a first evidence that bank-lending by itself is related to the level of stock liquidity.

3.2 Measures of intensity of the borrower-lender relationship

We measure the degree of intensity of the borrower-lender relationship looking at the informational intensity and the equity exposure. We define informational intensity in terms of the proximity of the lender to the borrowing firm and of the degree of exclusivity of the bank’s relationship with the firm. The former is captured either by *Proximity* or by *Average Distance*, where *Proximity* is defined as the fraction of loans obtained from banks headquartered within 200 miles of the borrower and *Average Distance* is defined as the average distance of the borrowing firm from all the lending banks in the syndicate.⁵ Exclusivity of the bank’s relationship with the firm is captured either by *Exclusivity* or by *Dispersedness*, where *Exclusivity* is defined as the logarithm of the Herfindhal Index of the

⁵ Our results are robust to defining “proximity” as the fraction of total loans from banks headquartered in the same state as the firm’s headquarters. However, since sizes of states vary widely, we show results using the 200-miles limit as this gives a more uniform scale of proximity.

lending syndicate and *Dispersedness* is the logarithm of the number of lenders in the syndicate. Note that *Average Distance* is inversely related to *Proximity* and likewise, *Dispersedness* is inversely related to *Exclusivity*.) The assumption is that a more intense borrower-lender relationship increases the information available to the bank about the firm, which in turn amplifies the informational asymmetry between the bank and the market.

We measure *Equity Exposure* as the overall fraction of the borrowing firm’s equity held by the conglomerate to which the bank belongs. These are the shares held on trust by the bank as well as all the assets held by the affiliated institutional investors (insurance companies, mutual funds, pension funds, investment banks, investment managers). The data come from the Spectrum 13F quarterly filings. The assumption is that the banks can (indirectly) dispose of these shares and therefore affect the price of the stock.

3.3 Measures of Liquidity and Information Asymmetry

The market microstructure literature has proposed alternative ways of measuring information asymmetry and liquidity. A first set of measures is based on the intuition of Kyle’s (1985) λ and measures the percentage price response for a given level of trading volume. This reflects the compensation that liquidity providers demand for transacting with better-informed traders and it increases with the degree of information asymmetry. It is, however, affected by other factors as well (such as inventory). To measure stock liquidity, we use the “illiquidity ratio,” as developed by Amihud (2002). This is the average daily ratio between a stock’s absolute return and its dollar volume:

$$ILLIQ_{j,t} = \frac{1}{Days_{j,t}} \sum_{d=1}^{Days_{j,t}} \frac{|R_{j,t,d}|}{DVol_{j,t,d}}$$

where $Days_{j,t}$ is the number of valid observation days for stock j in month t , and $R_{j,t,d}$ and $DVol_{j,t,d}$ are the daily return and daily dollar volume, respectively, of stock j on day d of month t . It is the price response associated with one dollar of trading volume. Amihud

(2002) and Hasbrouck (2003) show that this measure is positively related to high-frequency measures of price impact and fixed trading costs over the time period for which microstructure data are available. We use yearly averages of the monthly values of the ratio and rescale them by 10^7 before taking the logarithm.

A second measure of liquidity is the “Liquidity Ratio” (Cooper, Groth, and Avera, 1985, Amihud, Mendelson, and Lauterbach, 1997, and Berkman and Eleswarapu, 1998). Conceptually, it can be considered as the reciprocal of the previous variable; operationally, however, it uses high-frequency data. It is the logarithm of the “the average ratio of volume to absolute return, where the average is taken over all days in the sample for which the ratio is defined, i.e., all days with nonzero returns.”⁶ The intuition is that “in a liquid security, a large trading volume may be realized with small change in price.” (Hasbrouck, 2005).

A second set of measures directly focuses on information asymmetry. We follow Bharath, Pasquariello and Wu (2005) and do not use absolute bid-ask spreads for two reasons. First, the scarce availability of bid-ask spreads from transactions data would limit the scope of our analysis. Second, the size of the bid-ask spread is also related to many other factors that are not related to adverse selection. We instead use the measure of information asymmetry developed by Llorente, Michaely, Saar, and Wang (2002). This relies on the interaction between trading volume and asset returns. The degree of asymmetric information is measured by the coefficient C_2 from:

$$R_{i,t+1} = C_0 + C_1 \cdot R_{i,t} + C_2 \cdot (V_{i,t} \times R_{i,t}) + \varepsilon_{i,t+1}$$

$$V_t = \log Turnover_t - \frac{1}{200} \sum_{s=-200}^{-1} \log Turnover_{t+s}, \quad \log Turnover = \log(Turnover_t + 0.00000255)$$

and $Turnover$ is the total number of shares traded each day divided by the shares outstanding. This measure relates to the activity of a firm’s insiders (Clarke and Shastri,

⁶Available on <http://pages.stern.nyu.edu/~jhasbron/Research/GibbsEstimates/Liquidity%20estimates.htm>.

2001) and captures “the market’s perceived intensity of information asymmetry surrounding a firm’s value” (Bharath, *et al.*, 2005).

A measure related to both information asymmetry and liquidity is the trading volume. Information asymmetry reduces trading volume (Milgrom and Stokey, 1982, Foster and Viswanathan, 1990, Easley *et al.*, 1996). Also, trading volume is positively related to stock liquidity (Amihud and Mendelson, 1986, Brennan *et al.*, 1998). We define volume as the number of shares traded as a fraction of total shares outstanding and *Trading Volume* is defined as the logarithm of average monthly volume over the year.

We also consider a measure of trading by institutional investors. The intuition is that since the institutions in general are assumed to be better informed as well as responsible for the price’s informativeness and transparency, a reduction in their trading would be a signal of severe adverse selection problems. Trading by institutions (*Average Institutional Trading*) is defined as the average change in holdings by institutions of all types (as per Spectrum 13f data) over the four quarters in a given fiscal year.

3.4 Firm characteristics

Following is a brief description of several firm-characteristics that we employ as controls in our regressions. *Leverage* is the sum of long-term debt (item 9) and debt in current liabilities (item 34), standardized by lagged assets (item 6). *Size* is measured as the logarithm of book value of assets (item 6). *Cash* is the ratio of total cash (item 1) to lagged assets and *Cashflows* is income before extraordinary items (item 18) plus depreciation and amortization (item 14) as a fraction of lagged assets. Return on assets (*ROA*) is income before extraordinary items (item 18) as a percentage of lagged assets. *Capital Expenditure* is the ratio of capital expenditures (item 128) to lagged assets. *Market-to-Book* is the logarithm of the firm’s market-to-book ratio where market-to-book is (item25 x item199)/(item60). *Institutional Holdings* is the fraction of shares held by those institutional investors that hold

at least a 5% position in the firm. *Analysts* is the number of analysts following the borrowing firm's stock, and is expressed in thousands for the convenience of obtaining normally-scaled coefficient estimates. *NYSE* is a dummy variable that takes the value 1 if the firm is listed on the New York Stock Exchange; otherwise the variable is equal to zero. *Ratings Dummy* is a dummy variable that equals one if the firm has a credit-rating, and equals zero otherwise. *Volatility* is the logarithm of one plus the standard deviation (rescaled by 10^4) of daily returns over the fiscal year; this variable is also rescaled for the convenience of obtaining normally-scaled coefficient estimates.

4. Econometric methodology

We face three different econometric issues: the potential endogeneity of the main explanatory variables, the selection bias in the sample, and the stickiness of our variables along the intertemporal dimension of our panel dataset. We will now address these issues in turn.

4.1 Endogeneity

We start with the issue of endogeneity. The explanatory variables of interest – the decision to borrow from a closer bank, the decision to have an exclusive relationship with few banks as well as the very decision to borrow from a bank (as opposed to issuing equity or bonds in financial markets) – are, at least to some extent, endogenously determined for the firm. They are affected by the characteristics of the firm as well as by many external constraints that the firm faces. Moreover, these decisions are also indirectly related to some of our dependent variables of interest, e.g., the informational asymmetry in the equity market. Indeed, more opaque firms or firms with greater asymmetry of information in the credit market are more likely to borrow from closer banks (Sufi, 2005).

While we can control for many firm-specific characteristics, yet there might be some factors that we cannot control for and that may determine the type of relationship the firm chooses to have with the bank. This would induce an unwarranted correlation between the

omitted variables and the errors, thus biasing our estimates. To address this issue, we follow a two-pronged approach. First, we focus on a variable – equity exposure – that is less subject to potential endogeneity. Second, we adopt an instrumental-variables approach, similar to the one of Berger *et al.* (2005). The separate significance of equity exposure provides direct evidence for our results even in the presence of endogeneity for the other variables.

Equity exposure represents the overall holdings of the financial conglomerate in the borrowing firm before the loan is granted. It is less endogenous, as it is unlikely that firms with specific characteristics – e.g., lower asset transparency – will borrow from a bank because of the bank’s overall holdings of the firm’s stocks. Moreover, if investment in the shares of the firm is influenced by lower asset transparency, we would expect a positive spurious correlation between stock liquidity and holdings (Falkenstein, 1996) as opposed to the negative one that we hypothesize. In any case, to properly eliminate any residual endogeneity, we instrument equity exposure using the set of exogenous variables we define below. Some of these instruments are based on the characteristics of the local bank-lending market, such as the average size of the banks in the region. The intuition is that bigger banks are more likely to be part of a conglomerate and therefore to hold a bigger stake in the borrowing firm. However, this higher ownership in the firm will be related to where the firm is located as opposed to its characteristics – e.g., transparency. This suggests that this variable is likely to provide an instrument orthogonal to the dependent variables of interest.

We now consider the instrumental variables approach for the other loan-characteristics. We need instruments that are correlated with the above-mentioned endogenous explanatory variables – proximity, exclusivity, and the fraction of loans to total debt – but orthogonal to any other omitted characteristics. That is, the instruments should be uncorrelated with the dependent variable through any channel other than their effect via the endogenous explanatory variables. In order to find such instruments, we focus on the “exogenous” determinants of the loan decisions.

A first clear exogenous variable is a regulatory dummy that measures how permissive the state in which the firm is located has been with respect to bank-branching. Similar to Berger *et al.* (2005), we define it as the fraction of years during 1986–2001 for which the borrowing firm’s state was neither a unit banking state nor limited branching state. The idea is that if a firm is located in a state where regulation has not constrained bank-branching, and hence numerous banks operate in its local market, then the firm will be pushed – independent of its own characteristics – to borrow from more banks.

Other instruments are related to the location of the firm and the availability and/or the relative cost of other sources of capital. For example, firms located in remote areas populated by few banks are more likely to have a more exclusive relationship with fewer banks simply because bank competition may not be severe in such a remote area. Also, small firms, with scant access to equity or bond markets, are more likely to resort to bank lending. We therefore use as instruments the characteristics of the local bank-lending market.

In order to capture the distinctive features of the local bank-lending market, we employ the following variables: size of the local bank-lending market, geographical composition of the local bank-lending market, and an index of concentration of the local bank-lending market. All these variables are measured in the year before the inception of the loan. As in Berger *et al.* (2005), size of the lending-market is proxied by the median size of *all* banks (weighted by the number of their respective branches) in the borrower’s county of location. The geographical composition of the lending market in the firm’s county of location, which would determine our proximity variable, is captured by the median (and standard deviation of) distance between the borrower and headquarters of *all* local bank-branches (*inversely* weighted by the number of their respective branches). Finally, we measure concentration of the lending market by calculating a Herfindahl Index (ranging between 0–1) of the deposit

size across all bank branches in the county of firm’s location.⁷ As alternative robustness check, we use a Herfindahl Index based on the number of branches; the (unreported) results based on this alternative are consistent with those reported. As pointed out in Berger *et al.* (2005), while these location instruments may seem similar to the regulatory variable, still “the state-level regulatory variable is a purer instrument...[as]...within a given state, some markets have certain attributes that tend to attract both banks of a certain size and firms with particular characteristics.”

We also use the average lagged value of the corresponding loan characteristics for the industry: i.e., lagged values of the industry’s average for *Average Distance*, *Dispersedness*, *Proximity*, *Exclusivity*, *Equity Exposure*, and *Loan-to-Debt Ratio*. These averages of the same variables for the other borrowing firms in the same industry of the firm we focus on.

In addition to these, we use a dummy variable that equals 1 if the firm is located in one of the six largest metropolises in the U.S. (Boston, Chicago, Los Angeles, New York, Philadelphia, and San Francisco). This is done to account for firms located near large financial markets. The idea is that increased inter-bank competition may increase relationship lending and that higher competition due to easier access to other sources of capital reduces total bank lending as well as relationship lending (Boot and Thakor, 2000).

Besides the ones mentioned above, we include as instruments: the borrowing firm’s characteristics (such as *Size*, *Leverage*, *Cash*, *Cashflow*, *Capital Expenditure*, and *Market-to-Book*) from the year before the loan begins; features of the banking-market measured at the beginning of the fiscal year; and industry averages of size, leverage, cash, cashflows, capital expenditure, and market-to-book, also measured at the beginning of the fiscal year.

We report the results using instrumental variables for the first-stage regressions (i.e., regressions using exogenous variables to instrument for our endogenous explanatory

⁷ We use county level because *historical* Compustat data on location is available at county-level.

variables) in Table 2. Columns 2 and 4 report the determinants of the choice of borrowing from closer banks, while columns 3 and 5 report the determinants of the choice of borrowing from fewer banks. Column 6 reports the same results for equity exposure of lending banks in the borrowing firm. In particular, in column 2, the dependent variable (*Average Distance*) is the average distance in kilometers between the firm and all the banks in the lending syndicate; the distance is measured between the counties where the firm and banks are headquartered. In column 3, the dependent variable (*Dispersedness*) is the logarithm of number of banks in the lending syndicate. In column 4, the dependent variable (*Proximity*) is the fraction of the firm’s loan borrowed from banks located within 200 miles (or 320 kilometers) of the firm’s headquarter (our results are robust if we instead use the fraction of firm’s loan borrowed from banks located in the same state as the firm as our measure of *Proximity*). In column 5, the dependent variable (*Exclusivity*) is the logarithm of the Herfindahl index of the lending syndicate. Finally, in column 6, the dependent variable (*Equity Exposure*) is the fraction of firm’s equity held by institutions belonging to the same conglomerate as the lending bank.

The results show that proximity (average distance) is always negatively (positively) related to the median size of banks and median distance from the banks, i.e., the presence of larger and distant banks in the local area increases *Average Distance*. Also, the fact of being located in a metropolitan area is strongly significant. Conversely, *Dispersedness* is mostly related to the distance from all available banks and the *Metropolis* dummy. In all cases, the pre-loan levels of firm-characteristics play an important role. Firm’s size is especially significant. In the case of *Equity Exposure*, it is worth noting that it is affected by some local banking characteristics (bank size). This confirms our earlier claim on the instruments.

In terms of the correlation with the instrumented regressors, the least-squares regression of *Exclusivity* (*Proximity*) on the instruments and the exogenous variables reports an *F-test* statistic of 72.36 with *p-value* <0.0001 (13.34 with *p-value* <0.0001) and an adjusted R^2 of

as 44% (12%). The least-squares regression of *Equity Exposure* on the instruments and the exogenous variables reports an *F-test* statistic of 15.84 (*p-value* < 0.0001) and an adjusted R^2 of 10%. Also, regarding the issue of orthogonality, the Hansen's *J test* of over-identification provides evidence of the lack of residual correlation of the instruments with the second-stage residuals. In sum, for all the specifications, the instruments are strongly statistically correlated with the endogenous variables of interest and do not affect the dependent variables through a channel other than their effect via the endogenous explanatory variables.

To further control for the firm-characteristics that may be indirectly related to the degree of asymmetric information between the borrower and the lender, we use, among the control variables, firm-level characteristics. This allows us to directly control for the fact that the effect of our lending-relationship variables may indirectly be imputed to the underlying informational asymmetry between the borrower and the lender as opposed to the direct effect of the borrowing relationship itself. Some of these firm-specific variables are also directly related to the alternative ways of capturing information asymmetry about the firm's investment opportunities. These are: size, leverage, and profitability (Frank and Goyal, 2003), level of institutional ownership (Best, Hodges, and Lin, 2004), analysts (Krishnaswami and Subramaniam, 1998, Lowry, 2003). We also include other variables such as the credit rating of the firm. We will see that in all the specifications, the ratings dummy – maybe the most related to the information asymmetry between borrowers and lenders in the credit market (Sufi, 2005) – is mostly insignificant. This confirms the lack of a direct channel from information asymmetry in the credit market to information asymmetry in the equity market.

4.2 Selection Bias

We now consider the selection bias inherent in our sample. All the estimates of the impact of the bank-firm relationship on the firm's characteristics (such as liquidity) are *conditional* on the firm having decided to borrow. This induces a selection bias if the variables that

determine such an impact are the same variables that explain the decision to borrow. It may be, for instance, that the impact of an exclusive relationship on stock volatility is simply due to the fact that more volatile firms are the ones that are more likely to borrow from fewer banks in the first place. In particular, the problem can be represented as:

$$s_i^* = x'_{1i}\beta_1 + \varepsilon_{1i} \quad (1)$$

$$b_i^* = x'_{2i}\beta_2 + \varepsilon_{2i} \quad (2)$$

$$\text{if } b_i^* > 0, \quad s = s_i^*, b_i = 1 \text{ otherwise, if } b_i^* \leq 0, \quad s_i \text{ not observed and } b_i = 0 \quad (3)$$

where equation (1) is the equation relating stock-specific characteristics (e.g., s_i is either stock volatility or liquidity) and (2) is the selection equation that represents the firm's decision to borrow from a bank. x_{1i} and x_{2i} are the explanatory variables. Conditions in (3) say that we do not observe the relationship between bank loans and stock characteristics for the firms which have chosen not to borrow. Thus, the decision to borrow is endogenous with respect to the explanatory variables: b_i depends on the latent variable b_i^* , itself a function of firm characteristics and other determinants. If self-selection is a problem, then the OLS estimates of equation (1) would be biased.

To address this problem, we perform a Heckman two-stage procedure. We first estimate (2) using a Probit model. Then, we estimate:

$$s_i = x'_{1i}\beta_1 + \sigma_{12}\lambda_i + \eta_i \quad (4)$$

where λ_i is the Heckman's (1979) Lambda calculated using estimates from the first-stage Probit. We estimate equation (2), where b_i^* is a dummy variable taking the value of one in the case of an active loan and zero otherwise. The matrix x'_{2i} contains both the main determinants (instruments) of the decision to borrow as well as set of control variables. The former consist of the lagged values of the lending-market characteristics: Median Size of

Banks, Median Distance from Banks, Lending Market Concentration. The control variables in our Probit estimate of the loan-taking decision are the lagged values of several firm-characteristics: a dummy variable for whether the firm is located in a Metropolitan area (*Metropolis*), *Leverage*, *Size*, *Cash*, *Cashflows*, *Capital Expenditure*, *Market-to-Book*, *Institutional Holdings*, *Analysts*, a dummy for whether the firm is listed on the NYSE or not (*NYSE*), and a dummy variable for whether the firm has a credit-rating (*Ratings Dummy*).

