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Concentration in corporate bank loans
What do we learn from European comparisons?

Christophe Godlewski / Ydriss Ziane

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Ecole de Management Strasbourg
Pôle Européen de Gestion et d'Economie
61 avenue de la Forêt Noire
67085 Strasbourg Cedex

Institut d'Etudes Politiques
47 avenue de la Forêt Noire
67082 Strasbourg Cedex

http://ifs.u-strasbg.fr/large

Concentration in corporate bank loans

What do we learn from European comparisons?[1]

Christophe J. Godlewski
Université de Strasbourg, LaRGE et EM Strasbourg Business School
Pôle Européen de Gestion et d'Economie, 61 avenue de la Forêt Noire, 67000 Strasbourg, France
Tel. : 0390242121 / Fax. : 03902422164 / E-mail : godlewski@unistra.fr

Ydriss Ziane
Université de Nancy, BETA
Faculté de Droit, Sciences Economiques et Gestion, 13 Place Carnot, C.O. n°26, 54035 Nancy cedex, France. Tel.: 0354504509 / Fax: 0354504489 / E-mail: ydriss.ziane@univ-nancy2.fr

Abstract:

The aim of this paper is to empirically investigate the determinants of creditor concentration in the use of bank loans by firms in a European cross-country framework. We analyze the influence of loan and borrower characteristics but also banking market structure and legal enforcement country-specific variables that are expected to influence the financial and strategic decision relative to the number of bank lenders. We find that firms tend to diversify sources of financing by reducing bank concentration when their level of quality is higher and both asymmetric information and the risk of early liquidation are minimal (larger, older, transparent, liquid and profitable firms). Furthermore, lenders' monitoring appears to be an important feature of lending concentration, particularly in order to prevent private benefits extraction by insiders in legal environment where shareholders benefit from better protections.

Keywords: financial intermediation, bank lending, creditor concentration, information asymmetry, Europe.

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1. INTRODUCTION

This paper contributes to the empirical literature investigating the determinants of bank lending concentration in Europe. Multiple banking is a significant economic phenomenon in all developed economies, as more than 85 percent of firms borrow from more than one bank and, on average, a borrower has more than five bank lending relationships (Ongena and Smith 2000)[2]. Furthermore, bank borrowing is usually unequal and asymmetric as the average Hirschman-Herfindhal normalized index equals 34% in Europe, ranging from 28% in the Netherlands to 66% in Poland[3]. From the borrower perspective, a key explanation for multiple banking is the mitigation of the hold-up problem of long-term relationship lending and thus the diversification of financing sources (Rajan 1992). In crisis periods, especially when "credit crunch" episodes are strong, like recently, multiple banking is also relevant for firms to diversify their financial stakeholders and to limit the risk of illiquidity from banking origin (Detragiache, Garella and Guiso 2000). Furthermore, banks can also gain from multiple banking to tackle limited lending capacities (Carletti, Cerasi, and Daltung 2007) and to diversify loans portfolio risk. However, the drawback of multiple banking is notably the potential coordination failure problem and renegotiation risk in case of borrower distress (Bolton and Scharfstein 1996; Bris and Welch 2005).

A potential response to these various problems and associated costs is an unequal, asymmetric and concentrated bank lending. Such lending structure can mitigate coordination failure and renegotiation risk, as well as agency problems between lenders, such as free riding in screening and monitoring. Indeed, (Elsas, Heinemann, and Tyrell 2004) show that multi-banking can mitigate coordination problems, as German firms with low expected cash flows or with lower liquidation value of assets prefer concentrated financing. (Guiso and Minetti 2004) find that Italian firms with more valuable and redeployable assets deal with lower lenders concentration in order to prevent unsound firms from defaulting. In a recent contribution, (Ongena et al. 2008) show that concentration is smaller when the borrower is risky, illiquid, large and leveraged, while it is larger when the firm is more profitable.

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[2] See also (Godlewski and Ziane 2008) for recent empirical evidence on multi-banking in Europe.

[3] Source : authors calculations on the Dealscan (LPC, Reuters) database.

In addition to that empirical banking literature, we propose to investigate which determinants drive lenders concentration in a European cross-country framework. Furthermore, we extend previous research by analyzing loan and borrower characteristics, but also economic characteristics such as banking market structure and legal environment that are expected to influence lenders concentration.