The estimated coefficients are reported in column (1) of Table 2. It is evident that, even after controlling for firm-characteristics, the nature of the bank-lending market has a critical influence on the firm's loan-taking decision. Given that they are not the main focus of the paper, we will not dwell on them. In general, larger, more profitable, capital intensive, and highly-levered firms show a greater propensity to take loans from banks. As we might expect, firms with substantial cash stock have a smaller probability of borrowing from banks. However, and more interestingly, the more distant the banks are from the borrower, the less likely are the firms to undertake a loan. These results are consistent with the literature.

4.3 Panel Dimension

We now consider the issues related to the panel dimension of our data. Our dataset has a panel dimension (cross-section of firms traced over time) and the loan-characteristic variables (e.g., the proximity and exclusivity of the loan) are sticky. This induces a potential correlation of the errors across firms and across time.

Various approaches have been adopted to address similar econometric issues in general – pure cross-sectional estimates (McConnell and Servaes, 1995), panel estimates with firm fixed effect (Himmelberg, Hubbard and Palia, 1999), panel estimates with industry fixed effects (Morck, Shleifer and Vishny, 1988), and Fama-MacBeth methodology (Gompers, Ishii and Metrick, 2003). If the explanatory variable adjusts slowly over time, then using a firm fixed effect specification is not enough to capture the relationship. Moreover, firm fixed effect

would deliver unbiased standard errors *only if* the firm effect is permanent and not gradually changing over time. This is hardly the case in our set-up. In the case of both firm and time effects, the best way is to “address one parametrically (e.g., including time dummies) and then estimate standard errors clustered on the other dimension” (Petersen, 2005). Therefore, we adopt this approach in a panel specification with time and industry fixed effects and clustered standard errors at the firm level.

Finally, as an additional robustness check, we also considered two alternative ways of addressing the issue of potential autocorrelation in the error structure. First, we estimate a specification that includes the lagged dependent variables (i.e., the value of the dependent variable – e.g., liquidity – before the loan’s inception) among the explanatory variables. Second, we estimate a *between-effect* estimator that includes the pre-loan dependent variable among the explanatory variables. This effectively eliminates the time-dimension of the sample, focusing only on the cross-sectional component. As we will see, the results of the alternative specifications deliver consistent results.

5. The Dark Side of the Intensity of the Borrower-Lender Relationship

5.1 Stock Liquidity

We start with the hypothesis relating stock liquidity to the intensity of the borrower-lender relationship (*HI*). We estimate:

$$LM_{i,t} = \beta_0 + \beta_1 IB_{i,t-1} + \beta_2 X_{i,t-1} + \eta_{i,t}, \quad (5)$$

where $LM_{i,t}$ is the liquidity measure we consider. It is either Amihud’s measure of illiquidity (*ILLIQUIDITY*), or alternatively Hasbrouck’s measure of liquidity (*LIQUIDITY*), or else trading volume (*TRADING VOLUME*). $IB_{i,t-1}$ is the vector containing our proxies for the intensity of banks’ lending relationship: proximity of the firm to the lending banks, the degree of exclusivity of the bank-firm relationship, and the equity exposure of the lending

bank. Proximity is captured by our proxies *Proximity* or *Average Distance*, and exclusivity by *Exclusivity* or *Dispersedness*. These variables as well as *Equity Exposure* are defined in Section 3 and have been instrumented as described in Section 4.

The vector of control variables ($X_{i,t}$) in our simplest specification consists of *Size*, *Leverage*, *Cash*, *ROA*, *Market-to-Book*, *Institutional Holdings*, *Analysts*, *NYSE*, and *Ratings Dummy*. We further expand our analysis by including Heckman’s (1979) Lambda (*Lambda*). We then test for the robustness of our results by including the pre-loan level of the respective dependent variable as well as the *Governance Index* in addition to all the variables mentioned above. This *Governance Index* is a dummy variable based on the measure of the quality of corporate governance as defined in Gompers, Ishii and Metrick (2003). The dummy takes value 1 for firms with an index of 10 or above, and 0 otherwise (i.e., 1 for “dictatorship” firms and 0 for “democratic” firms, as defined by Gompers et al., 2003). Finally, we estimate the between-effects estimator for the last specification that includes the pre-loan value of the dependent variable among explanatory variables.

We recall that our working hypothesis (*HI*) requires $\beta_l > 0$. The results are reported in Table 3 – Panel A for the Amihud’s illiquidity ratio, Panel B for Hasbrouck’s measure of liquidity, and Panel C for trading volume. We will start by considering Amihud’s illiquidity ratio. The first column reports the results of an OLS specification, followed by an instrumental variable specification (columns (2), (5), and (8)), a two-stage Heckman specification with instrumental variables including the lagged dependent variable (columns (3), (6), and (9)) and a specification based on between-effects (columns (4), (7), and (10)). Columns (1)-(4) report the results for the case in which we use *Average Distance* and *Dispersedness* to measure the intensity of lending relationship, columns (5)-(7) report the results for the case in which we use the complementary pair – *Proximity* and *Exclusivity*, and columns (8)-(10) report the results if we use *Proximity* and *Equity Exposure*.

The findings support our main hypothesis and display a strong and statistically significant positive relationship between stock illiquidity and the intensity of the lending relationship. This holds across all the specifications and for the different proxies of the intensity of lending relationship. (Note that the higher the *Average Distance* and *Dispersedness*, the weaker the lending relationship; vice versa is true for the remaining measures – *Proximity*, *Exclusivity*, and *Equity Exposure*.) Not only are our results statistically significant, but they are also economically substantial. A 10% increase in *Proximity* of the lenders increases stock illiquidity by 2%, a 10% increase in *Exclusivity* increases stock illiquidity by 4%, while a 10% increase *Equity Exposure* increases illiquidity by 6%. The results also hold both before and after adjusting for selection bias.

The coefficients of the control variables are in line with intuition. Firms held by institutional investors, firms belonging to the NYSE and firms with higher market-to-book ratio have lower illiquidity levels. All these results, reported in Table 3A, are consistent if we use the Hasbrouck’s measure of liquidity. Here, an increase of 10% in *Proximity* decreases liquidity by 3% and a 10% increase in *Exclusivity* decreases liquidity by roughly 9%, while *Equity Exposure* reduces liquidity by 7%.

We leave these findings as a robustness check and we move on to consider trading volume as the next dependent variable. This represents the other alternative measure of stock liquidity (Amihud and Mendelson, 1986). We recall that our working hypothesis (*HI*) requires $\beta_I < 0$. All the other variables as well as the estimation methodology are the same as in the previous case. The results are reported in Table 3C. The specifications are similar to the ones for liquidity. The findings confirm those in Table 3B, and display a strong and statistically significant negative relationship between trading volume and the intensity of the lending relationship. This holds across all the specifications and for the different measures of intensity of the lending relationship. The results are also economically relevant. A 10% increase in *Proximity* reduces the firm’s trading volume by more than 2%, a 10% increase in

Exclusivity reduces trading volume by more than 5%, while an analogous increase of *Equity Exposure* reduces trading volume by 4%. The results hold both before and after adjusting for selection bias. In this case also, the results hold even after controlling for the pre-loan level of trading volume as well as the standard measures of corporate governance.

5.2 Information Asymmetry

The main message of the previous section is that the intensity of the lending relationship reduces stock liquidity. We now proceed to test how the intensity of the lending relationship affects information asymmetry in the equity market. We proceed in two steps. First, we relate our proxy of information asymmetry to the intensity of the lending relationship, and then we test how the latter affects the behavior of the institutional investors – presumably the informed players.

We start by re-estimating equation (5) except replacing the dependent variable with our proxy of the stock’s information asymmetry. That is, we estimate:

$$A_{i,t} = \beta_0 + \beta_1 IB_{i,t-1} + \beta_2 X_{i,t-1} + \eta_{i,t}, \quad (6)$$

where $A_{i,t}$ is the proxy of information asymmetry we defined above. The other variables are defined as in the previous section. In this case, our working hypothesis (*H1*) requires $\beta_1 > 0$. The results are reported in Panel A of Table 4. As in the previous cases, we estimate alternative specifications. The layout of the columns is the same as before.

The findings show a strong positive and significant correlation between information asymmetry and the intensity of the lending relationship. This is economically relevant. A 10% increase in *Proximity* raises information asymmetry by nearly 20%, a 10% increase in *Exclusivity* increases asymmetry by 9%, while an analogous increase of *Equity Exposure* increases asymmetry by 19%. It is also interesting to note that among the control variables included, there’s a strong negative relationship between the amount of cash holdings of the firm and information asymmetry and a positive relationship between the information

asymmetry and leverage. An increase of 10% in cash holdings (leverage) reduces (increases) information asymmetry by about 5% (27%). This is consistent with the previous findings on liquidity, that cash – the less “opaque” asset – helps to make the firm more transparent and therefore reduces information asymmetry. At the same time, higher leverage, by increasing the potential riskiness of the firm, raises information asymmetry.

As expected, holdings by institutional investors and listing on the NYSE reduce asymmetry. It is important to note that the ratings dummy is mostly insignificant. This further confirms the lack of a direct channel from higher asymmetry between borrower and lenders to asymmetry in the equity market. Again, these results hold even after controlling for standard measures of governance.

It is worth emphasizing that the measure (à la Llorente *et al.*, 2002) that we employ for information asymmetry is meant to capture the perceived adverse selection. Thus a positive relationship in Table 4A between the strength of lending relationship and information asymmetry is direct evidence that the market perceives a stronger lending relationship as an increase in adverse-selection (Bharath *et al.*, 2005). If this is the case, then, according to the pecking-order proposed by Myers and Majluf (1984), the lending relationship should also influence the financing decision of the firm. Indeed, we do find some preliminary evidence to that effect as the probability of seasoned equity offerings appears to be significantly reduced by a cross-sectional increase in exclusivity of the firm’s loan. While this is not the focus of our paper, these (unreported) results are consistent with our above conjecture relating firm’s lending relationship and information asymmetry around its stock.

We now move on to consider the impact of the lending relationship on the behavior of the institutions. We focus on *Trading by Institutional Investors* – i.e., the average change in holdings (standardized by share outstanding) by institutional investors over the four quarters in a given fiscal year – and we regress it on our measures of lending intensity and the same set of control variables as before. These results are reported in Panel B of Table 4.

The findings show a strong negative relationship between trading by the institutional investors and the intensity of lending. A 10% increase in *Proximity* lowers institutional trading by 2%, a 10% increase in *Exclusivity* lowers institutional trading by 3%, while an analogous increase of *Equity Exposure* lowers institutional trading by more than 2%. The results hold both before and after adjusting for selection bias as well as after controlling for pre-loan level of trading by institutions and the standard measures of corporate governance.

This supports our intuition. Indeed, the potential of insider trading by banks (or its affiliated institutions) crowds out trading by other, less informed institutional investors. As institutional trading drops, less information is impounded in prices, prices become less transparent, and asymmetry rises. We now discuss the benefits of the bank’s monitoring role.

5.3 Firm Uncertainty

As we mentioned in Section 2, there is an alternative channel through which the bank the bank may affect the degree of stock liquidity. Both, the information monopoly of the bank (informational advantage) as well as the ability to control the voting rights of the stocks held (equity exposure), increase the bank’s bargaining power over the firm. This may distort investments, allow the bank to extract rents from the firm, and even induce lower firm transparency. The net effect would be an increased cash flow uncertainty about the firm. Higher uncertainty in a standard framework (e.g., Kyle, 1985) would reduce stock liquidity. To test this alternative, we directly focus on the uncertainty about the firm and see whether it is increased by a more intense borrower-lender relationship. We consider two measures for uncertainty – stock volatility and cash flow variation, and estimate the following:

$$RT_{i,t} = \beta_0 + \beta_1 IB_{i,t-1} + \beta_2 X_{i,t-1} + \eta_{i,t}, \quad (7)$$

where $RT_{i,t}$ represents risk-taking, which is either measured by stock return volatility or by cashflow variation. The alternative specifications are defined as before and the layout of the columns is the same. The other variables are defined as in the previous sections.

Results for stock volatility and cashflow variation are reported in Panels A and B of Table 5, respectively. We start with stock volatility. There is a strongly negative and statistically significant relationship between stock volatility and the intensity of borrower-lender relationship. This is robust across all the specifications and for the different dimensions of intensity. It is also economically significant – a 10% increase in *Proximity* reduces stock volatility by 1%, a 10% reduction in *Exclusivity* reduces stock volatility by more than 3%, while a 10% increase in *Equity Exposure* reduces volatility by 1%. The results also hold both before and after adjusting for selection bias as well as after controlling for pre-loan volatility and quality of corporate governance.

We next consider the effect of the intensity of lending relationship on cashflow variation, for which we use a measure derived from Guay and Harford (2000). It is the absolute change in cashflows with respect to average cashflows over the previous three years. We re-estimate equation (7) replacing the dependent variable with this cashflow variation.

These results are reported in Table 5B and show a strongly negative and statistically significant relationship between cash-flow variation and the intensity of the lending relationship. All the right-hand side variables are the same as before except ROA, which is replaced by cashflows instead.⁸ As in the previous cases, it is robust across all specifications and for different proxies of intensity of lending relationship. It is also economically significant – a 10% increase in *Proximity* reduces cash flow variation by 6%, a 10% reduction in *Exclusivity* reduces cash flow variation by 33% and a 10% increase in *Equity Exposure* reduces cash flow variation by more than 6%. The results hold both before and after adjusting for selection bias and controlling for pre-loan level of cashflow variation as well as quality of corporate governance.

⁸ This is done because we have to control for the level of cashflows when observing cashflow variation. Moreover, the correlation between ROA and cashflows is large enough (0.97 in our sample) to justify this change.

As an additional robustness check, we also consider two alternative measures of volatility of cash flows. The first is constructed as the mean, calculated over the life of the loan, of absolute deviations of cashflows each year with respect to those in the previous year. So, effectively it is the average value of the Guay and Hartford's measures over the tenor of the loan. The second is just the standard deviation of the cash flows over the same interval. The (unreported) results of these specifications are consistent with the ones reported here, displaying a strong and statistically significant negative relationship between cashflow variation and the strength of lending relationship.

These findings suggest that the intensity of the lending relationship affects stock volatility. The impact is not limited to lower investor uncertainty (as reflected in stock price volatility), but it directly translates into lower cashflow uncertainty. This provides evidence in favor of the hypothesis that the intensity of the borrower-lender relationship abates risk-taking by managers.

6. The Sunny Side of the Intensity of the Borrower-Lender Relationship

In this section, we focus on the benefits of stronger lending for the governance of the firm. We will use some of the proxies for good governance prevalent in the literature. We start by analyzing measures of rent appropriation by managers, as proxied by the total compensation of managers. We study whether a more intense relationship with the bank moderates the compensation of firms' managers. We measure *Managerial Appropriation* as the ratio of total compensation of the borrowing firm's CEO to the average total compensation of CEOs for all other firms in the same industry. We regress this appropriation on our measures of intensity of the borrower-lender relationship as well as the standard control variables we have used above. Additionally, a one-year lagged value of the CEO's total compensation is also included as a control. Our hypothesis (*H2*) is that there is a negative correlation between intensity and managerial appropriation.

The results are reported in Panel A of Table 6 and show a significantly negative correlation between the exclusivity of lending relationship and managerial appropriation. A 10% increase in *Exclusivity* reduces managerial appropriation by 8%. It is important to note that these results hold both before and after adjusting for selection bias and after controlling for one-year lagged appropriation and quality of governance.

The second measure focuses on another way for the managers to exploit their position: trading in the shares of the firm. We test whether a more intense borrower-lender relationship reduces the insider trading of the managers of the borrower. Following Jenter (2005), we measure insider trading as the ratio of the dollar value of trades made by the CEO through the fiscal year to the firm's market capital. We then regress it on our measures of intensity of the borrower-lender relationship and the standard control variables defined before as well as the lagged value of CEO's trading. We posit a negative relation between managerial trading and intensity.

The results are reported in Panel B of Table 6 and partially confirm our working hypothesis. There is a significant negative correlation between the exclusivity of the lending relationship and managerial trading. This holds true for both measures of exclusivity, while in the case of proximity, it is only marginally true. In particular, a 10% increase in *Exclusivity* reduces managerial trading by 13%. Also a 10% increase in *Equity Exposure* reduces managerial trading by more than 7%. As in the previous case, it is worth stressing that the results hold both before and after adjusting for selection bias and after controlling for one-year lagged CEO-trading and quality of governance.

We next consider the M&A activity of the borrowing firm. The number of M&As initiated by the firm has in general been considered as an indication of poor governance (e.g. Gompers *et al.*, 2003). We therefore relate our measures of the intensity of the borrower-lender relationship to the expenditure on acquisitions initiated by the firm. In particular, we define the *Expenditure on M&As* as the ratio of Compustat item 129 to lagged assets. We

regress it on our measures of intensity as well as the standard control variables defined before. Pre-loan level of M&A expenditure is also included as a control in the final specifications. We posit a negative relation between M&A activity and intensity. The results are reported in Panel C of Table 6. They show a strong negative correlation between *Exclusivity* and M&A activity as well as *Equity Exposure* and M&A activity. A 10% increase in *Exclusivity* (*Equity Exposure*) reduces M&A expenditure by 38% (20%). Proximity does seem to not play any role.

Finally, we focus on CEO turnover. This is directly related to quality of governance (e.g., Jenter, 2006). Indeed, better governance means less entrenched managers and higher turnover. We consider a measure of CEO turnover following Jenter (2006). This is constructed simply as a dummy that is equal to 1 in the fiscal year during which a new CEO is appointed. We then use a logit model to analyze the relationship between our measures of strength of lending and the probability of CEO turnover. Again, we expect a negative relation between CEO turnover and the intensity of the borrower-lender relationship.

The results are reported in Panel D of Table 6 and show a strong negative correlation between both *Exclusivity* and *Equity Exposure* and the probability of CEO turnover. A 10% increase in *Exclusivity* (*Equity Exposure*) increases the probability of CEO turnover by more than 7% (4%) while proximity seems to play no significant role.

All these findings together provide substantial evidence that the intensity of the borrower-lender relationship positively affects the governance of the firm. It is important to note that our results hold even after controlling for the standard measures of governance, which suggests that we are indeed identifying a separate dimension of governance: a purely bank-based one. All this would suggest a positive impact on firm value. Finally, as expected, the impact of stronger lending on firm's governance is more pronounced for measures of informational advantage rather than equity exposure – the latter should affect stock-market characteristics, such as liquidity and adverse liquidity, more than the firm's governance.

7. Intensity of the Borrower-Lender Relationship and Tobin's Q

Estimating the effect of the intensity of borrower-lender relationship on the firm's value is equivalent to answering the question – what is the net effect of the governance/liquidity tradeoff? To address this issue, we estimate:

$$Q_{i,t} = \beta_0 + \beta_1 IB_{i,t-1} + \beta_2 X_{i,t-1} + \eta_{i,t}, \quad (8)$$

where $Q_{i,t}$ is the Tobin's Q of the firm (calculated as $(\text{item6} + \text{item25} \times \text{item199} - \text{item60} - \text{item74})/(\text{item6})$), while all the other variables are the same as in the previous Sections; we also include the firm's lagged Q and the average Tobin's Q of other firms in the corresponding industry as additional controls in these tests. The econometric methodology is the same as the one defined in Section 3. The results are reported in Table 7. The specifications as well as the layout of the table are the same as before.

The results show a strong and statistically significant positive (negative) relationship between firm-value (as measured by Tobin's Q) and *Exclusivity (Dispersedness)*. *Equity Exposure* also affects Tobin's Q in a similar manner – an increase in the lenders' equity exposure enhances the firm's Tobin's Q. The impact is economically relevant, too. Cross-sectionally, a 10% reduction in the number of lenders (thus increasing *Exclusivity*) increases Tobin's Q by more than 2%. Analogously, a 10% increase in *Equity Exposure* increases Tobin's Q by nearly 2%. No statistically significant effect is present in the case of *Proximity*. The results also hold both before and after adjusting for selection bias. The coefficients of the control variables are in line with previous studies (Gompers, Isjhi and Metrick, 2003). Although few control variables are statistically significant, we find that firms with greater analysts-coverage and firms belonging to high-Q industries display a higher Tobin's Q. Also, lagged Tobin's Q of the firm itself is most significant in these regressions.

As an additional test, we calculate the abnormal returns from trading strategies based on different loan characteristics. We use alternative methodologies: returns across time and

securities (RATS) and the calendar-time portfolio regressions (CTPR). The RATS methodology (Ibbotson, 1975) is based on the monthly average abnormal returns in event time. One cross-sectional regression is run for each event month j ($j=0$ is the month in which the firm enters the loan), with j varying from 1 to 12. For each event month j , we estimate:

$$(R_{i,t} - R_{f,t}) = a_j + b_j(R_{m,t} - R_{f,t}) + c_jSMB_t + d_jHML_t + g_jUMD_t + \varepsilon_{i,t}, \quad (9)$$

where $R_{i,t}$ is the monthly return on security i in calendar month t . $R_{f,t}$ and $R_{m,t}$ are the risk-free rate and the return on the equally-weighted CRSP index, respectively. SMB_t , HML_t , and UMD_t , are the monthly returns on the size, book-to-market and momentum factor-mimicking portfolios in month t , respectively. The numbers reported are sums of the intercepts of cross-sectional regressions a_j over the relevant event-time periods.

The alternative methodology is based on portfolio formed according to the intensity of lending relationship. We construct equally-weighted portfolios consisting of firms whose loan-characteristic (average distance, dispersedness, proximity, exclusivity, and equity exposure) is *above* median in a given month (*Hi*) and those whose loan-characteristic is either *equal to* or *below* median in that month (*Lo*). *Hi - Lo* represents a trading strategy where we go long in the *Hi* portfolio and short the *Lo* portfolio. That is, each month we look backward and, depending on the loan characteristics, we add stocks (that have entered into a loan contract) to one of the two portfolios, and we keep them in the portfolios for a certain number of months. We consider horizons of 1, 3, 6 and 12 months. Then, we calculate the abnormal returns of each of these portfolios as well as of their differences using the four factors.

We report the results in Table 8. Panel A presents returns using the Ibbotson's (1975) RATS estimation. The returns in this panel are returns over the indicated holding period. The numbers in brackets at the head of each column represent months after the loan, over which these stocks are held. E.g., [1, 6] would represent the 6-month period immediately *after* the month in which the loan started. Panel B presents returns using an equally-

weighted portfolio strategy in calendar-time. The returns in this panel are returns per month over the indicated period (i.e., the returns under [1, 6] are monthly returns for a period of 6 months immediately after the month in which the loan started.)

The results are consistent with the ones based on Tobin's Q and show a significantly positive relationship between stock returns and measures of exclusivity (either *Exclusivity* or *Dispersedness*). After the inception of the loan, the returns of firms entering a more exclusive relationship with the bank are positive. The appreciation in value is not only statistically significant but also economically relevant. It is equal to 46 b.p. per month over 12 months using the calendar-time portfolio strategy and more than 6% over 12 months using RATS.

8. Conclusion

We document the trade-off facing a borrowing firm due to the “better governance” effect of stronger relationship with lending banks and the adverse effect of an increase in the firm's information asymmetry due to a stronger lending relationship. We argue that the bank's privileged information from monitoring improves the quality of firm's governance. This implies less risk-taking and more disciplined managers. At the same time, however, the potential of the bank using its privileged information in the equity market increases adverse selection facing other market participants. This reduces the incentive of other investors to hold the stock of the borrowing firm, which translates into lower stock market liquidity and trading volume, and greater information asymmetry.

We consider two aspects of the intensity of the relationship between the borrower and the lender: informational advantage and equity exposure. We define informational advantage in terms of the information the bank gathers about the firm it lends to and equity exposure as the equity stake that the bank has either directly or indirectly in the firm it lends to. We show that a more intense borrower-lender relationship increases stock illiquidity and asymmetric information in the stock market and lowers trading volume. Institutions reduce

their trading in the stock of firms that enjoy a more intense relationship with the bank. At the same time, a more intensive relationship directly affects the management of the firm, by reducing managerial compensation and insider trading. A more intensive lending relationship with a bank also increases managerial turnover and reduces the incentives of the managers to initiate M&As. In other words, the disciplining/constraining effect on the managers is stronger for more intense relationships.

The net effect on the firm value is positive – firms with a more intense borrower-lender relationship display a higher stock price. Both, the firm's Tobin's Q and the stock returns following the inception of the loan are directly affected. After the inception of the loan, the returns of firms entering a more intense relationship are higher.

Our findings provide a new perspective on how banks affect the firm. This has important normative implications. Indeed, after the abolition of the Glass-Steagall Act, the possibility of banks directly trading on the basis of information acquired in the course of their lending activity has increased tremendously. This should have further compounded the liquidity effects of bank lending.

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Table 1

Variable Definitions and Summary Statistics

The table below presents summary statistics of the variables used in our analyses. We present separate figures for the overall sample (in Table 1a) as well as the loan-taking sub-sample (in Table 1b). We start with the definitions of all the dependent variables.

LoanDummy is a dummy variable that equals 1 for all the firm-years during which there is an active loan; this variable is zero otherwise. This dummy represents the “loan-taking decision”. Hence, it is 1 for firm-years derived from the LPC data (described above in Section 4) and 0 for the remaining firm-years (which are obtained from Compustat). *Illiquidity* is $\ln(1 + \text{AvgILLIQ} \times 10^7)$ where *AvgILLIQ* is the yearly average of the monthly *ILLIQ* values calculated as per equation in Section 3.3 above. *Liquidity* is the logarithm of “Amivest” liquidity ratio, which is constructed using high-frequency data; we obtain it from Joel Hasbrouck’s webpage. *Trading Volume*, is the logarithm of average monthly volume over the year. *Information Asymmetry* measures the degree of asymmetric information and is constructed following the model of Llorente, Michaely, Saar, and Wang (2002). It is the coefficient C_2 obtained from the regression: $R_{i,t+1} = C_0 + C_1 R_i + C_2 (V_{i,t} \times R_{i,t}) + e_{i,t+1}$. (See Section 3.3 in the paper or Table 6 for further details on C_2). *Trading by Institutional Investors* is the average trading by institutional investors over the four quarters in a given fiscal year. *Volatility* is the logarithm of one plus the standard deviation (rescaled by 10^4) of daily returns over the year; this variable is also rescaled for the convenience of obtaining normally-scaled coefficient estimates. *Cashflow Variation* is the absolute change in cashflows with respect to the average cashflows over the previous three years. *Managerial Appropriation* is the ratio of the CEO’s total compensation (“TDC1” from *ExecuComp*) to the average total compensation of other CEO’s in the industry (as defined by 1-digit SIC code). *Trading by Managers* is the ratio of trades made by the CEO to the average trading by other CEO’s in the industry (as defined by 1-digit SIC code); the trades are calculated according to Jenter (2005). *Expenditure on M&As* is defined as the ratio of Compustat item 129 to lagged value of assets (item 6). *CEO Turnover* is a dummy variable that takes value 1 if the CEO changed a given fiscal year, and 0 otherwise. *Tobin’s Q* is calculated as $(\text{item6} + \text{item25} \times \text{item199} - \text{item60} - \text{item74}) / (\text{item6})$.

Size is measured as the logarithm of book value of assets (item 6). *Leverage* is the sum of long-term debt (item 9) and debt in current liabilities (item 34), standardized by lagged assets (item 6). *Cash* is the ratio of total cash (item 1) to lagged assets and *Cashflows* are defined as income before extraordinary items (item 18) plus depreciation and amortization (item 14), standardized by lagged assets. *ROA* (return on assets) is income before extraordinary items (item 18) as a percentage of lagged assets. *Capital Expenditure* is the ratio of capital expenditures (item 128) to lagged assets. *Market-to-Book* is the logarithm of the firm’s market-to-book ratio where market-to-book is $(\text{item25} \times \text{item199}) / (\text{item60})$. *Industry Tobin’s Q* is the average *Q* in the industry to which the borrower belongs.

Institutional Holdings is the fraction of shares held by those institutional investors that hold at least a 5% position in the firm. *Analysts* is the number of analysts following the stock, and is expressed in thousands for the convenience of obtaining normally-scaled coefficient estimates. *NYSE* is a dummy variable that takes a value 1 if the firm is listed on the New York Stock Exchange, and zero otherwise. *Ratings Dummy* is a dummy equal to 1 if the firm has a credit rating available, and 0 otherwise. *Governance index* is a dummy variable that equals 1 if the Gompers, Ishii, and Metrick (2003) index of corporate governance is greater than 9 and equals 0 if this index is less than or equal to 9; recall, the higher the index, the poorer the corporate governance.

Average Distance is the average distance of the borrower from each of the lenders in its lending syndicate; it is measured in thousands of kilometers. *Dispersedness* is the logarithm of the number of lenders counted in hundreds; this rescaling is done for the convenience of obtaining normally-scaled coefficient estimates. *Proximity* is the fraction of loans taken from banks whose headquarters are located within 200 miles (or 320 kilometers) of the borrower’s location; historical location of the firm is available to us at county level so we also identify the banks’ location at county level. *Exclusivity* is the logarithm of the Herfindahl Index (ranging between 0–10,000) of the lending syndicate. *Equity Exposure* is the fraction of borrowing firm’s equity held by the institutions affiliated with the lenders in the syndicate. Finally, the *Loan-to-Debt Ratio* is the ratio of total loan amount (raised in the loan deal) to the lagged value of outstanding long-term debt (item 9); this ratio takes surprisingly large values because certain firms might start out with negligible leverage and then at some point decide to borrow enormously from banks.

Table 1a: Summary statistics for overall sample

Variables	Units	N	Mean	Median	Std. Dev.
Illiquidity	logarithm	42,805	1.625	0.719	1.908
Liquidity	logarithm	38,881	-3.446	-3.417	2.995
Trading Volume	logarithm	42,805	-2.681	-2.643	1.048
Information Asymmetry	fraction	42,765	0.019	0.021	0.105
Trading by Institutions	fraction	35,675	0.034	0.024	0.051
Stock Volatility	logarithm	42,805	5.861	5.866	0.587
Cashflow Variation	fraction	39,325	2.977	0.420	63.668
Managerial Appropriation	fraction	13,922	0.934	0.505	2.073
Trading by Managers	fraction	10,906	2.083	0.125	91.572
Expenditure on M&A	fraction	41,184	0.035	0.000	0.156
CEO Turnover	0/1	42,805	0.034		
Tobin's Q	fraction	42,805	1.808	1.320	1.606
Size	logarithm	42,805	5.301	5.160	2.025
Leverage	fraction	42,805	0.208	0.182	0.183
Cash	fraction	42,805	0.175	0.077	0.232
Cashflow	fraction	42,805	0.046	0.076	0.170
Return on Assets	%	42,805	-0.57%	3.28%	16.865
Capital Expenditure	fraction	42,805	0.067	0.043	0.088
Market-to-Book	logarithm	38,919	1.151	1.051	0.558
Industry Tobin's Q	fraction	42,805	2.026	1.850	0.640
Institutional Holdings	fraction	27,066	0.434	0.420	0.233
Analysts	thousands	30,303	0.069	0.043	0.073
NYSE	0/1	42,805	0.322		
Ratings Dummy	0/1	42,805	0.299		
Governance Index	0/1	42,805	0.147		

Table 1b: Summary statistics for sub-samples

Variables	Units	Sub-sample without loans				Loan-taking sub-sample				Test statistic comparing sub-samples	
		N	Mean	Median	Std. Dev.	N	Mean	Median	Std. Dev.	t-test	Wilcoxon rank-test
Illiquidity	logarithm	25,552	2.035	1.351	2.040	17,253	1.017	0.224	1.502	56.08***	60.35***
Liquidity	logarithm	23,351	-4.148	-4.208	2.914	15,530	-2.392	-2.207	2.799	-59.11***	-56.45***
Trading Volume	logarithm	25,552	-2.762	-2.737	1.114	17,253	-2.562	-2.534	0.929	-19.38***	-18.99***
Information Asymmetry	fraction	25,521	0.021	0.023	0.098	17,244	0.016	0.018	0.116	4.88***	4.87***
Trading by Institutions	fraction	20,586	0.031	0.021	0.050	15,089	0.037	0.027	0.052	-10.16***	-23.74***
Stock Volatility	logarithm	25,552	5.964	5.992	0.609	17,253	5.709	5.699	0.518	45.09***	46.06***
Cashflow Variation	fraction	22,963	3.737	0.483	81.579	16,362	1.912	0.358	20.019	2.80***	18.85***
Managerial Appropriation	fraction	5,754	0.820	0.426	2.166	8,168	1.013	0.557	2.001	-5.42***	-14.40***
Trading by Managers	fraction	4,331	1.407	0.131	9.155	6,575	2.529	0.122	117.703	-0.63	0.82
Expenditure on M&A	fraction	24,736	0.025	0.000	0.134	16,448	0.051	0.000	0.182	-16.98***	-35.01***
CEO Turnover	0/1	25,552	0.023	-	-	17,253	0.051	-	-	-15.71***	-15.66***
Tobin s Q	fraction	25,552	1.970	1.367	1.886	17,253	1.568	1.269	1.016	25.58***	15.80***
Size	logarithm	25,552	4.672	4.477	1.900	17,253	6.233	6.186	1.837	-84.46***	-80.32***
Leverage	fraction	25,552	0.170	0.114	0.178	17,253	0.264	0.260	0.176	-53.79***	-57.23***
Cash	fraction	25,552	0.224	0.121	0.260	17,253	0.104	0.042	0.156	54.26***	54.77***
Cashflow	fraction	25,552	0.023	0.068	0.195	17,253	0.080	0.085	0.114	-34.52***	-25.92***
Return on Assets	%	25,552	-2.71%	2.74%	19.578	17,253	2.61%	3.83%	11.003	-32.42***	-20.95***
Capital Expenditure	fraction	25,552	0.062	0.039	0.081	17,253	0.075	0.048	0.097	-15.03***	-21.90***
Market-to-Book	logarithm	22,828	1.172	1.057	0.587	16,091	1.122	1.043	0.513	8.64***	4.44***
Industry Tobin s Q	fraction	25,552	2.120	2.069	0.655	17,253	1.888	1.667	0.589	37.39***	36.11***
Institutional Holdings	fraction	14,181	0.379	0.339	0.225	12,885	0.494	0.507	0.225	-41.98***	-41.16***
Analysts	thousands	16,033	0.058	0.033	0.067	14,270	0.081	0.055	0.077	-27.62***	-33.59***
NYSE	0/1	25,552	0.206	-	-	17,253	0.493	-	-	-65.45***	-62.40***
Ratings Dummy	0/1	25,552	0.172	-	-	17,253	0.487	-	-	-74.16***	-69.81***
Governance Index	0/1	25,552	0.092	-	-	17,253	0.229	-	-	-40.17***	-39.43***
Average Distance	M km.	-	-	-	-	17,220	1.218	0.904	1.042	-	-
Dispersedness	logarithm	-	-	-	-	16,994	-3.128	-2.996	1.132	-	-
Proximity	fraction	-	-	-	-	17,253	0.256	0.050	0.346	-	-
Exclusivity	logarithm	-	-	-	-	17,014	7.433	7.419	1.395	-	-
Equity Exposure	%	-	-	-	-	17253	2.779	0.364	8.480	-	-

*, **, and *** indicate significance at 10%, 5%, and 1% level, respectively.

Table 2

Loan-taking decision of the firm and the choice of loan-characteristics

In this table, we address the selection bias inherent in our sample of the loan-taking firms as well as the endogeneity of loan-characteristics. It is not by chance that these firms borrow from banks and nor are the characteristics of the loan incidental; rather, it's an endogenous decision affected by the firm's characteristics as well as the local bank-lending market.