Using a sample of almost 2700 loans to European borrowers, we find that bank lending is less concentrated when the borrower is larger, older and more transparent, as well as when he is more leveraged, liquid, and profitable. Hence, borrowers with better quality are financed by more diffused lending, following arguments relating such lending structure to mitigating early project liquidation and to reducing agency problems. Furthermore, banking market concentration and shareholders protection imply more concentrated lending.

The reminder of the article is organized as follows. The theoretical background and hypotheses are discussed in section 2. Section 3 presents the empirical design. Results are discussed in section 4. Finally, we provide our conclusions in section 5.

2. THEORY AND HYPOTHESIS

Classical theories of financial intermediation first focused on the necessity for firms, especially SMEs, to maintain one bank lending relationship to enhance benefits in terms of funds availability, notably. However, theoretical contributions show that a single financial partnership could be harmful for firms because it enables banks to accrue monopoly rents (Sharpe 1990). Hence, multiple banking may be efficient to reduce informational rents and consequently cost of capital, but at the expense of switching costs (Klemperer 1987), duplication of information costs (von Thadden 1992) and less viable monitoring (Carletti 2004). With regards to borrower's distress, multiple creditors may reduce the probability and costs associated with default, as they harden the budget constraint for managers, thus decreasing strategic default (Dewatripont and Maskin 1995; Bolton and Scharfstein 1996) and reduce inefficient liquidation (Bris and Welch 2005). Furthermore, numerous bank relationships serve as an insurance against credit crunch and illiquidity risks from banking origin (Detragiache, Garella, and Guiso 2000).

However, in the case of borrower's default, the drawback of multiple bank lending is the coordination failure problem. Therefore, asymmetric lending or creditors' concentration can play

a crucial role in balancing the holdup problem of relationship lending with the coordination failure of multiple lending. In other words, these conflicting forces regarding the advantage of creditor's concentration can prompt firms to establish multiple but asymmetric banking relationships. In that way, the main bank allow the borrower to retain some of the benefits of long-term relationship lending while the presence of less informed "arm's length" banks can be viewed as insurance against illiquidity risk originated from the main bank. The holdup costs which arise from a lock-in by main and better informed banks are expected to be particularly relevant for opaque firms, which thus have an incentive to develop multiple and diffuse banking relationships. Furthermore, weaker concentration can be motivated by risk and monitoring costs sharing for lenders, in particular for smaller and younger firms which are considered as more opaque and bearing larger specific risk.

High concentration of creditors can have other important beneficial effects on borrowers. First, in case of borrower's bankruptcy, dispersed creditors face difficulties collecting their claims during renegotiations, due to free-riding and coordination problems. As a result, higher quality firms can signal their confidence of not going bankruptcy by selecting fewer creditors (Bris and Welch 2005). Hence, an increase in creditor concentration makes coordination easier either by decreasing the likelihood of liquidation or by signaling firm quality. Second, the degree of concentration, through enhanced lenders' ability to screen and monitor, enables the firm to signal its willingness to abstain from strategically defaulting, eliminating the risk of inefficient credit withdrawal (Bannier 2007). Ultimately, this can reduce the likelihood of financial distress and facilitate the renegotiation of debt due to lower coordination costs. Third, by reducing coordination failure among creditors it can help a firm to avoid bankruptcy (Bolton and Scharfstein 1996; Carmignani and Omiccioli 2007; Brunner and Krahnen 2008).

However, there are at least two potential drawbacks of creditors' concentration. First, borrowers may have perverse incentives ex-ante leading to opportunistic behavior or excessive risk taking due to the soft budget constraint problem (Kornai 1980). If borrowers anticipate that fact, they can easily renegotiate their debt contracts ex-post. Second, borrowers are also exposed to greater illiquidity risk if lenders experience liquidity problems which in turn increase the risk of borrower's project termination (Detragiache, Garella, and Guiso 2000).

In addition, firms characterized by high asset specificity and with low expected cash flow prefer concentrated financing (Elsas, Heinemann, and Tyrell 2004). Optimal allocation of information by the firm across multiple banks is related to the level of redeployability of the firm's assets and its restructuring costs (Guiso and Minetti 2004). However, the relationship lender may use this greater restructuring ability opportunistically to extract rents during reorganization.