In column (1) below, the dependent variable is a dummy variable (*LoanDummy*) that equals 1 for all the firm-years during which there is an active loan; this variable is zero otherwise. The firm-years where *LoanDummy* is equal to one are derived from the Loan Pricing Corporation's *DealScan* database and the firm-years where *LoanDummy* takes the value zero are those firm-years from Compustat for which we had historical firm-location available (see Section 4 for details on our sources of data). Coefficient estimates from a Probit regression for the loan-taking decision are reported in column (1) of Table 2. In columns (2)-(6), we present OLS estimates for the instrumental variables (besides some other controls) used to instrument for the loan characteristics. In column (2), the dependent variable *Average Distance* is the average distance in kilometers between the firm and all the banks in the lending syndicate; the distance is measured between firm's and banks' headquarters. In column (3), *Dispersedness* is the logarithm of number of banks in the lending syndicate. In column (4), the dependent variable *Proximity* is the fraction of the firm's loan borrowed from banks located within 200 miles (or 320 kilometers) of the firm's headquarter. In column (5), *Exclusivity* is the logarithm of the Herfindahl index of the lending syndicate. Finally, in column (6), *Equity Exposure* is the fraction of borrowing firm's equity held by the institutions affiliated with the lenders in the syndicate.

Our independent variables can be grouped into five categories: a) pre-loan characteristics of the local bank-lending market, b) several pre-loan firm-level characteristics, c) lagged banking-market characteristics, d) lagged industry characteristics (of the industry to which the borrowing firm belongs), and e) loan-characteristics of other firms in the industry. All "lagged" variables are recorded at the beginning of the fiscal year while the "pre-loan" variables are measured the year before the loan is initiated.

In order to capture the distinctive features of the local bank-lending market, we employ the following three variables: median size in millions of dollars of *all* banks (weighted by the number of branches) available to the borrower in its county of location; median distance in thousands of kilometers (*inversely* weighted by the number of branches) between the borrower and *all* local bank-branches' headquarter location; and concentration of bank-lending market in the county of borrower's location. We measure this concentration by calculating a Herfindahl Index (ranging between 0–1) of the deposit size across all bank branches in the county; our results are robust if we instead use a Herfindahl Index based simply on the number of branches.

The firm-level control variables that we include in our analysis are the following. First of all, a dummy variable that equals 1 if the firm is located in one of the six largest metropolises in the US (Boston, Chicago, Los Angeles, New York, Philadelphia, and San Francisco); this is done to account for firms located near large financial markets. *Size* is measured as the logarithm of book value of assets (item 6). *Leverage* is the sum of long-term debt (item 9) and debt in current liabilities (item 34), standardized by lagged assets (item 6). *Cash* is the ratio of total cash (item 1) to lagged assets and *Cashflows* are defined as income before extraordinary items (item 18) plus depreciation and amortization (item 14), standardized by lagged assets. *Capital Expenditure* is the ratio of capital expenditures (item 128) to lagged assets. *Market-to-Book* is the logarithm of the firm's market-to-book ratio where market-to-book is $(\text{item25} \times \text{item199}) / (\text{item60})$. *Industry Tobin's Q* is the average Q in the industry to which the borrower belongs. *Institutional Holdings* is the fraction of shares held by those institutional investors that hold at least a 5% position in the firm. *Analysts* is the number of analysts following the borrowing firm's stock, and is expressed in thousands for the convenience of obtaining normally-scaled coefficient estimates. *NYSE* is a dummy variable that takes the value 1 if the firm is listed on the New York Stock Exchange; otherwise the variable is equal to zero. Finally, *Ratings Dummy* is a dummy variable that equals one if the firm has a credit-rating, and equals zero otherwise.

Industry's *Average Distance*, *Dispersedness*, *Proximity*, *Exclusivity*, *Equity Exposure* and *Loan-to-Debt Ratio* are the averages of those variables for all the loan-taking firms in the corresponding industry except the specific borrowing firm itself. *Average Distance*, *Dispersedness*, *Proximity*, *Exclusivity*, and *Equity Exposure* are as described above, and *Loan-to-Debt Ratio* is the ratio of loan amount to lagged long-term debt (item 9) used as a control variable. Industry's size, leverage, cash, cashflow, capital expenditure, and market-to-book is average of these variables (as defined above) for all other firms in the corresponding industry except the borrowing firm itself.

Of course, besides all the variables described above, there might be some macroeconomic or regulatory variables that can also influence the firm's loan-taking decision. We hope to capture those using year effects through the Time Dummies used in our regressions.

We use the estimates of column (1) below to calculate the *Lambda* (Inverse Mills' Ratio) used in subsequent analyses. Industries are categorized by 1-digit SIC Code. All z-statistics in column (1) and t-statistics in columns (2)-(6) are calculated using robust standard errors clustered by firm.

Table 2

	Loan-taking decision	Instruments for loan-characteristics				
		Average Distance	Dispersedness	Proximity	Exclusivity	Equity Exposure
<i>Independent variables:</i>						
Bank-branching regulation	(1) -0.098 [1.04]	(2) 0.295*** [2.84]	(3) -0.045 [0.54]	(4) 0.314*** [10.67]	(5) -0.019 [0.18]	(6) -0.167 [0.29]
Pre-loan Median Size of Banks		7.995*** [4.10]	-0.336 [0.24]	-1.832*** [3.13]	0.101 [0.05]	34.856* [1.84]
Pre-loan Median Distance from Banks		2.042*** [6.76]	-0.626*** [3.48]	-0.339*** [3.89]	0.711*** [3.05]	-0.034 [0.02]
Pre-loan Lending market Concentration		-0.562** [2.12]	-0.194 [0.79]	-0.048 [0.51]	0.272 [0.80]	2.737 [1.52]
Metropolis	-0.102* [1.72]	-0.166** [2.30]	-0.083* [1.81]	0.125*** [6.07]	0.059 [0.96]	0.215 [0.25]
Lagged Median Size of Banks	0.604 [0.49]	6.984*** [3.72]	-0.563 [0.40]	-0.779 [1.37]	0.490 [0.26]	-41.198** [1.97]
Lagged Median Distance from Banks	-0.329** [2.42]	0.001*** [6.64]	-0.000** [2.36]	0.000 [0.20]	0.000*** [3.26]	0.000 [0.13]
Lagged Lending market Concentration	0.297 [1.35]	-1.067*** [4.16]	0.071 [0.28]	0.122 [1.32]	-0.149 [0.43]	-0.959 [0.51]
Lagged Industry s Avg. Distance		0.140** [2.07]	-0.048 [0.93]			
Lagged Industry s Dispersedness		-0.048 [0.75]	0.036 [0.66]			
Lagged Industry s Proximity				0.059 [0.85]	0.140 [0.63]	-0.580 [0.43]
Lagged Industry s Exclusivity				0.002 [0.15]	0.081 [1.48]	
Lagged Industry s Equity Exposure						0.056 [0.26]
Lagged Industry s Loan-to-Debt Ratio		-0.000** [1.97]	0.000 [1.06]	0.000** [2.01]	0.000 [0.50]	0.000 [1.36]
Lagged Industry Size		-0.033 [0.87]	-0.090*** [3.03]	0.012 [1.07]	0.116*** [3.06]	-0.415** [2.30]
Lagged Industry Leverage		0.570** [1.97]	-0.080 [0.34]	-0.097 [1.24]	-0.259 [0.80]	1.200 [0.88]
Lagged Industry Cash		0.235 [1.42]	-0.191 [1.54]	0.094* [1.90]	0.054 [0.33]	-0.234 [0.17]
Lagged Industry Cashflows		0.476* [1.79]	0.285 [1.46]	-0.053 [0.68]	-0.366 [1.47]	0.155 [0.07]
Lagged Industry Capital Expenditure		0.268 [0.72]	0.251 [0.92]	-0.152 [1.53]	-0.144 [0.41]	2.146 [0.75]
Lagged Industry Market-to-Book		0.001 [0.41]	0.005*** [3.32]	0.000 [0.48]	-0.006*** [2.70]	0.042** [2.00]
Pre-loan/Lagged Size	0.111*** [5.87]	0.088*** [7.87]	0.435*** [55.17]	-0.034*** [9.18]	-0.462*** [40.02]	1.361*** [11.25]
Pre-loan/Lagged Leverage	1.317*** [12.85]	0.012 [0.11]	1.042*** [11.33]	-0.055 [1.57]	-1.478*** [11.92]	1.465* [1.73]
Pre-loan/Lagged Cash	-0.603*** [6.02]	-0.009 [0.13]	-0.066 [1.26]	0.030* [1.91]	0.111** [2.09]	-0.127 [0.38]
Pre-loan/Lagged Cashflows	0.651*** [4.93]	0.126 [0.81]	0.449*** [4.63]	-0.014 [0.31]	-0.464*** [3.91]	1.475** [2.10]
Pre-loan/Lagged Capital Expenditure	0.394** [2.14]	0.273* [1.86]	0.024 [0.21]	-0.096** [2.41]	-0.300** [1.98]	-0.222 [0.28]
Pre-loan/Lagged Market-to-Book	-0.045 [1.50]	-0.745 [1.54]	0.474** [2.02]	0.583*** [5.75]	-0.530** [2.06]	10.312 [0.89]
Lagged Institutional Holdings	0.471*** [5.50]					
Lagged Analysts	-1.206*** [3.85]					
NYSE	0.118*** [2.74]					
Ratings Dummy	0.332*** [7.37]					
Constant	-1.698*** [5.61]	0.006 [0.02]	-5.600*** [13.58]	0.054 [0.34]	9.898*** [17.82]	-4.623* [1.83]
Observations	23084	11700	11518	11712	11530	11712
(pseudo/adj) R-square	0.17	0.16	0.55	0.12	0.44	0.09
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes

Robust z-/t-statistics in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 3

Lending relationship and firm’s stock illiquidity

This table presents coefficient estimates for the regression formalizing the effect of different characteristics of the bank’s lending relationship on the borrowing firm’s stock illiquidity; this relationship is represented in equation (5) above. As mentioned earlier, we use three different measures of liquidity and the corresponding results are documented in the three panels below.

In Panel A, our dependent variable *Illiquidity* is the logarithm of $(1 + \text{AvgILLIQ})$, where *AvgILLIQ* is the yearly average (multiplied by 10^7) of *ILLIQ* (Amihud, 2002), which is defined as:

$$\text{ILLIQ}_{j,t} = \frac{1}{\text{Days}_{j,t}} \sum_{d=1}^{\text{Days}_{j,t}} \frac{|R_{j,t,d}|}{\text{DVol}_{j,t,d}}$$

Here, $\text{Days}_{j,t}$ is the number of valid observation days for stock j in the month t , $R_{j,t,d}$ is the return and $\text{DVol}_{j,t,d}$ the dollar volume of stock j on day d of month t .

In Panel B, our dependent variable *Liquidity* is the logarithm of “Amivest” liquidity ratio, which is a measure using high-frequency data and we obtain the variable from Joel Hasbrouck’s webpage: <http://pages.stern.nyu.edu/~jhasbron/Research/GibbsEstimates/Liquidity%20estimates.htm>.

In Panel C, we look at the effect on trading volume. If volume is defined as the number of shares traded as a fraction of total shares outstanding, then our dependent variable, *Trading Volume*, is the logarithm of average monthly volume over the year.

Our independent variables consist of loan characteristics and several firm-level control variables. We look at three complementary pairs of loan characteristics: either *Average Distance* and *Dispersedness* or *Proximity* and *Exclusivity* or else *Proximity* and *Equity Exposure*. *Average Distance* is the average distance of the borrower from each of the lenders in its lending syndicate; it is measured in thousands of kilometers. *Dispersedness* is the logarithm of the number of lenders counted in hundreds; this rescaling is done for the convenience of obtaining normally-scaled coefficient estimates. *Proximity* is the fraction of loans taken from banks whose headquarters are located within 200 miles (or 320 kilometers) of the borrower’s location; historical location of the firm is available to us at county level so we also identify the banks’ location at county level. *Exclusivity* is the logarithm of the Herfindahl Index (ranging between 0–10,000) of the lending syndicate. *Equity Exposure* is the fraction of borrowing firm’s equity held by institutions belonging to the same conglomerate as the lending bank(s). The results for the first pair (*Average Distance* and *Dispersedness*) are in columns (1)-(4) and coefficient estimates using the second pair of characteristics (*Proximity* and *Exclusivity*) are listed in columns (5)-(7) while columns (8)-(10) report results for the final pair (*Proximity* and *Equity Exposure*). Column (1) presents OLS estimates while the remaining columns present results from an IV2SLS regression. Of the IV 2SLS regressions, columns (4), (7), and (10) present the *between-effects* estimate. While our focus is on these loan characteristics, we also control for the *Loan-to-Debt Ratio*; it is measured as the ratio of firm’s total loan to outstanding long-term debt (item 9) in the previous fiscal year.

The firm-level control variables that we include in our analysis are the following. *Size* is measured as the logarithm of book value of assets (item 6). *Leverage* is the sum of long-term debt (item 9) and debt in current liabilities (item 34), standardized by lagged assets (item 6). *Cash* is the ratio of total cash (item 1) to lagged assets and the *ROA* (return on assets) is income before extraordinary items (item 18) as a percentage of lagged assets. These firm-level variables are contemporaneous with the dependent variable while the remaining firm-characteristics are recorded at the beginning of the fiscal year. *Market-to-Book* is the logarithm of the firm’s market-to-book ratio where market-to-book is $(\text{item25} \times \text{item199}) / (\text{item60})$. *Institutional Holdings* is the fraction of shares held by those institutional investors that hold at least a 5% position in the firm. *Analysts* is the number of analysts following the stock, and is expressed in thousands for the convenience of obtaining normally-scaled coefficient estimates. *NYSE* is a dummy variable that takes a value 1 if the firm is listed on the New York Stock Exchange, and zero otherwise. *Ratings Dummy* is a dummy variable that equals one if the firm has a credit-rating, and equals zero otherwise.

Lambda – the inverse Mills’ ratio from the Probit analysis of loan-taking decision – is included in order to account for the selection bias inherent in our sample of loan-taking firms. *Pre-loan Illiquidity*, *Pre-loan Liquidity*, and *Pre-loan Volume* is the level of the respective dependent variable in the year before the loan deal is initiated. *Governance index* is a dummy variable that equals 1 if the Gompers, Ishii, and Metrick (2003) index of corporate governance is greater than 9 and equals 0 if this index is less than or equal to 9; recall, the higher the index, the poorer the corporate governance. Industries are categorized by 1-digit SIC Code. The bottom row displays the p-value for Hansen’s J-test of the null hypothesis that the instrumental variables employed are orthogonal to the errors. All t-statistics are calculated using robust standard errors clustered at firm level.

Table 3, Panel A: ILLIQUIDITY

<i>Independent variables:</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Average Distance	-0.037*** [2.75]	-0.267** [2.53]	-0.216** [1.97]	-0.189* [1.90]						
Dispersedness	-0.052*** [3.47]	-1.089** [2.55]	-0.979** [2.20]	-0.654** [2.04]						
Proximity					1.234*** [3.11]	0.860** [2.55]	1.208*** [3.36]	1.548*** [3.10]	1.555*** [2.97]	1.706** [2.54]
Exclusivity					0.448* [1.91]	0.374* [1.74]	0.520** [2.02]			
Equity Exposure								0.150*** [2.96]	0.165*** [2.86]	0.180*** [2.95]
Loan-to-Debt Ratio	0.000 [0.72]	-0.025** [2.22]	-0.021** [2.07]	-0.011** [2.31]	-0.012* [1.65]	-0.010 [1.59]	0.003 [0.58]	0.009 [0.82]	0.011 [1.00]	0.014 [1.48]
Size	-0.319*** [19.31]	0.047 [0.35]	0.059 [0.45]	-0.099 [1.02]	-0.131 [1.60]	-0.094 [1.27]	-0.108 [1.17]	-0.467*** [6.95]	-0.460*** [6.02]	-0.521*** [5.27]
Leverage	0.913*** [10.15]	1.318*** [3.35]	1.114*** [2.74]	0.964*** [3.33]	1.403*** [3.40]	1.098*** [2.90]	1.591*** [3.56]	0.562* [1.81]	0.506 [1.45]	0.867** [2.10]
Cash	-0.664*** [7.94]	-1.084*** [3.60]	-0.944*** [3.35]	-1.106*** [3.88]	-0.835*** [4.72]	-0.684*** [4.44]	-1.243*** [4.96]	-0.446 [1.31]	-0.333 [0.90]	-0.771** [2.01]
ROA	-0.006*** [4.31]	-0.006** [2.10]	-0.007*** [3.09]	-0.007*** [3.25]	-0.006*** [2.66]	-0.008*** [3.89]	-0.009*** [3.53]	-0.006** [2.49]	-0.007*** [2.95]	-0.011** [2.44]
Market-to-Book	-0.483*** [13.99]	-0.434*** [8.06]	-0.387*** [7.79]	-0.454*** [8.78]	-0.470*** [11.44]	-0.421*** [11.24]	-0.456*** [8.74]	-0.684*** [5.99]	-0.674*** [5.77]	-0.670*** [6.41]
Institutional Holdings	-1.126*** [17.72]	-0.336 [1.10]	-0.193 [0.70]	-0.604*** [3.14]	-0.737*** [4.05]	-0.505*** [3.15]	-0.607*** [3.20]	-1.902*** [7.02]	-1.872*** [5.86]	-1.917*** [5.07]
Analysts	1.984*** [9.20]	1.912*** [4.57]	1.924*** [5.25]	2.785*** [6.70]	1.872*** [5.19]	1.815*** [5.76]	2.623*** [6.15]	1.538* [1.90]	1.331 [1.53]	2.354*** [3.09]
NYSE	-0.171*** [5.77]	0.007 [0.09]	0.057 [0.80]	0.032 [0.51]	-0.105** [2.17]	-0.025 [0.58]	-0.024 [0.43]	-0.050 [0.53]	-0.023 [0.24]	0.034 [0.31]
Ratings Dummy	-0.086** [2.55]	0.161 [1.64]	0.124 [1.38]	0.109 [1.22]	0.086 [1.37]	0.056 [1.03]	0.118 [1.35]	0.045 [0.52]	0.040 [0.42]	-0.068 [0.52]
Lambda		0.537 [1.13]	0.404 [0.95]	0.222 [0.84]	0.288 [0.87]	0.224 [0.79]	-0.269 [0.88]	-0.202 [0.57]	-0.316 [0.87]	-0.712 [1.35]
Pre-Loan Illiquidity			0.278*** [7.96]	0.325*** [13.61]		0.290*** [8.99]	0.354*** [15.75]		0.187*** [3.51]	0.277*** [5.09]
Governance Index			-0.051 [0.90]	-0.052 [0.86]		-0.001 [0.03]	-0.017 [0.30]		0.080 [0.99]	0.053 [0.52]
Constant	3.561*** [18.64]	-3.089 [1.35]	-2.985 [1.31]	-0.770 [0.43]	-2.148 [0.89]	-1.598 [0.79]	-2.357 [0.91]	4.426*** [5.68]	3.796*** [5.35]	5.775*** [4.08]
Observations	10715	9954	9954	9954	9508	9508	9475	9751	9751	9751
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen s J (p-value)		0.61	0.63		0.23	0.29		0.58	0.42	