The following hypotheses summarize the expected influence of borrower main characteristics on lenders concentration:

Hypothesis 1a: *Lenders' concentration increases when the borrower is larger, older and less opaque.*

Hypothesis 1b: *Lenders' concentration increases when the borrower is less risky, more profitable and liquid.*

Following (Berglof and von Thadden 1994), the choice of financial contracts is determined as a trade-off between, on the one hand, the desire to discourage ex post renegotiation (strategic default) and, on the other hand, the wish to limit inefficient liquidation when the firm is cash constrained (liquidity default). In that context, an entrepreneur can indirectly select the amount of bank monitoring by appropriately choosing the number of lending banks: with more banks, there is more free-riding and thus less aggregate monitoring. (Mahrt-Smith 2005) provides empirically testable implications of the interaction between the nature of the financing relationship and the ownership structure. In his model, the structures are designed to trade off managerial discipline versus managerial initiative. The main empirical prediction of interest is that concentrated debt should be associated with concentrated ownership.

Hypothesis 2: *Lenders' concentration increases with greater ownership concentration.*

Other theoretical explanations of creditors' concentration can yield further hypotheses about the influence of loan characteristics, as well as economic conditions such as the structure of the banking market and the legal environment in a law and finance framework.

Greater maturity is associated with greater monitoring costs as long-term loans incur control of guarantee and covenant costs. Furthermore, if we consider a positive relationship between

maturity and credit risk (Flannery 1986), lenders' concentration should be stronger to enhance monitoring efforts and prevent free-riding, as well as to resolve potential borrower distress more efficiently. The presence of guarantees in the loan contract may solve the problem of adverse selection thanks to the better information owned by the borrower in comparison to the bank before the lending decision. Therefore, high-quality borrowers have incentives to show their quality, using a credible signal, one that cannot be provided by low-quality borrowers. Guarantee or collateral is such a signal, as it is more costly for low-quality borrowers since they have a higher chance of defaulting and hence of losing the collateral (Bester 1985; Besanko and Thakor 1987). Furthermore, restricting the discretionary power of the borrower and thus moral hazard problems through covenants can reduce the risk of loan default (Rajan and Winton, 1995) and enhances the ability to monitor the borrower.

Hypothesis 3: *Lenders' concentration increases when guarantees and covenants are absent in the loan contract and when the loan maturity is longer.*

Market concentration leads to market power and thus lower supply and higher prices. However, recent evidence shows that competition and bank are not necessarily inimical (Degryse and Ongena 2007). In a seminal contribution, (Ongena and Smith 2000) show that countries with a high banking market concentration have fewer banking relationships.

Hypothesis 4: *Lenders' concentration increases when the banking market is less concentrated and more cost efficient.*

Lenders' concentration is also expected to depend on the legal environment, which determines the protection of creditors as well as law enforcement. In countries where creditor protection is weak, the cost of strategic default is low. In that case, proper discipline can be implemented through the level of creditors' concentration. Indeed, (Ongena and Smith 2000) find that more diffuse lending is related to stronger creditor protection. However, a more efficient bankruptcy procedure with adequate law enforcement may decrease lenders' concentration because it reduces the costs of lending for a given bank. Furthermore, in countries with low shareholders' protection, the difficulty in raising external finance should induce firms to maintain relations with a small number of long-term investors who screen the firm's investment opportunities and really monitor its management (Rajan and Zingales 1998).

Hypothesis 5: *Lenders' concentration increases when creditors' and shareholders' rights law enforcement are weaker.*

After having drawn from the existing literature our main testable hypotheses on the determinants of lender concentration, we now turn to the description of the empirical design of the paper.

3. EMPIRICAL DESIGN

3.1. DATA AND VARIABLES

Loan characteristics are obtained from the Dealscan database, provided by the Loan Pricing Corporation (LPC), Reuters, while firm characteristics are extracted from the Amadeus database provided by Bureau Van Dijk. Market structure, financial development and legal environment characteristics are gathered from various databases (la Porta et al. 1998; la Porta, Lopez-de-Silanes, and Shleifer 2006; Djankov, McLiesh, and Shleifer 2007; Beck, Demirguc-Kunt, and Levine 2001). Sample size is mainly dictated by information availability on the variables used in the regressions. The final sample contains 2692 loan facilities to borrowers from 12 European countries[4] over a period of 9 years (from 1998 to 2006).