Robust t statistics in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 3, Panel B: LIQUIDITY

<i>Independent variables:</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Average Distance	0.051*** [3.10]	0.543* [1.96]	0.502** [2.04]	0.560** [2.20]						
Dispersedness	0.006 [0.30]	1.853** [2.16]	1.523** [2.17]	1.508** [2.27]						
Proximity					-1.364** [2.33]	-1.186** [2.14]	-1.163** [2.45]	-1.627*** [2.59]	-1.877*** [2.70]	-2.299*** [3.08]
Exclusivity					-0.746** [2.10]	-0.861** [2.54]	-0.860** [2.20]			
Equity Exposure								-0.155** [2.14]	-0.179** [2.41]	-0.159** [2.44]
Loan-to-Debt Ratio	0.000 [0.09]	0.070** [2.40]	0.061** [2.42]	0.026*** [2.93]	0.060*** [2.98]	0.053*** [2.88]	0.029*** [3.58]	-0.002 [0.06]	-0.010 [0.40]	0.003 [0.22]
Size	0.987*** [46.17]	0.379 [1.43]	0.313 [1.31]	0.367* [1.66]	0.688*** [5.31]	0.494*** [3.56]	0.536*** [3.46]	1.177*** [10.98]	1.158*** [9.56]	1.085*** [9.70]
Leverage	-2.173*** [18.87]	-2.655*** [2.97]	-2.165*** [2.86]	-2.208*** [3.31]	-2.402*** [3.71]	-2.320*** [3.86]	-2.035*** [3.13]	-1.544*** [3.46]	-1.521*** [2.95]	-1.232** [2.40]
Cash	1.206*** [9.27]	1.392** [2.24]	1.232** [2.35]	1.708*** [3.22]	1.030*** [2.58]	1.059*** [2.91]	1.425*** [3.47]	0.851** [1.97]	0.817* [1.66]	0.983** [2.41]
ROA	0.015*** [8.36]	0.022*** [3.39]	0.024*** [4.26]	0.024*** [5.43]	0.022*** [3.97]	0.023*** [4.71]	0.025*** [5.91]	0.018*** [5.02]	0.018*** [4.76]	0.027*** [6.18]
Market-to-Book	1.286*** [20.61]	1.164*** [8.94]	1.091*** [9.07]	0.972*** [8.35]	1.259*** [13.24]	1.169*** [12.69]	1.046*** [11.02]	1.514*** [10.26]	1.512*** [10.40]	1.303*** [12.52]
Institutional Holdings	1.853*** [21.28]	0.315 [0.48]	0.277 [0.49]	0.451 [0.96]	0.962*** [2.64]	0.609* [1.66]	0.634* [1.76]	2.630*** [5.89]	2.738*** [6.01]	2.286*** [5.66]
Analysts	2.676*** [8.07]	2.241** [2.56]	0.979 [1.30]	1.115 [1.28]	2.750*** [3.98]	1.770*** [2.76]	2.039*** [2.73]	3.040*** [3.06]	2.633** [2.21]	2.316*** [2.69]
NYSE	-0.325*** [8.13]	-0.634*** [3.51]	-0.622*** [3.98]	-0.592*** [4.65]	-0.482*** [4.00]	-0.520*** [4.50]	-0.476*** [4.71]	-0.426*** [3.70]	-0.400*** [3.14]	-0.493*** [4.29]
Ratings Dummy	0.167*** [3.78]	-0.298 [1.35]	-0.266 [1.38]	-0.155 [0.83]	-0.111 [0.70]	-0.128 [0.87]	-0.004 [0.02]	0.095 [0.78]	0.090 [0.64]	0.214* [1.67]
Lambda		-1.356 [1.21]	-1.300 [1.35]	-0.200 [0.39]	-1.291 [1.63]	-1.068 [1.55]	-0.079 [0.16]	0.371 [0.39]	0.608 [0.68]	0.638 [1.03]
Pre-Loan Liquidity			0.211*** [4.30]	0.200*** [5.53]		0.186*** [5.57]	0.193*** [6.14]		0.092*** [2.76]	0.138*** [3.99]
Governance Index			0.231** [2.12]	0.336*** [2.78]		0.165* [1.85]	0.306*** [2.73]		-0.011 [0.11]	0.095 [0.83]
Constant	-10.725*** [20.58]	1.078 [0.23]	0.903 [0.22]	-0.866 [0.23]	-1.363 [0.37]	1.186 [0.32]	1.051 [0.25]	-11.579*** [8.26]	-11.378*** [7.45]	-10.616*** [7.54]
Observations	9513	8372	8372	8372	8384	8384	8481	8642	8642	8642
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen s J (p-value)		0.48	0.27		0.34	0.47		0.38	0.50	

Robust t statistics in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 3, Panel C: TRADING VOLUME

<i>Independent variables:</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Average Distance	0.065*** [5.25]	0.165*** [3.99]	0.109*** [2.87]	0.095*** [2.64]						
Dispersedness	0.014 [1.01]	0.663*** [3.31]	0.617*** [3.48]	0.651*** [3.12]						
Proximity					-1.368*** [4.88]	-0.988*** [3.84]	-0.697*** [3.27]	-0.532** [2.52]	-0.358* [1.94]	-1.082** [2.55]
Exclusivity					-0.548*** [3.40]	-0.519*** [3.55]	-0.440*** [2.94]			
Equity Exposure								-0.142*** [2.77]	-0.117*** [2.61]	-0.084** [2.24]
Loan-to-Debt Ratio	0.001*** [2.89]	0.023*** [2.61]	0.017** [2.39]	0.006* [1.80]	0.016** [2.23]	0.013** [2.05]	0.005* [1.68]	0.012 [0.58]	0.012 [0.75]	-0.006 [0.78]
Size	0.022 [1.60]	-0.174*** [2.67]	-0.133** [2.39]	-0.160** [2.44]	-0.160** [2.57]	-0.130** [2.33]	-0.108* [1.93]	0.187*** [3.94]	0.183*** [3.68]	0.146*** [2.81]
Leverage	-0.204*** [2.67]	-0.294 [1.53]	-0.291* [1.68]	-0.425* [1.83]	-0.725*** [2.69]	-0.669*** [2.75]	-0.488* [1.82]	0.513 [1.05]	0.403 [1.01]	-0.019 [0.07]
Cash	1.373*** [17.11]	1.494*** [7.60]	1.224*** [7.42]	1.470*** [6.88]	1.459*** [8.17]	1.151*** [7.42]	1.290*** [7.44]	0.928** [2.55]	0.747*** [2.79]	1.036*** [4.45]
ROA	-0.007*** [6.24]	-0.006*** [2.64]	-0.003 [1.55]	-0.004* [1.95]	-0.005** [2.49]	-0.002 [1.27]	-0.001 [0.77]	-0.005*** [3.01]	-0.003* [1.84]	0.000 [0.06]
Market-to-Book	0.208*** [8.19]	0.148*** [3.70]	0.141*** [4.11]	0.138*** [3.24]	0.169*** [4.40]	0.162*** [4.80]	0.152*** [3.83]	0.376*** [3.57]	0.339*** [3.85]	0.266*** [4.76]
Institutional Holdings	1.326*** [20.35]	0.802*** [4.40]	0.561*** [3.74]	0.671*** [4.70]	0.843*** [4.97]	0.570*** [3.83]	0.710*** [5.51]	1.951*** [8.97]	1.645*** [8.04]	1.532*** [6.87]
Analysts	0.963*** [4.46]	0.925*** [2.85]	0.315 [1.15]	0.620* [1.95]	1.037*** [2.91]	0.454 [1.45]	0.685** [2.11]	1.688** [2.03]	1.174 [1.56]	0.780 [1.62]
NYSE	-0.484*** [16.73]	-0.550*** [9.05]	-0.397*** [7.12]	-0.404*** [7.94]	-0.506*** [9.19]	-0.365*** [6.93]	-0.355*** [7.79]	-0.588*** [6.81]	-0.439*** [5.89]	-0.376*** [5.07]
Ratings Dummy	0.182*** [5.72]	0.101 [1.42]	0.060 [1.01]	-0.003 [0.04]	0.104 [1.63]	0.057 [1.02]	0.028 [0.43]	0.171* [1.81]	0.133* [1.72]	0.153** [2.00]
Lambda		-0.209 [0.67]	-0.160 [0.64]	-0.049 [0.24]	0.117 [0.46]	0.059 [0.27]	0.163 [0.76]	-0.056 [0.08]	-0.162 [0.31]	0.507 [1.60]
Pre-Loan Volume			0.369*** [12.50]	0.395*** [15.22]		0.369*** [12.39]	0.405*** [16.06]		0.284*** [4.56]	0.380*** [7.54]
Governance Index			0.069* [1.86]	0.081* [1.82]		0.064 [1.59]	0.078* [1.79]		-0.011 [0.20]	0.011 [0.20]
Constant	-3.900*** [18.28]	0.057 [0.05]	0.861 [0.84]	1.238 [1.07]	2.412 [1.34]	2.548* [1.72]	2.318 [1.45]	-4.873*** [5.97]	-3.615*** [6.85]	-3.054*** [4.71]
Observations	10715	9492	9492	9492	9508	9508	9508	10272	10272	9765
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen s J (p-value)		0.32	0.70		0.57	0.92		0.34	0.37	

Robust t statistics in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 4

Lending relationship and information asymmetry

This table describes the impact of the characteristics of bank's lending relationship on the degree of information asymmetry around the stock in the financial market – the basic question being: does asymmetric information increase or decrease with the characteristics measuring the strength of the bank's lending relationship. This relationship is described in equation (6) above, and as mentioned there, we measure asymmetry using two different variables.

In Panel A, our dependent variable is a measure of the degree of information asymmetry, and as in Bharath, Pasquariello, and Wu (2006), we also construct this measure following the model of Llorente, Michaely, Saar, and Wang (2002). Thus, the degree of information asymmetry is measured by the coefficient C_2 from the following regression:

$$R_{i,t+1} = C_0 + C_1.R_{i,t} + C_2.(V_{i,t} \times R_{i,t}) + \varepsilon_{i,t+1}$$

where

$$V_t = \log Turnover_t - \frac{1}{200} \sum_{s=-200}^{-1} \log Turnover_{t+s}, \quad \log Turnover = \log(Turnover_t + 0.00000255)$$

and *Turnover* is defined as the total number of shares traded each day as a fraction of total shares outstanding. (See Llorente et al., 2002, for details.)

In Panel B, we look at the impact of loan characteristics on trading by institutional investors. The dependent variable *Trading by Institutional Investors* is the average trading by institutions of all types (as per CDA/Spectrum 13f data) over the four quarters in a given fiscal year.

Our independent variables consist of loan characteristics and several firm-level control variables. We look at three complementary pairs of loan characteristics: either *Average Distance* and *Dispersedness* or *Proximity* and *Exclusivity* or else *Proximity* and *Equity Exposure*. *Average Distance* is the average distance of the borrower from each of the lenders in its lending syndicate; it is measured in thousands of kilometers. *Dispersedness* is the logarithm of the number of lenders counted in hundreds; this rescaling is done for the convenience of obtaining normally-scaled coefficient estimates. *Proximity* is the fraction of loans taken from banks whose headquarters are located within 200 miles (or 320 kilometers) of the borrower's location; historical location of the firm is available to us at county level so we also identify the banks' location at county level. *Exclusivity* is the logarithm of the Herfindahl Index (ranging between 0–10,000) of the lending syndicate. *Equity Exposure* is the fraction of borrowing firm's equity held by institutions belonging to the same conglomerate as the lending bank(s). The results for the first pair (*Average Distance* and *Dispersedness*) are in columns (1)-(4) and coefficient estimates using the second pair of characteristics (*Proximity* and *Exclusivity*) are listed in columns (5)-(7) while columns (8)-(10) report results for the final pair (*Proximity* and *Equity Exposure*). Column (1) presents OLS estimates while the remaining columns present results from an IV2SLS regression. Of the IV 2SLS regressions, columns (4), (7), and (10) present the *between-effects* estimate. While our focus is on these loan characteristics, we also control for the *Loan-to-Debt Ratio*; it is measured as the ratio of firm's total loan to outstanding long-term debt (item 9) in the previous fiscal year.

The firm-level control variables that we include in our analysis are the following. *Size* is measured as the logarithm of book value of assets (item 6). *Leverage* is the sum of long-term debt (item 9) and debt in current liabilities (item 34), standardized by lagged assets (item 6). *Cash* is the ratio of total cash (item 1) to lagged assets and the *ROA* (return on assets) is income before extraordinary items (item 18) as a percentage of lagged assets. These firm-level variables are contemporaneous with the dependent variable while the remaining firm-characteristics are recorded at the beginning of the fiscal year. *Market-to-Book* is the logarithm of the firm's market-to-book ratio where market-to-book is (item25 x item199)/(item60). *Institutional Holdings* is the fraction of shares held by those institutional investors that hold at least a 5% position in the firm. *Analysts* is the number of analysts following the stock, and is expressed in thousands for the convenience of obtaining normally-scaled coefficient estimates. *NYSE* is a dummy variable that takes a value 1 if the firm is listed on the New York Stock Exchange, and zero otherwise. *Ratings Dummy* is a dummy variable that equals one if the firm has a credit-rating, and equals zero otherwise.

Lambda – the inverse Mills' ratio from the Probit analysis of loan-taking decision – is included in order to account for the selection bias inherent in our sample of loan-taking firms. *Pre-loan Information Asymmetry* and *Pre-loan Institutional Trading* is the level of the respective dependent variable in the year before the loan deal is initiated. *Governance index* is a dummy variable that equals 1 if the Gompers, Ishii, and Metrick (2003) index of corporate governance is greater than 9 and equals 0 if this index is less than or equal to 9; recall, the higher the index, the poorer the corporate governance. Industries are categorized by 1-digit SIC Code. The bottom row displays the p-value for Hansen's J-test of the null hypothesis that the instrumental variables employed are orthogonal to the errors. All t-statistics are calculated using robust standard errors clustered at firm level.

Table 4, Panel A: INFORMATION ASYMMETRY

<i>Independent variables:</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Average Distance	-0.004*** [3.25]	-0.011** [2.01]	-0.010** [1.96]	-0.010* [1.92]						
Dispersedness	-0.004** [2.55]	-0.111** [2.21]	-0.106** [2.14]	-0.069** [2.04]						
Proximity					0.103*** [2.71]	0.105*** [2.65]	0.061* [1.81]	0.129* [1.86]	0.123** [1.97]	-0.023 [0.92]
Exclusivity					0.062** [1.96]	0.064* [1.93]	0.052* [1.77]			
Equity Exposure								0.009** [2.13]	0.007** [1.96]	0.007** [2.23]
Loan-to-Debt Ratio	0.000 [0.40]	-0.001 [0.90]	-0.001 [0.87]	0.000 [0.51]	0.000 [0.14]	0.000 [0.20]	0.001 [1.61]	-0.001 [0.60]	0.000 [0.52]	0.000 [0.18]
Size	0.001 [0.63]	0.035** [2.30]	0.032** [2.20]	0.022** [2.08]	0.023** [2.04]	0.023* [1.94]	0.019* [1.77]	-0.008 [1.45]	-0.007 [1.56]	-0.007 [1.44]
Leverage	0.010 [1.18]	0.089** [2.18]	0.090** [2.21]	0.073** [2.14]	0.114** [2.24]	0.118** [2.26]	0.098** [2.18]	-0.010 [0.43]	0.004 [0.19]	-0.004 [0.14]
Cash	-0.033*** [3.61]	-0.090*** [3.12]	-0.088*** [3.11]	-0.087*** [2.76]	-0.064*** [3.66]	-0.065*** [3.59]	-0.079*** [2.99]	-0.021 [0.91]	-0.027 [1.29]	-0.016 [0.58]
ROA	-0.000* [1.67]	0.000 [0.90]	0.000 [0.73]	0.000 [0.15]	0.000 [1.28]	0.000 [1.15]	0.000 [0.72]	-0.000* [1.90]	-0.000* [1.75]	0.000 [0.83]
Market-to-Book	-0.009*** [3.02]	-0.001 [0.23]	-0.002 [0.40]	0.000 [0.08]	-0.005 [1.25]	-0.006 [1.30]	0.000 [0.04]	-0.019*** [2.72]	-0.017*** [2.80]	-0.011* [1.89]
Institutional Holdings	-0.023*** [3.58]	0.050 [1.45]	0.040 [1.24]	-0.005 [0.23]	0.021 [0.83]	0.019 [0.71]	-0.014 [0.61]	-0.061*** [2.97]	-0.060*** [3.16]	-0.072*** [3.41]
Analysts	-0.006 [0.24]	-0.032 [0.78]	-0.033 [0.85]	-0.058 [1.43]	-0.038 [0.90]	-0.041 [0.96]	-0.079* [1.76]	-0.015 [0.29]	-0.012 [0.26]	-0.091** [2.10]
NYSE	-0.017*** [5.65]	-0.004 [0.56]	-0.006 [0.89]	-0.009 [1.33]	-0.011** [2.17]	-0.012** [2.31]	-0.015** [2.40]	-0.005 [0.60]	-0.010 [1.61]	-0.010 [1.59]
Ratings Dummy	0.004 [1.32]	0.021** [2.47]	0.021** [2.45]	0.022** [2.42]	0.019*** [2.72]	0.020*** [2.69]	0.020** [2.12]	0.017** [2.21]	0.017** [2.38]	0.004 [0.55]
Lambda		-0.010 [0.25]	-0.003 [0.09]	-0.003 [0.12]	-0.018 [0.64]	-0.015 [0.55]	-0.031 [0.98]	0.027 [0.83]	0.028 [0.91]	0.022 [0.65]
Pre-Loan Information Asymmetry			0.001 [0.08]	-0.007 [0.99]		-0.005 [0.41]	-0.010 [1.22]	0.004 [0.24]	-0.006 [0.24]	-0.006 [0.74]
Governance Index			-0.002 [0.31]	0.007 [1.11]		0.002 [0.29]	0.007 [1.14]	0.008 [1.63]	0.010* [1.74]	0.010* [1.74]
Constant	0.080*** [3.44]	-0.606** [2.27]	-0.570** [2.19]	-0.311 [1.52]	-0.558* [1.79]	-0.686** [1.98]	-0.442 [1.43]	0.014 [0.26]	0.091* [1.73]	0.139* [1.93]
Observations	10714	9626	9626	9578	9474	9474	9630	9783	9783	9765
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen s J (p-value)		0.55	0.55		0.88	0.91		0.91	0.89	

Robust t statistics in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 4, Panel B: TRADING BY INSTITUTIONAL INVESTORS

<i>Independent variables:</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Average Distance	0.001*** [4.21]	0.003*** [3.62]	0.003*** [3.65]	0.003*** [3.25]						
Dispersedness	0.001** [2.12]	0.009** [2.03]	0.009** [2.08]	0.011** [2.15]						
Proximity					-0.026** [2.45]	-0.028*** [2.60]	-0.019* [1.90]	-0.018** [2.23]	-0.016** [2.17]	-0.043* [1.82]
Exclusivity					-0.010*** [3.02]	-0.009*** [2.86]	-0.011*** [2.60]			
Equity Exposure								-0.003*** [2.79]	-0.002** [2.54]	-0.002** [2.09]
Loan-to-Debt Ratio	0.000 [0.41]	0.000 [1.13]	0.000 [1.13]	0.000 [1.15]	-0.000* [1.85]	-0.000* [1.83]	0.000 [0.76]	0.000 [1.07]	0.000 [1.23]	0.000 [0.68]
Size	-0.002*** [5.33]	-0.004*** [3.18]	-0.004*** [2.75]	-0.004*** [2.63]	-0.005*** [4.01]	-0.004*** [3.32]	-0.004*** [2.69]	0.002 [1.15]	0.002 [1.46]	0.002 [1.57]
Leverage	0.006*** [3.22]	-0.003 [0.67]	-0.007 [1.30]	-0.006 [1.05]	-0.013** [2.21]	-0.015** [2.57]	-0.01 [1.28]	0.013* [1.89]	0.006 [1.06]	0.01 [1.37]
Cash	0.022*** [9.43]	0.025*** [6.67]	0.026*** [6.67]	0.024*** [4.82]	0.027*** [6.97]	0.027*** [7.01]	0.025*** [5.16]	0.017** [2.55]	0.019*** [3.14]	0.017*** [2.65]
ROA	-0.000** [2.07]	-0.000* [1.77]	-0.000** [2.05]	0.000 [1.19]	0.000 [1.53]	-0.000* [1.72]	0.000 [0.71]	0.000 [1.47]	-0.000* [1.88]	0.000 [0.40]
Market-to-Book	0.000 [0.47]	-0.001 [1.30]	-0.001 [1.20]	-0.001 [0.56]	-0.001 [1.06]	-0.001 [0.92]	-0.001 [0.85]	0.004 [1.48]	0.003 [1.59]	0.001 [0.79]
Institutional Holdings	0.029*** [18.59]	0.025*** [7.36]	0.027*** [7.75]	0.035*** [8.97]	0.024*** [7.17]	0.026*** [7.71]	0.033*** [8.42]	0.045*** [7.64]	0.047*** [7.63]	0.050*** [7.98]
Analysts	-0.032*** [6.47]	-0.032*** [5.69]	-0.030*** [5.38]	-0.029*** [3.34]	-0.031*** [4.39]	-0.029*** [4.22]	-0.025** [2.44]	-0.024 [1.54]	-0.023* [1.74]	-0.032** [2.31]
NYSE	-0.003*** [4.53]	-0.003*** [2.74]	-0.002 [1.59]	-0.002* [1.76]	-0.002** [2.11]	-0.001 [1.17]	-0.002 [1.54]	-0.005* [1.92]	-0.002 [1.29]	-0.002 [1.35]
Ratings Dummy	0.002** [2.55]	0.001 [0.98]	0.001 [0.93]	0.000 [0.11]	0.001 [0.38]	0.001 [0.35]	0.000 [0.19]	0.001 [0.53]	0.001 [0.74]	0.003 [1.49]
Lambda		0.007 [1.17]	0.006 [1.00]	0.006 [0.83]	0.014** [1.98]	0.012* [1.84]	0.012 [1.56]	0.007 [1.07]	0.006 [0.90]	0.019 [1.51]
Pre-Loan Institutional Trading			0.019** [2.25]	0.027*** [2.59]		0.013 [1.42]	0.023** [2.02]		0.003 [0.32]	0.009 [0.53]
Governance Index			0.000 [0.39]	-0.001 [0.86]		0.000 [0.31]	-0.001 [0.64]		-0.002 [1.58]	-0.002 [1.11]
Constant	0.037*** [5.32]	0.071*** [2.90]	0.072*** [2.76]	0.073** [2.43]	0.135*** [3.98]	0.136*** [3.88]	0.121*** [2.80]	0.006 [0.49]	-0.009 [0.65]	-0.024 [1.09]
Observations	9942	8905	8905	8905	8783	8783	8783	9041	9041	9250
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen s J (p-value)		0.40	0.42		0.39	0.57		0.42	0.53	

Robust t statistics in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 5

Lending relationship and managers' risk-taking

This table presents coefficient estimates for the relationship between the loan characteristics and the managers' risk-taking behavior, as described in equation (7) above. Again, we used different measures for it.

In Panel A, the dependent variable is *Stock Volatility*, which is logarithm of one plus the standard deviation (rescaled by 10^4) of daily returns over the year; this variable is rescaled for the convenience of obtaining normally-scaled coefficient estimates.

In Panel B, the dependent variable *Cashflow Volatility* is constructed in the following manner. It is the absolute change in cashflows with respect to the average cashflows over the previous three years. Our measure is in the same realm as the cashflow-shock measures of Guay and Harford (2000).

Our independent variables consist of loan characteristics and several firm-level control variables. We look at three complementary pairs of loan characteristics: either *Average Distance* and *Dispersedness* or *Proximity* and *Exclusivity* or else *Proximity* and *Equity Exposure*. *Average Distance* is the average distance of the borrower from each of the lenders in its lending syndicate; it is measured in thousands of kilometers. *Dispersedness* is the logarithm of the number of lenders counted in hundreds; this rescaling is done for the convenience of obtaining normally-scaled coefficient estimates. *Proximity* is the fraction of loans taken from banks whose headquarters are located within 200 miles (or 320 kilometers) of the borrower's location; historical location of the firm is available to us at county level so we also identify the banks' location at county level. *Exclusivity* is the logarithm of the Herfindahl Index (ranging between 0–10,000) of the lending syndicate. *Equity Exposure* is the fraction of borrowing firm's equity held by institutions belonging to the same conglomerate as the lending bank(s). The results for the first pair (*Average Distance* and *Dispersedness*) are in columns (1)-(4) and coefficient estimates using the second pair of characteristics (*Proximity* and *Exclusivity*) are listed in columns (5)-(7) while columns (8)-(10) report results for the final pair (*Proximity* and *Equity Exposure*). Column (1) presents OLS estimates while the remaining columns present results from an IV2SLS regression. Of the IV 2SLS regressions, columns (4), (7), and (10) present the *between-effects* estimate. While our focus is on these loan characteristics, we also control for the *Loan-to-Debt Ratio*, it is measured as the ratio of firm's total loan to outstanding long-term debt (item 9) in the previous fiscal year.

The firm-level control variables that we include in our analysis are the following. *Size* is measured as the logarithm of book value of assets (item 6). *Leverage* is the sum of long-term debt (item 9) and debt in current liabilities (item 34), standardized by lagged assets (item 6). *Cash* is the ratio of total cash (item 1) to lagged assets and the *ROA* (return on assets) is income before extraordinary items (item 18) as a percentage of lagged assets. *Cashflows* are defined as income before extraordinary items (item 18) plus depreciation and amortization (item 14), standardized by lagged assets. We do not use *ROA* (*return on assets*) in Panel B because it is important to control for the level of cashflows when explaining cashflow variation, and moreover, there is a high correlation between *Cashflows* and *ROA* (97% in our data sample), so replacing *ROA* shouldn't pose a problem. These firm-level variables are contemporaneous with the dependent variable while the remaining firm-characteristics are recorded at the beginning of the fiscal year. *Market-to-Book* is the logarithm of the firm's market-to-book ratio where market-to-book is (item25 x item199)/(item60). *Institutional Holdings* is the fraction of shares held by those institutional investors that hold at least a 5% position in the firm. *Analysts* is the number of analysts following the stock, and is expressed in thousands for the convenience of obtaining normally-scaled coefficient estimates. *NYSE* is a dummy variable that takes a value 1 if the firm is listed on the New York Stock Exchange, and zero otherwise. *Ratings Dummy* is a dummy variable that equals one if the firm has a credit-rating, and equals zero otherwise.

Lambda – the inverse Mills' ratio from the Probit analysis of loan-taking decision – is included in order to account for the selection bias inherent in our sample of loan-taking firms. *Pre-loan Volatility* and *Pre-loan Cashflow Variation* is the level of the respective dependent variable in the year before the loan deal is initiated. *Governance index* is a dummy variable that equals 1 if the Gompers, Ishii, and Metrick (2003) index of corporate governance is greater than 9 and equals 0 if this index is less than or equal to 9; recall, the higher the index, the poorer the corporate governance. Industries are categorized by 1-digit SIC Code. The bottom row displays the p-value for Hansen's J-test of the null hypothesis that the instrumental variables employed are orthogonal to the errors. All t-statistics are calculated using robust standard errors clustered at firm level.

Table 5, Panel A: STOCK VOLATILITY

<i>Independent variables:</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Average Distance	0.024*** [4.91]	0.065*** [3.98]	0.047*** [3.11]	0.053*** [2.82]						
Dispersedness	0.014** [2.14]	0.222** [2.15]	0.188** [2.00]	0.231** [2.52]						
Proximity					-0.507*** [2.96]	-0.382*** [2.70]	-0.283** [2.18]	-0.309** [2.02]	-0.254** [2.54]	-0.125* [1.92]
Exclusivity					-0.433** [2.51]	-0.332** [2.40]	-0.263** [2.17]			
Equity Exposure								-0.051** [2.22]	-0.025* [1.69]	-0.025** [2.26]
Loan-to-Debt Ratio	0.000*** [3.88]	0.004* [1.71]	0.004* [1.76]	0.005*** [2.77]	-0.004 [0.82]	-0.002 [0.41]	0.003* [1.73]	-0.005 [1.41]	-0.003 [0.96]	0.001 [0.49]
Size	-0.093*** [14.53]	-0.150*** [4.62]	-0.108*** [3.81]	-0.129*** [4.46]	-0.224*** [3.74]	-0.163*** [3.40]	-0.147*** [3.46]	-0.018 [0.65]	-0.017 [0.85]	-0.028 [1.63]
Leverage	0.181*** [5.17]	0.085 [0.95]	0.076 [0.88]	0.105 [0.98]	-0.520* [1.82]	-0.363 [1.56]	-0.088 [0.47]	0.285** [2.21]	0.191** [2.37]	0.243*** [2.81]
Cash	0.462*** [12.56]	0.515*** [7.24]	0.408*** [6.03]	0.395*** [4.12]	0.638*** [6.07]	0.493*** [5.65]	0.416*** [3.97]	0.378*** [2.81]	0.315*** [4.07]	0.247*** [3.20]
ROA	-0.012*** [22.22]	-0.012*** [15.28]	-0.011*** [14.93]	-0.011*** [12.37]	-0.012*** [11.50]	-0.011*** [12.40]	-0.010*** [10.70]	-0.012*** [12.88]	-0.011*** [14.95]	-0.010*** [12.36]
Market-to-Book	-0.029*** [2.84]	-0.051*** [3.37]	-0.047*** [3.53]	-0.064*** [3.17]	-0.051** [2.22]	-0.046** [2.51]	-0.062*** [2.80]	0.034 [0.75]	0.001 [0.03]	-0.015 [0.76]
Institutional Holdings	-0.022 [0.78]	-0.155** [1.97]	-0.094 [1.40]	-0.156** [2.29]	-0.274** [2.12]	-0.179* [1.79]	-0.200** [2.14]	0.290*** [2.67]	0.195** [2.37]	0.130* [1.93]
Analysts	0.294*** [3.29]	0.295*** [2.61]	0.168* [1.73]	0.196 [1.31]	0.536** [2.46]	0.352** [2.04]	0.317* [1.80]	0.478 [1.57]	0.254 [1.44]	0.294** [2.00]
NYSE	-0.240*** [18.04]	-0.249*** [12.11]	-0.181*** [9.45]	-0.199*** [8.63]	-0.226*** [7.23]	-0.169*** [6.46]	-0.188*** [7.80]	-0.251*** [6.48]	-0.164*** [7.07]	-0.186*** [8.59]
Ratings Dummy	0.017 [1.11]	-0.001 [0.02]	-0.015 [0.71]	-0.063** [2.06]	-0.015 [0.33]	-0.026 [0.80]	-0.071* [1.89]	0.028 [0.70]	0.005 [0.21]	-0.012 [0.45]
Lambda		0.057 [0.61]	-0.014 [0.18]	-0.126 [1.30]	0.501** [1.97]	0.287 [1.49]	0.024 [0.19]	0.308* [1.96]	0.137 [1.23]	-0.031 [0.33]
Pre-Loan Volatility			0.292*** [15.06]	0.310*** [13.84]		0.267*** [9.07]	0.312*** [12.71]		0.300*** [12.01]	0.323*** [15.35]
Governance Index			-0.013 [0.84]	-0.006 [0.29]		-0.006 [0.29]	-0.003 [0.12]		-0.037** [1.98]	-0.032* [1.67]
Constant	6.139*** [53.51]	7.252*** [12.01]	5.245*** [9.48]	5.593*** [9.80]	10.309*** [5.77]	7.755*** [5.16]	7.137*** [5.62]	5.418*** [19.17]	3.784*** [13.17]	4.039*** [14.96]
Observations	10715	9492	9492	9492	9598	9598	9598	9765	9765	9765
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen s J (p-value)		0.30	0.25		0.63	0.41		0.62	0.39	

Robust t statistics in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 5, Panel B: CASHFLOW VARIATION

<i>Independent variables:</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Average Distance	0.091*** [3.88]	0.198** [2.15]	0.208** [2.10]	0.267** [2.52]						
Dispersedness	0.039 [1.24]	1.319*** [2.90]	1.405*** [2.93]	1.864*** [3.47]						
Proximity					-1.959* [1.83]	-2.002* [1.80]	-2.425** [2.03]	-0.095 [0.22]	-0.105 [0.25]	0.254 [0.42]
Exclusivity					-2.675*** [3.29]	-2.702*** [3.27]	-2.783*** [3.10]			
Equity Exposure								-0.157** [2.11]	-0.146** [2.04]	-0.208* [1.85]
Loan-to-Debt Ratio	-0.001 [0.95]	-0.046** [2.16]	-0.049** [2.22]	-0.001 [0.12]	-0.010 [0.35]	-0.012 [0.41]	-0.025 [1.22]	-0.017 [1.39]	-0.017 [1.39]	-0.010 [0.66]
Size	-0.161*** [5.21]	-0.539*** [3.66]	-0.540*** [3.65]	-0.800*** [4.76]	-1.097*** [3.80]	-1.095*** [3.80]	-1.165*** [3.76]	0.008 [0.08]	0.013 [0.14]	-0.002 [0.02]
Leverage	-0.183 [1.02]	-1.910*** [3.25]	-2.026*** [3.17]	-1.879*** [2.94]	-4.480*** [3.08]	-4.472*** [3.00]	-4.699*** [3.13]	-0.097 [0.24]	-0.202 [0.53]	-0.572 [0.99]
Cash	0.714*** [3.07]	1.648*** [3.63]	1.738*** [3.56]	2.327*** [3.96]	1.725*** [2.96]	1.793*** [2.96]	2.941*** [3.25]	0.542 [1.32]	0.561 [1.43]	0.680 [1.17]
Cashflows	-4.716*** [10.46]	-5.375*** [9.05]	-5.489*** [8.97]	-6.254*** [12.43]	-5.461*** [7.74]	-5.636*** [7.72]	-6.204*** [7.90]	-4.958*** [10.01]	-4.957*** [10.01]	-5.317*** [10.77]
Market-to-Book	0.035 [0.52]	0.022 [0.23]	0.031 [0.31]	-0.063 [0.54]	0.030 [0.23]	0.043 [0.33]	-0.070 [0.38]	0.282* [1.86]	0.271* [1.91]	0.201 [1.43]
Institutional Holdings	-0.289** [2.00]	-0.885*** [2.59]	-0.825** [2.48]	-1.089*** [2.98]	-2.118*** [3.39]	-2.082*** [3.42]	-1.686** [2.49]	0.569 [1.54]	0.594 [1.51]	0.956 [1.60]
Analysts	0.106 [0.21]	0.430 [0.63]	0.361 [0.52]	0.392 [0.45]	1.929 [1.60]	1.659 [1.40]	1.729 [1.20]	1.037 [1.00]	1.078 [1.10]	1.707 [1.46]
NYSE	-0.123* [1.91]	-0.148 [1.12]	-0.125 [0.89]	-0.543*** [4.07]	-0.248 [1.41]	-0.256 [1.39]	-0.458** [2.31]	-0.251* [1.73]	-0.203 [1.62]	-0.517*** [3.47]
Ratings Dummy	0.213*** [3.26]	0.088 [0.50]	0.092 [0.51]	-0.478*** [2.64]	-0.149 [0.66]	-0.129 [0.57]	-0.719** [2.34]	0.135 [1.20]	0.131 [1.21]	-0.075 [0.42]
Lambda		1.690* [1.65]	1.756* [1.65]	-0.969 [1.63]	1.513 [1.29]	1.509 [1.26]	0.862 [0.74]	0.121 [0.27]	0.077 [0.17]	-1.261* [1.76]
Pre-Loan Cashflow Variation			0.001 [0.32]	0.001 [0.31]		-0.004* [1.80]	-0.004 [0.70]	0.002 [0.81]	0.005 [1.16]	
Governance Index			-0.034 [0.38]	-0.027 [0.22]		0.064 [0.43]	0.027 [0.14]	-0.115 [1.24]	-0.103 [1.24]	
Constant	2.199*** [6.01]	8.189*** [3.33]	8.101*** [3.17]	14.107*** [4.83]	27.767*** [3.57]	30.469*** [3.59]	32.080*** [3.54]	0.848 [0.90]	1.062 [1.19]	2.271 [1.28]
Observations	10491	9324	9324	9324	9373	9373	9496	9982	9982	9982
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen s J (p-value)		0.63	0.64		0.74	0.67		0.45	0.45	

Robust t statistics in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 6

Lending relationship and managerial discipline

This table examines the disciplining impact of loan characteristics on the firm’s managers. Again, we measure discipline in multiple ways. This is the focus of Section 6 above.