Lenders concentration is measured with the Hirschman-Herfindhal index, normalized to one, computed on the lenders shares of the loan provided to a borrower. Then, we use nine variables to capture main borrower characteristics expected to influence lenders' concentration, following hypotheses 1a and 1b. First of all, we consider borrower characteristics related to its risk profile and the level of information opacity. In that aim, we introduce the following six variables into the regressions. *Firm size* and *Firm age* capture essentially the degree of borrower's overall risk and opacity, while *Leverage, Liquidity,* and *Profitability* provide a more detailed and in-depth insight into borrower's risk characteristics. *Euronext,* a dummy equal to one if the borrower's shares are listed on the Euronext, is a direct proxy for the firm's transparency.

Independence and *Shareholders* are the proxy variables taking borrower's ownership structure into account, in order to empirically test hypothesis 2. The former is an index characterizing the degree of independence of a company with regard to its shareholders (A: strong independence to

[4] Belgium, Croatia, Estonia, Finland, France, Greece, Italy, Netherlands, Poland, Portugal, Romania, Slovakia.

D), while the latter is the number of shareholders of the firm. According to hypothesis 2, we expect a negative sign for both of these variables.

We also take loan characteristics into account through seven variables related to main terms of the loan agreement. *Loan size* is the logarithm of the loan facility amount and should be negatively related to lenders concentration because of risk diversification and sharing purposes. The maturity of the loan is in months, while the presence of guarantors and of financial covenants is taken into account through dummies. Following hypothesis 3, we expect lenders concentration to increase with the absence of guarantors and covenants, and with loan maturity. We also control for the main loan type (*Revolver*) and purpose (*Debt repayment*) through the inclusion of dummies in our regressions. Finally, we also take the fact that the loan is syndicated into account with the *Syndication* dummy. The expected signs for the loan type and purpose variables are a matter of empirical results. We can advocate that revolving loans might need more intense monitoring and thus imply a concentrated lending. Syndicated loans should be funded with a more diffuse lending structure because of the specific nature of the syndication market where numerous lenders are expected to participate.

Our third set of variables takes economic characteristics of the borrower country into account in order to test hypotheses 4 and 5. *Market concentration* and *Bank costs* are two proxies for the banking market structure, equal to the assets of the three largest banks as a share of all commercial banks and to the ratio of bank overhead costs to total assets respectively. We expect a positive sign for both of these variables, according to hypothesis 4. *Creditor rights*, *Shareholders rights*, and *Rule of law* are three proxies for the legal environment in the borrower country. These are indexes aggregating creditors' and shareholders' rights, as well as assessing the law and order tradition. According to hypothesis 5, we expect the creditor and shareholder rights indexes to have negative signs, while the influence of the rule of law on lenders concentration remains a matter of empirical results. Indeed, both signs can be expected, as better law and order tradition can allow for more diffuse lending structure because of lower legal risk regarding borrower's distress handling and loan agreement re-contracting. However, it can also imply greater lenders concentration in order to improve screening and monitoring of potentially lazy lenders who might rely more on the legal environment enforcement than on their own capacities. Finally, we control

for the development of the credit market through the *Credit development* variable (ratio of private credit of deposit banks and other financial institutions to GDP).

We also control for the fact that a borrower is from Eastern Europe, where different economic, financial and legal environment might drive the lending structure. We expect the dummy Eastern Europe to have a positive sign because of greater opacity of such borrowers, implying a greater concentration of lenders. Finally, we control through dummies the year of loan activation and the industry sector of the borrower.

3.2 DESCRIPTIVE STATISTICS AND METHODOLOGY

Table 1 provides the definitions and main descriptive statistics for all the variables. We first remark that the average lenders concentration is above 30% for the full sample. This average ranges from 20% to 30% for Western European countries such as Finland, Netherlands or Portugal, while it is between 40% and 60% for Eastern European countries such as Croatia, Poland or Slovakia[5].

Regarding borrower characteristics, we observe that firms are on average relatively large and mature (size above 3 millions USD and age above 14 years), with satisfactory liquidity and profitability (ratios close to 100% and 13%, respectively) and weakly leveraged (close to 2). Almost 1 out of 4 firms is quoted on the Euronext list, with a medium independence towards shareholders (above B), who are relatively numerous (close to 40). Finally, 25% of the borrowers are from Eastern Europe.