In Panel A, *Managerial Appropriation* is the borrowing firm’s CEO’s total compensation as a fraction of the average CEO compensation for all firms (except the firm under consideration) in the corresponding industry.

Our independent variables consist of loan characteristics and several firm-level control variables. We look at three complementary pairs of loan characteristics: either *Average Distance* and *Dispersedness* or *Proximity* and *Exclusivity* or else *Proximity* and *Equity Exposure*. *Average Distance* is the average distance of the borrower from each of the lenders in its lending syndicate; it is measured in thousands of kilometers. *Dispersedness* is the logarithm of the number of lenders counted in hundreds; this rescaling is done for the convenience of obtaining normally-scaled coefficient estimates. *Proximity* is the fraction of loans taken from banks whose headquarters are located within 200 miles (or 320 kilometers) of the borrower’s location; historical location of the firm is available to us at county level so we also identify the banks’ location at county level. *Exclusivity* is the logarithm of the Herfindahl Index (ranging between 0–10,000) of the lending syndicate. *Equity Exposure* is the fraction of borrowing firm’s equity held by institutions belonging to the same conglomerate as the lending bank(s). The results for the first pair (*Average Distance* and *Dispersedness*) are in columns (1)-(4) and coefficient estimates using the second pair of characteristics (*Proximity* and *Exclusivity*) are listed in columns (5)-(7) while columns (8)-(10) report results for the final pair (*Proximity* and *Equity Exposure*). Column (1) presents OLS estimates while the remaining columns present results from an IV2SLS regression. Of the IV 2SLS regressions, columns (4), (7), and (10) present the *between-effects* estimate. While our focus is on these loan characteristics, we also control for the *Loan-to-Debt Ratio*, it is measured as the ratio of firm’s total loan to outstanding long-term debt (item 9) in the previous fiscal year.

The firm-level control variables that we include in our analysis are the following. *Lagged CEO-Compensation* is the logarithm of CEO’s total compensation (“TDC1” from *ExecuComp*) in the previous fiscal year. *Size* is measured as the logarithm of book value of assets (item 6). *Leverage* is the sum of long-term debt (item 9) and debt in current liabilities (item 34), standardized by lagged assets (item 6). *Cash* is the ratio of total cash (item 1) to lagged assets and the *ROA* (return on assets) is income before extraordinary items (item 18) as a percentage of lagged assets. *ROA in year (t-1)* is the first lag of ROA and *ROA in year (t-2)* is the second lag of ROA. These firm-level variables are contemporaneous with the dependent variable while the remaining firm-characteristics are recorded at the beginning of the fiscal year. *Market-to-Book* is the logarithm of the firm’s market-to-book ratio where market-to-book is (item25 x item199)/(item60). *Institutional Holdings* is the fraction of shares held by those institutional investors that hold at least a 5% position in the firm. *Analysts* is the number of analysts following the stock, and is expressed in thousands for the convenience of obtaining normally-scaled coefficient estimates. *NYSE* is a dummy variable that takes a value 1 if the firm is listed on the New York Stock Exchange, and zero otherwise. *Ratings Dummy* is a dummy variable that equals one if the firm has a credit-rating, and equals zero otherwise.

Lambda – the inverse Mills’ ratio from the Probit analysis of loan-taking decision – is included in order to account for the selection bias inherent in our sample of loan-taking firms. *Lagged Appropriation* and *Lagged CEO-trading* is the level of the respective dependent variable in the previous fiscal year; we do not use the pre-loan figure in this case because the CEO could be different before the loan starts. *Pre-loan Expenditure on M&A* is the value of the dependent variable (in Panel C) in the year before the loan deal is initiated. *Governance index* is a dummy variable that equals 1 if the Gompers, Ishii, and Metrick (2003) index of corporate governance is greater than 9 and equals 0 if this index is less than or equal to 9; recall, the higher the index, the poorer the corporate governance. Industries are categorized by 1-digit SIC Code. The bottom row displays the p-value for Hansen’s J-test of the null hypothesis that the instrumental variables employed are orthogonal to the errors. All t-statistics are calculated using robust standard errors clustered at firm level.

Table 6, Panel A: MANAGERIAL APPROPRIATION

<i>Independent variables:</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Average Distance	0.057 [1.33]	0.058 [1.10]	0.070 [1.29]	0.090 [1.30]						
Dispersedness	0.044 [1.43]	0.610** [2.16]	0.731*** [2.58]	0.657** [2.02]						
Proximity					-2.416 [1.51]	-1.830 [1.28]	-0.259 [0.29]	0.248 [0.60]	0.312 [0.84]	0.151 [0.34]
Exclusivity					-0.807** [2.06]	-0.781** [2.29]	-0.624** [2.20]			
Equity Exposure								0.024 [0.52]	0.002 [0.04]	-0.017 [0.57]
Loan-to-Debt Ratio	0.000 [0.33]	0.011 [0.66]	0.013 [0.86]	0.012 [1.24]	0.024 [1.44]	0.016 [1.08]	0.011 [1.30]	0.003 [0.29]	-0.002 [0.16]	0.014* [1.71]
Lagged CEO-Compensation	0.846*** [7.10]	0.760*** [5.35]	0.313** [2.08]	-0.198 [1.34]	0.614*** [3.82]	0.206 [1.33]	-0.190 [1.44]	0.819*** [5.94]	0.416*** [3.50]	-0.073 [0.67]
Size	0.233*** [5.27]	0.189** [2.37]	0.194** [2.50]	-0.021 [0.23]	0.141 [1.41]	0.181* [1.95]	-0.016 [0.18]	0.292*** [2.96]	0.361*** [3.58]	0.140* [1.93]
Leverage	-0.404** [2.24]	-0.377 [1.07]	-0.496 [1.43]	-0.430 [0.98]	-1.556* [1.94]	-1.527** [2.12]	-1.091* [1.79]	0.019 [0.04]	0.070 [0.17]	0.238 [0.57]
Cash	0.749*** [2.79]	0.585* [1.76]	0.651** [1.99]	1.070** [2.11]	0.272 [0.64]	0.327 [0.90]	0.922** [2.20]	0.329 [1.09]	0.309 [1.12]	0.488 [1.44]
ROA	0.000 [0.04]	0.000 [0.09]	0.001 [0.20]	-0.008 [1.40]	0.000 [0.02]	0.001 [0.13]	-0.010 [0.27]	0.001 [0.27]	0.001 [0.38]	-0.004 [0.66]
Market-to-Book	0.285*** [3.61]	0.255*** [2.80]	0.266*** [2.75]	0.066 [0.76]	0.335*** [3.11]	0.338*** [3.17]	0.167* [1.86]	0.209* [1.66]	0.263** [2.11]	0.081 [0.97]
Institutional Holdings	-0.119 [0.80]	-0.552** [1.99]	-0.540** [1.98]	-0.585* [1.91]	-0.828* [1.95]	-0.685* [1.90]	-0.634** [2.17]	-0.280 [0.81]	0.019 [0.06]	-0.072 [0.26]
Analysts	0.051 [0.09]	0.124 [0.20]	0.036 [0.06]	0.453 [0.77]	-0.208 [0.22]	-0.096 [0.11]	0.640 [0.88]	0.246 [0.39]	0.225 [0.38]	0.546 [0.93]
NYSE	-0.071 [0.88]	-0.029 [0.23]	-0.013 [0.10]	-0.129 [1.23]	-0.035 [0.24]	0.007 [0.05]	-0.121 [1.20]	0.046 [0.34]	0.069 [0.56]	-0.112 [1.10]
Ratings Dummy	-0.128** [1.98]	0.053 [0.35]	0.064 [0.42]	-0.268* [1.73]	-0.005 [0.02]	0.070 [0.41]	-0.253* [1.72]	0.147 [0.96]	0.186 [1.28]	-0.160 [1.24]
Lambda		1.019 [1.10]	1.003 [1.12]	-0.490 [0.68]	0.947 [1.08]	1.229 [1.42]	-0.405 [0.53]	1.030 [1.26]	1.238 [1.55]	-0.806 [1.32]
Lagged Appropriation			0.194** [2.50]	0.732*** [19.88]		0.194** [2.54]	0.684*** [17.74]		0.191** [2.55]	0.730*** [21.61]
Governance Index			0.012 [0.17]	0.001 [0.01]		0.031 [0.37]	0.011 [0.15]		-0.031 [0.57]	-0.049 [0.74]
Constant	-1.827*** [5.01]	0.164 [0.09]	0.419 [0.25]	3.465 [1.55]	3.924 [1.19]	3.200 [1.08]	5.907** [2.06]	-3.975*** [2.74]	-4.004** [2.45]	-0.087 [0.07]
Observations	5990	5667	5667	5667	5670	5670	5670	5768	5768	5768
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen s J (p-value)		0.37	0.47		0.79	0.75		0.36	0.25	

Robust t statistics in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 6, Panel B: TRADING BY MANAGERS

<i>Independent variables:</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Average Distance	-0.058*	0.150*	0.144*	0.038						
	[1.84]	[1.69]	[1.65]	[0.37]						
Dispersedness	0.129***	0.798**	0.643**	-0.234						
	[3.23]	[2.45]	[1.99]	[0.46]						
Proximity					-1.098	-1.959*	-1.933	-3.268**	-3.725**	-2.504
					[0.93]	[1.75]	[1.48]	[2.10]	[2.44]	[1.09]
Exclusivity					-0.901**	-0.650*	-0.124			
					[2.37]	[1.85]	[0.27]			
Equity Exposure								-0.111*	-0.103*	-0.176*
								[1.93]	[1.76]	[1.80]
Loan-to-Debt Ratio	0.000	0.000	0.014	-0.009	-0.004	0.009	0.002	0.016	0.011	-0.037
	[0.21]	[0.02]	[0.84]	[0.90]	[0.24]	[0.62]	[0.14]	[0.56]	[0.41]	[1.37]
Lagged CEO-Compensation	0.163**	0.070	0.094	0.247*	-0.040	0.012	0.087	0.198*	0.248**	0.379*
	[2.22]	[0.74]	[0.95]	[1.69]	[0.35]	[0.11]	[0.49]	[1.72]	[2.06]	[1.83]
Size	-0.171***	-0.320***	-0.297***	-0.117	-0.349***	-0.282***	-0.150	0.064	0.104	0.300
	[3.39]	[3.59]	[3.49]	[0.97]	[3.31]	[2.95]	[1.14]	[0.57]	[0.87]	[1.17]
Leverage	-0.346	-1.046**	-0.731	-0.243	-2.187**	-1.547*	-0.342	0.261	0.228	-0.549
	[1.24]	[2.43]	[1.52]	[0.31]	[2.51]	[1.78]	[0.30]	[0.48]	[0.35]	[0.39]
Cash	1.064***	1.218**	1.329**	1.043	0.973**	0.985**	1.300**	0.456	0.453	0.326
	[2.63]	[2.51]	[2.48]	[1.54]	[2.13]	[1.98]	[2.02]	[0.63]	[0.54]	[0.31]
ROA	0.011**	0.013**	0.010	0.009	0.013**	0.011*	0.008	0.011	0.011	0.022
	[1.97]	[2.06]	[1.63]	[1.11]	[2.13]	[1.83]	[1.02]	[1.59]	[1.58]	[1.55]
Market-to-Book	0.095	0.101	0.091	0.175	0.179	0.165	0.255*	0.373*	0.331	0.411
	[1.06]	[0.99]	[0.84]	[1.36]	[1.61]	[1.44]	[1.81]	[1.86]	[1.50]	[1.49]
Institutional Holdings	-0.981***	-1.455***	-1.098***	-0.183	-1.659***	-1.258***	-0.686	-0.013	0.180	1.137
	[4.73]	[4.37]	[3.36]	[0.40]	[4.16]	[3.16]	[1.42]	[0.03]	[0.39]	[1.36]
Analysts	-0.966	-1.343**	-1.329*	-1.227	-1.035	-1.552*	-2.222**	-2.564**	-2.749**	-3.939*
	[1.56]	[1.97]	[1.70]	[1.40]	[1.29]	[1.77]	[1.99]	[2.10]	[2.03]	[1.83]
NYSE	-0.129	-0.168	-0.094	-0.031	-0.152	-0.082	-0.168	-0.297	-0.202	-0.355
	[1.36]	[1.38]	[0.73]	[0.21]	[1.19]	[0.61]	[1.09]	[1.24]	[0.81]	[1.12]
Ratings Dummy	0.010	-0.033	-0.085	0.020	0.076	0.013	0.001	-0.118	-0.106	0.189
	[0.11]	[0.16]	[0.42]	[0.10]	[0.41]	[0.07]	[0.00]	[0.48]	[0.44]	[0.50]
Lambda		0.245	-0.550	-0.252	0.803	0.157	-0.182	-0.228	0.039	2.452
		[0.21]	[0.53]	[0.26]	[0.88]	[0.19]	[0.15]	[0.15]	[0.03]	[1.31]
Lagged CEO-Trading			0.063***	0.121***		0.067***	0.123***		0.072***	0.123***
			[2.75]	[10.40]		[2.82]	[9.64]		[2.90]	[5.88]
Governance Index			-0.065	-0.199*		-0.050	-0.188		-0.193	-0.310*
			[0.83]	[1.81]		[0.54]	[1.51]		[1.58]	[1.66]
Constant	5.512***	8.417***	8.390***	-0.884	13.620***	11.806***	1.520	0.131	3.874	-5.128
	[3.40]	[3.27]	[3.23]	[0.31]	[3.42]	[3.09]	[0.36]	[0.07]	[1.44]	[1.40]
Observations	5179	4932	4098	4098	4948	4110	4110	4922	4106	4106
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen's J (p-value)		0.46	0.26		0.93	0.78		0.30	0.43	

Robust t statistics in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 6, Panel C: EXPENDITURE ON M&As

<i>Independent variables:</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Average Distance	-0.002 [1.32]	-0.006 [0.84]	-0.002 [0.24]	-0.009 [1.24]						
Dispersedness	0.009*** [4.34]	0.141*** [2.94]	0.172** [2.38]	0.113*** [2.99]						
Proximity					-0.084 [0.93]	-0.134 [1.47]	0.024 [0.45]	0.243 [0.90]	0.179 [0.74]	0.276 [1.22]
Exclusivity					-0.171** [2.15]	-0.181** [2.09]	-0.106** [2.20]			
Equity Exposure								-0.031*** [2.62]	-0.026** [2.57]	-0.022 [1.25]
Loan-to-Debt Ratio	0.000*** [5.89]	0.000 [0.02]	0.001 [0.54]	0.001 [1.36]	0.009*** [3.58]	0.008*** [3.25]	0.002** [2.39]	0.007*** [2.92]	0.007*** [3.24]	0.005* [1.91]
Size	0.005** [2.48]	-0.006 [0.41]	-0.016 [0.70]	-0.005 [0.43]	-0.032 [1.13]	-0.038 [1.22]	-0.008 [0.47]	0.066*** [4.45]	0.064*** [4.33]	0.053** [2.03]
Leverage	0.160*** [10.90]	0.217*** [3.82]	0.181*** [2.71]	0.190*** [4.50]	0.187 [1.41]	0.147 [1.03]	0.175** [2.37]	0.517*** [7.27]	0.457*** [7.05]	0.402*** [3.55]
Cash	0.020 [1.26]	-0.024 [0.58]	-0.006 [0.12]	-0.092** [2.27]	-0.099 [1.60]	-0.090 [1.37]	-0.153*** [3.38]	-0.230*** [3.05]	-0.222*** [3.31]	-0.311*** [3.33]
ROA	0.001*** [5.95]	0.002*** [5.82]	0.002*** [4.86]	0.001*** [3.35]	0.003*** [3.42]	0.002*** [3.00]	0.001*** [3.17]	0.003*** [3.77]	0.002*** [3.45]	0.001 [1.32]
Market-to-Book	0.032*** [5.74]	0.007 [0.77]	0.007 [0.67]	0.027*** [3.40]	0.010 [0.79]	0.012 [0.95]	0.030*** [3.12]	0.065** [2.28]	0.062*** [2.59]	0.063*** [3.09]
Institutional Holdings	0.030*** [3.39]	-0.044 [1.33]	-0.046 [1.06]	-0.003 [0.10]	-0.134** [1.99]	-0.111* [1.65]	-0.021 [0.57]	0.157*** [2.71]	0.171*** [3.10]	0.144* [1.86]
Analysts	-0.209*** [6.45]	-0.160*** [3.33]	-0.130** [2.30]	-0.178*** [3.03]	-0.102 [0.90]	-0.081 [0.71]	-0.159** [1.99]	-0.032 [0.19]	-0.039 [0.27]	-0.118 [0.91]
NYSE	-0.020*** [4.37]	0.002 [0.15]	0.005 [0.35]	-0.012 [1.38]	-0.014 [0.92]	-0.008 [0.48]	-0.010 [0.97]	-0.029 [1.32]	-0.016 [0.84]	-0.028 [1.11]
Ratings Dummy	-0.001 [0.32]	0.061*** [2.61]	0.051** [2.27]	0.035*** [2.91]	0.035* [1.76]	0.034* [1.73]	0.031** [2.07]	0.059** [2.44]	0.050** [2.37]	0.066*** [2.84]
Lambda		0.415*** [3.53]	0.367*** [3.30]	0.242*** [6.21]	0.165* [1.81]	0.184** [2.13]	0.222*** [4.23]	0.101 [1.18]	0.102 [1.46]	0.092 [0.82]
Pre-Loan Expenditure on M&A			-0.004 [0.74]	-0.001 [0.26]		-0.013 [1.41]	-0.006 [0.78]		0.008 [0.66]	0.001 [0.09]
Governance Index			0.005 [0.61]	0.006 [0.70]		0.015 [1.02]	0.016 [1.43]		-0.014 [0.94]	0.007 [0.37]
Constant	-0.034 [1.07]	0.031 [0.10]	0.313 [0.80]	0.157 [0.68]	1.284 [1.60]	1.355 [1.56]	0.577 [1.14]	-0.866*** [5.01]	-0.666*** [4.60]	-0.797*** [2.61]
Observations	10137	9404	8614	8406	9060	8503	8503	9422	8863	8863
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen s J (p-value)		0.23	0.52		0.76	0.94		0.15	0.16	

Robust t statistics in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 6, Panel D: CEO TURNOVER