The average loan facility equals 573 thousands USD for a maturity of 7.5 years. These loans have rarely a guarantor or financial covenants (12.8% and 7%, respectively) and are mostly revolving facilities funding debt repayment (78.8% and 81.2%, respectively).

Finally, banking markets are quite concentrated on average (75.8%) but cost efficient (ratio of overhead costs to total assets equals 3%), while credit markets are developed (private credit ratio to GDP equals 81.2%). On average, creditors are rather poorly protected (index equals 1.4) while shareholders benefit from an 'intermediate' protection (index equals 2.4), with very strong rule of law (index equals 9.8).

[5] (Ongena et al. 2008) find that lenders concentration in Germany ranges on average between 53% and 64%.

The breakdown of the average lenders concentration by main explanatory variables involved in testing our hypothesis is provided in table 2[6]. We remark that hypothesis 1a is validated (except for the opacity argument) as larger and older firms have on average greater lenders concentration. Regarding hypothesis 1b, only the argument regarding profitability holds, while we would reject that hypothesis with respect to leverage and liquidity. With respect to hypothesis 2, we remark that lenders concentration is stronger when there are fewer shareholders, although stronger independence of the firm towards its shareholders is related to a lower lenders concentration. We also observe that the absence of guarantor and covenants is related to greater concentration, as expected in hypothesis 3, although the argument on maturity is not validated by the data. Finally, hypothesis 4 is partially validated as lenders are more concentrated when bank cost efficiency is higher, but it is less concentrated when banking market concentration is higher. This univariate analysis confirms, at least partially, several of our hypotheses. Nevertheless, a multivariate analysis is needed to take all the hypotheses into account.

To investigate the influence of borrower, loan and economic characteristics on lenders concentration in Europe and to test our hypothesis, we use Tobit regressions (with standard errors clustered at the loan level) as the explained variable is bounded between 0 and 1. The main equation of interest can be summarized as follows:

$$Lenders\ concentration = f(Borrower\ and\ Loan\ characteristics, Banking\ market\ characteristics, Law\ enforcement\ characteristics, Controls)$$

4. RESULTS

We perform series of regression on the full sample with four different specifications: borrower and loan characteristics only, and then we progressively add banking market structure characteristics, creditor rights protection and finally shareholder rights protection[7].

[6] A breakdown using the median of *Creditor rights*, *Shareholder rights* and *Rule of law* wouldn't be very consistent as these indexes are quite homogenous in our sample.
[7] Due to the correlation structure, we cannot introduce all economic characteristics in the same regression.

The results for the four specifications on the full sample are provided in table 3. We remark that the specification with creditor rights (3) has the lowest statistical quality with respect to the Fisher statistic, while the specification with shareholders rights index (4) has the largest one.

Regarding borrowers' characteristics, we conclude that both hypotheses 1a and 1b are rejected, although the results of the univariate analysis were validating these hypotheses (table 2). More precisely, larger, older and transparent firms are funded by less concentrated lenders, and this result is consistent across all of the specifications. Riskier (in term of leverage) and more profitable borrowers are funded by a more diffuse lenders' structure, while liquidity has a different influence on lenders concentration depending on the specification. When taking economic characteristics into account, concentration is negatively influenced by borrower liquidity, while the impact is positive when taking individual characteristics only into account. As the statistical quality of the model is larger when more characteristics are taken into account, we conclude that liquidity is negatively related to lenders concentration.

Avoiding holdup costs by the borrower or sharing risk and monitoring costs by the lenders doesn't explain these results. Also, the argument relative to the value of lenders concentration as a signal of borrower quality regarding strategic default and bankruptcy risk doesn't fit the results. The only arguments that could fit follow (Detragiache, Garella, and Guiso 2000), where a diffuse lending structure mitigates project early liquidation in case of lenders distress. Furthermore, such a lending structure could also mitigate the opportunistic behavior or excessive risk taking by the borrower if he anticipates easy renegotiation of debt contracts. Nevertheless, our results are partially in line with (Elsas, Heinemann, and Tyrell 2004; Guiso and Minetti 2004).