<i>Independent variables:</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Average Distance	0.029 [0.62]	-0.259* [1.66]	-0.218 [1.39]	-0.229 [1.42]						
Dispersedness	-0.101* [1.81]	-0.848** [2.52]	-0.855** [2.54]	-0.772** [2.35]						
Proximity					-0.128 [0.21]	-0.130 [0.21]	-0.225 [0.36]	-0.261 [0.43]	-0.263 [0.44]	-0.340 [0.57]
Exclusivity					0.808*** [2.87]	0.816*** [2.90]	0.742*** [2.61]			
Equity Exposure								0.507*** [4.38]	0.502*** [4.32]	0.524*** [4.31]
Loan-to-Debt Ratio	0.001 [0.43]	0.000 [0.04]	0.000 [0.03]	0.000 [0.02]	-0.002 [0.49]	-0.001 [0.42]	-0.001 [0.33]	0.011*** [4.14]	0.011*** [4.22]	0.011*** [4.01]
Size	0.040 [0.69]	-0.083 [0.97]	-0.090 [1.05]	-0.081 [0.97]	-0.102 [1.17]	-0.109 [1.25]	-0.102 [1.22]	-0.657*** [4.38]	-0.656*** [4.37]	-0.678*** [4.39]
Leverage	-0.715** [2.01]	-0.473 [0.87]	-0.450 [0.83]	-0.465 [0.86]	-0.687 [1.31]	-0.657 [1.25]	-0.702 [1.33]	-0.325 [0.59]	-0.335 [0.61]	-0.316 [0.59]
Cash	0.063 [0.14]	0.619 [1.24]	0.646 [1.30]	0.541 [1.10]	0.583 [1.14]	0.617 [1.21]	0.540 [1.08]	1.001** [2.05]	1.022** [2.10]	0.919* [1.91]
ROA	-0.026*** [3.55]	-0.026*** [3.41]	-0.026*** [3.41]	-0.025*** [3.25]	-0.026*** [3.53]	-0.026*** [3.55]	-0.026*** [3.38]	-0.022*** [2.99]	-0.023*** [3.02]	-0.022*** [2.83]
ROA in year (t-1)	-0.032*** [3.70]	-0.032*** [3.61]	-0.032*** [3.57]	-0.032*** [3.80]	-0.032*** [3.63]	-0.032*** [3.66]	-0.032*** [3.85]	-0.032*** [4.07]	-0.032*** [4.14]	-0.032*** [3.92]
ROA in year (t-2)	0.007 [0.61]	0.006 [0.56]	0.007 [0.59]	0.006 [0.91]	0.006 [0.57]	0.007 [0.59]	0.006 [0.91]	0.011 [1.12]	0.011 [1.14]	0.011* [1.69]
Market-to-Book	0.086 [0.79]	0.146 [1.28]	0.142 [1.24]	0.165 [1.43]	0.160 [1.40]	0.154 [1.34]	0.179 [1.54]	0.181* [1.65]	0.176 [1.59]	0.195* [1.73]
Institutional Holdings	-0.030 [0.10]	-0.090 [0.31]	-0.116 [0.39]	-0.141 [0.50]	-0.020 [0.07]	-0.033 [0.11]	-0.057 [0.20]	0.080 [0.28]	0.079 [0.27]	0.062 [0.22]
Analysts	0.427 [0.60]	0.253 [0.35]	0.205 [0.28]	0.249 [0.33]	0.037 [0.05]	0.061 [0.08]	0.067 [0.09]	0.020 [0.03]	0.074 [0.11]	0.099 [0.13]
NYSE	0.371*** [2.78]	0.162 [1.02]	0.127 [0.79]	0.134 [0.88]	0.143 [0.90]	0.116 [0.72]	0.124 [0.81]	0.099 [0.63]	0.088 [0.55]	0.091 [0.60]
Ratings Dummy	-0.061 [0.46]	-0.447** [1.98]	-0.457** [2.01]	-0.428* [1.95]	-0.527** [2.31]	-0.537** [2.35]	-0.508** [2.31]	-0.401* [1.75]	-0.412* [1.80]	-0.385* [1.76]
Lambda		-1.772* [1.91]	-1.796* [1.93]	-1.614* [1.82]	-2.170** [2.30]	-2.203** [2.34]	-2.062** [2.32]	-1.651* [1.77]	-1.706* [1.84]	-1.568* [1.79]
Governance Index			0.172* [1.76]	0.158* [1.66]		0.199** [2.06]	0.182* [1.92]		0.156* [1.66]	0.150 [1.62]
Constant	-2.786*** [2.77]	-1.442 [0.95]	-1.464 [0.96]	-1.395 [0.80]	-4.173** [2.13]	-4.205** [2.14]	-3.872* [1.80]	1.807 [1.16]	1.005 [0.65]	1.122 [0.64]
Observations	4627	4420	4420	4420	4437	4437	4437	4511	4511	4511
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust z statistics in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 7

Lending relationship and Tobin's Q

This table examines the relationship between the loan characteristics and firm value, as captured by Tobin's Q. *Tobin's Q* is calculated as $(\text{item6} + \text{item25} \times \text{item199} - \text{item60} - \text{item74})/(\text{item6})$.

Our independent variables consist of loan characteristics and several firm-level control variables. We look at three complementary pairs of loan characteristics: either *Average Distance* and *Dispersedness* or *Proximity* and *Exclusivity* or else *Proximity* and *Equity Exposure*. *Average Distance* is the average distance of the borrower from each of the lenders in its lending syndicate; it is measured in thousands of kilometers. *Dispersedness* is the logarithm of the number of lenders counted in hundreds; this rescaling is done for the convenience of obtaining normally-scaled coefficient estimates. *Proximity* is the fraction of loans taken from banks whose headquarters are located within 200 miles (or 320 kilometers) of the borrower's location; historical location of the firm is available to us at county level so we also identify the banks' location at county level. *Exclusivity* is the logarithm of the Herfindahl Index (ranging between 0–10,000) of the lending syndicate. *Equity Exposure* is the fraction of borrowing firm's equity held by institutions belonging to the same conglomerate as the lending bank(s). The results for the first pair (*Average Distance* and *Dispersedness*) are in columns (1)-(4) and coefficient estimates using the second pair of characteristics (*Proximity* and *Exclusivity*) are listed in columns (5)-(7) while columns (8)-(10) report results for the final pair (*Proximity* and *Equity Exposure*). Column (1) presents OLS estimates while the remaining columns present results from an IV2SLS regression. Of the IV 2SLS regressions, columns (4), (7), and (10) present the *between-effects* estimate. While our focus is on these loan characteristics, we also control for the *Loan-to-Debt Ratio*; it is measured as the ratio of firm's total loan to outstanding long-term debt (item 9) in the previous fiscal year.

The firm-level control variables that we include in our analysis are the following. *Size* is measured as the logarithm of book value of assets (item 6). *Leverage* is the sum of long-term debt (item 9) and debt in current liabilities (item 34), standardized by lagged assets (item 6). *Cash* is the ratio of total cash (item 1) to lagged assets and the *ROA* (return on assets) is income before extraordinary items (item 18) as a percentage of lagged assets. *Capital Expenditure* is capital expenditure (item 128) as a fraction of lagged assets. *Industry Tobin's Q* is the average Q in the industry to which the borrowing firm belongs. These firm-level variables are contemporaneous with the dependent variable while the remaining firm-characteristics are recorded at the beginning of the fiscal year. *Lagged Tobin's Q* is the first lag of Tobin's Q, our dependent variable in this table. *Institutional Holdings* is the fraction of shares held by those institutional investors that hold at least a 5% position in the firm. *Analysts* is the number of analysts following the stock, and is expressed in thousands for the convenience of obtaining normally-scaled coefficient estimates. *NYSE* is a dummy variable that takes a value 1 if the firm is listed on the New York Stock Exchange, and zero otherwise. *Ratings Dummy* is a dummy variable that equals one if the firm has a credit-rating, and equals zero otherwise.

Lambda – the inverse Mills' ratio from the Probit analysis of loan-taking decision – is included in order to account for the selection bias inherent in our sample of loan-taking firms. We do not include the pre-loan level of Tobin's Q because the lagged value of Q is already used as a control in all the reported regressions of this table. *Governance index* is a dummy variable that equals 1 if the Gompers, Ishii, and Metrick (2003) index of corporate governance is greater than 9 and equals 0 if this index is less than or equal to 9; recall, the higher the index, the poorer the corporate governance. Industries are categorized by 2-digit SIC Code. The bottom row displays the p-value for Hansen's J test of the null hypothesis that the instrumental variables employed are orthogonal to the errors. All t-statistics are calculated using robust standard errors clustered at firm level.

Table 7: TOBIN's Q

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>Independent variables:</i>										
Average Distance	0.030***	0.027	0.023	-0.039						
	[3.00]	[0.72]	[0.58]	[0.78]						
Dispersedness	0.005	-0.346**	-0.357**	-0.511***						
	[0.50]	[2.22]	[2.24]	[2.78]						
Proximity					0.046	0.059	0.001	0.143	0.187	0.231
					[0.29]	[0.37]	[0.01]	[0.21]	[0.27]	[0.42]
Exclusivity					0.460**	0.480**	0.352**			
					[2.03]	[2.03]	[2.40]			
Equity Exposure								0.067*	0.069**	0.098**
								[1.94]	[2.05]	[2.45]
Loan-to-Debt Ratio	0.000	-0.006	-0.006	-0.003	-0.012**	-0.013**	-0.001	-0.006	-0.008	-0.003
	[0.65]	[1.36]	[1.39]	[1.06]	[2.01]	[2.01]	[0.20]	[0.98]	[1.32]	[0.59]
Size	-0.043***	0.038	0.038	0.101*	0.105	0.110	0.070	-0.140***	-0.152***	-0.185***
	[3.82]	[0.80]	[0.78]	[1.70]	[1.29]	[1.30]	[1.27]	[3.13]	[3.33]	[3.05]
Leverage	-0.445***	-0.386**	-0.356**	-0.145	-0.034	0.007	0.013	-0.887***	-0.857***	-0.826***
	[7.34]	[2.36]	[2.08]	[0.66]	[0.10]	[0.02]	[0.05]	[5.73]	[5.41]	[3.04]
Cash	0.629***	0.521***	0.511***	0.143	0.616***	0.602***	0.265*	0.864***	0.866***	0.664***
	[5.28]	[3.66]	[3.53]	[0.80]	[3.82]	[3.65]	[1.85]	[4.87]	[4.75]	[3.18]
ROA	0.015***	0.012***	0.012***	0.007***	0.012***	0.012***	0.007***	0.010***	0.010***	0.002
	[6.13]	[6.64]	[6.66]	[3.96]	[5.63]	[5.61]	[4.24]	[4.36]	[4.26]	[0.79]
Capital Expenditure	0.251**	-0.032	-0.018	0.106	0.088	0.094	0.179	0.247*	0.300*	0.364
	[2.42]	[0.23]	[0.13]	[0.57]	[0.51]	[0.53]	[1.04]	[1.66]	[1.93]	[1.29]
Lagged Tobin's Q	0.462***	0.603***	0.602***	0.704***	0.603***	0.602***	0.688***	0.594***	0.595***	0.705***
	[7.51]	[19.36]	[19.36]	[34.02]	[19.07]	[19.02]	[34.95]	[17.20]	[17.44]	[19.93]
Industry Tobin's Q	0.158***	0.131***	0.133***	0.097***	0.129***	0.131***	0.097***	0.107***	0.105***	0.072
	[5.83]	[5.66]	[5.66]	[3.55]	[4.32]	[4.26]	[3.80]	[3.34]	[3.29]	[1.64]
Institutional Holdings	-0.048	0.169	0.151	0.322**	0.303*	0.301	0.230*	-0.385**	-0.446**	-0.389*
	[1.04]	[1.48]	[1.34]	[2.49]	[1.67]	[1.59]	[1.91]	[2.03]	[2.29]	[1.92]
Analysts	1.322***	0.856***	0.843***	0.594**	0.581**	0.565*	0.423	0.548	0.495	0.188
	[5.37]	[4.44]	[4.36]	[2.19]	[2.02]	[1.92]	[1.61]	[1.48]	[1.33]	[0.43]
NYSE	0.012	0.007	0.002	0.055	0.011	0.012	0.022	0.030	0.011	0.050
	[0.63]	[0.21]	[0.06]	[1.33]	[0.27]	[0.28]	[0.61]	[0.64]	[0.26]	[0.88]
Ratings Dummy	0.036*	-0.038	-0.036	0.021	-0.007	-0.004	0.010	-0.054	-0.052	-0.133*
	[1.88]	[0.86]	[0.80]	[0.35]	[0.12]	[0.07]	[0.19]	[1.10]	[1.01]	[1.78]
Lambda		-0.508**	-0.496**	-0.434**	-0.359	-0.357	-0.460***	-0.403*	-0.341	-0.579**
		[2.36]	[2.29]	[2.54]	[1.30]	[1.28]	[2.78]	[1.68]	[1.40]	[2.05]
Governance Index			-0.041	-0.061		-0.060	-0.053		0.003	-0.016
			[1.62]	[1.58]		[1.54]	[1.46]		[0.09]	[0.32]
Constant	0.908***	-0.715	-0.779	-1.442	-3.889	-4.040	-2.538	1.389***	1.496***	2.281***
	[6.58]	[0.84]	[0.92]	[1.28]	[1.60]	[1.60]	[1.61]	[2.84]	[2.95]	[3.10]
Observations	10717	9458	9458	9458	9598	9598	9598	9981	9981	9981
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen s J (p-value)		0.47	0.51		0.46	0.55		0.20	0.55	

Robust t statistics in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 8

Impact of the lending relationship on the firm's stock returns

This table exhibits abnormal returns from trading strategies devised on the basis of the firms' loan characteristics. These abnormal returns are calculated with respect to four factors: the Fama-French 3-factors as well as momentum factor. Panel A presents returns using the Ibbotson *Returns Across Time and Securities* (RATS) estimation. Therefore, the returns in this panel are returns over the indicated holding period. The numbers in brackets at the head of each column represent months after the loan, over which these stocks are held. E.g., [1, 6] would represent the 6-month period immediately *after* the month in which the loan started. *Hi* indicates the return on a portfolio consisting of firms whose loan-characteristic (average distance, or dispersedness, or proximity, or exclusivity, or equity exposure) is *above* median in a given month, and *Lo* indicates the return on a portfolio consisting of firms whose loan-characteristic is either *equal to* or *below* median in that month. Panels B present returns using a calendar-time equally-weighted portfolio strategy. Here, the column under the heading [1, 6] shows returns of a portfolio consisting of all stocks that started a loan *within* the past 6 months. Therefore, the returns in this panel are returns per month over the indicated period (i.e., the returns under [1, 6] are monthly returns for a period of 6 months immediately after the month in which the loan started.) *Hi* indicates the return on a portfolio consisting of firms whose loan-characteristic (average distance, or dispersedness, or proximity, or exclusivity, or equity exposure) is *above* median in a given month, and *Lo* indicates the return on a portfolio consisting of firms whose loan-characteristic is either *equal to* or *below* median in that month. *Hi - Lo* represents a trading strategy where we go long in the *Hi* and short the *Lo* portfolio.

Panel A: RATS										
Months:	[1,1]		[1,3]		[1,6]		[1,12]			
	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo
Avg. Distance	-0.05%	0.33%	-0.17%	0.39%	0.21%	0.28%	1.56%*	0.41%		
	[-0.21]	[1.50]	[-0.44]	[1.02]	[0.36]	[0.49]	[1.89]	[0.49]		
Dispersedness	-0.32%	0.50%**	-0.51%	0.61%	-1.71%***	1.89%***	-2.12%***	3.62%***		
	[-1.50]	[2.15]	[-1.39]	[1.54]	[-3.25]	[3.17]	[-2.76]	[4.18]		
Proximity	0.47%	0.02%	0.36%	0.02%	-0.24%	0.37%	0.07%	1.27%*		
	[1.44]	[0.11]	[0.65]	[0.07]	[-0.31]	[0.79]	[0.06]	[1.90]		
Exclusivity	0.65%***	-0.38%*	0.84%***	-0.63%*	2.17%***	-1.64%***	4.37%***	-2.27%***		
	[2.63]	[-1.92]	[2.01]	[-1.78]	[3.45]	[-3.23]	[4.79]	[-3.06]		
Equity Exposure	0.09%	-0.20%	0.34%*	-0.74%***	-0.22%	-0.97%***	-0.17%	-1.77%***		
	[0.91]	[-1.58]	[1.90]	[-3.36]	[-0.84]	[-2.96]	[-0.45]	[-3.76]		

Panel B: Equally-weighted calendar-time portfolio strategies												
	[1, 1]			[1, 3]			[1, 6]			[1, 12]		
	Hi	Lo	Hi - Lo	Hi	Lo	Hi - Lo	Hi	Lo	Hi - Lo	Hi	Lo	Hi - Lo
Avg. Distance	0.30%	0.10%	0.19%	0.09%	0.10%	0.00%	0.14%	0.11%	0.03%	0.27%*	0.01%	0.26%*
	(1.13)	(0.38)	(0.59)	(0.57)	(0.57)	(-0.02)	(0.90)	(0.71)	(0.23)	(1.82)	(0.07)	(1.85)
Dispersedness	-0.12%	0.42%	-0.54%***	-0.10%	0.27%*	-0.37%***	-0.16%	0.38%***	-0.54%***	-0.08%	0.34%***	-0.42%***
	(-0.57)	(1.50)	(-1.98)	(-0.63)	(1.67)	(-2.47)	(-1.07)	(2.52)	(-3.82)	(-0.56)	(2.27)	(-3.14)
Proximity	0.41%	0.14%	0.27%	0.12%	0.07%	0.05%	0.13%	0.11%	0.02%	0.07%	0.15%	-0.09%
	(1.05)	(0.62)	(0.68)	(0.57)	(0.52)	(0.26)	(0.69)	(0.84)	(0.11)	(0.47)	(1.12)	(-0.68)
Exclusivity	0.51%*	-0.12%	0.63%***	0.29%*	-0.09%	0.38%***	0.41%***	-0.15%	0.56%***	0.37%***	-0.09%	0.46%***
	(1.70)	(-0.54)	(2.08)	(1.74)	(-0.58)	(2.32)	(2.59)	(-0.99)	(3.61)	(2.40)	(-0.68)	(3.35)
Equity Exposure	0.17%	-0.17%	0.35%	0.01%	-0.07%	0.09%	-0.19%	0.00%	-0.19%	-0.13%	0.08%	-0.21%
	[0.61]	[-0.59]	[1.06]	[0.08]	[-0.33]	[0.37]	[-1.23]	[0.00]	[-0.81]	[-0.70]	[0.42]	[-0.95]

Robust t-statistics are reported in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%