As to borrower's ownership structure influence, we remark that more independent firms are funded by diffuse lenders while the impact of the number of shareholders is varying with the specification used. It is negative in specification (1) with individual characteristics only, but becomes positive when taking bank market structure into account (2). However, the effect of ownership structure variables on lenders concentration vanishes away when taking more economic characteristics into account, especially the ones controlling for creditors' and shareholders' rights protection. Hence, we partially accept hypothesis 2, thus validating the argument related to a trade-off between managerial discipline and initiative, following (Mahrt-Smith 2005) and the role of lending structure in performing greater aggregate monitoring. We

also remark that lending is more concentrated when the borrower is located in an Eastern European country, as expected, due to greater opacity of firms on these markets.

Turning to loan characteristics, we conclude that hypothesis 3 is overall validated, as the coefficient signs for *Guarantor* and *Covenants* are significantly negative across specifications. Thus, these loan agreement features act as signals of borrower quality and as devices reducing adverse selection and moral hazard problems, following (Bester 1985; Besanko and Thakor 1987), and (Rajan and Winton 1995), and hence, allows a more diffuse lending structure. Loan maturity has no significant influence on lenders concentration. Larger and syndicated loans are usually associated to more diffuse lending for risk sharing and diversification reasons.

Regarding economic characteristics, hypothesis 4 is not validated as banking market concentration has a significant and positive influence on lenders concentration, while *Bank costs* has no significant effect. In some sense, it seems that lenders replicate the market structure where the borrower is located, and greater market power is associated with greater concentration in lending.

Finally, among the stakeholders' rights, only shareholders' index has a significant and positive impact on lenders concentration. This result partially invalidates hypothesis 5 and do not confirm the arguments developed by (Rajan and Zingales 1998). This apparently surprising result can be explained following recent evidence provided by (Volpin 2001). This author shows that firm's entrepreneur chooses more bank monitoring in countries with better investor protection because the benefits of this type monitoring is greater, as it prevents private benefits extraction by firm's managers. This explanation fits our empirical results.

Overall, lending concentration in Europe is lower when borrowers' quality is greater (older, larger and more transparent firms, which are profitable and liquid), fitting theoretical arguments linking bank lending structure to mitigation of early project liquidation. We also observe such a diffuse lending structure when the loan contract involves guarantees and covenants, which serve as signals of counterparty quality and reduce agency problems. Lenders' monitoring appears to be important as the influence of borrower's independency towards its shareholders reflects a trade-off between managerial discipline and initiative. Furthermore, bank monitoring becomes

more useful to prevent private benefits extraction by managers in legal environment where shareholders benefit from a better protection, as the latter increases lenders' concentration.

5. CONCLUSION

During the last decade, financial behaviors involving frequently bank switching became the rule rather than the exception. In this paper, we tried to understand the main influences of variables relative to borrowers, loans and banking and legal variables on the degree of lenders concentration. Retail banking activities are financial but first of all strategic. Due to asymmetric information problems ex-ante, modifying prices for loans could not be an efficient solution for banks to limit their exposition to default risk. However, the "book-keeping" function and customer relationship management allows financial intermediaries to distinguish risk profiles and transaction buyers from relationship buyers. Conversely, firms and especially smallest and opaque ones face hard difficulties to obtain loans due to their lack of transparency. Our results on a large European panel of firms demonstrated that tangible information is determinant to be able to deal with multiple financial partners and benefit from associated benefits in terms of costs and credit availability. From the borrower point of view, the recent financial crisis put into light that illiquidity and early liquidation risks from banking origin are real and socially costly in terms of bankruptcy and job destruction, notably. Recent European discussion regarding the necessity to promote bank mobility for individuals and firms in all countries are welcoming because banking industry still concentrated.

References

Bannier, Christina. 2007. Heterogeneous multiple bank financing: does it reduce inefficient credit-renegotiation incidences? *Financial Markets and Portfolio Management* 21, no. 4 (December 9): 445-470. doi:10.1007/s11408-007-0062-6.

Beck, Thorsten, Asli Demirguc-Kunt, and Ross Levine. 2001. The Financial Structure Database. *Financial structure and economic growth: A cross-country comparison of banks, markets, and development*: 17-80.

Berglof, Erik, and Ernst-Ludwig von Thadden. 1994. Short-Term versus Long-Term Interests: Capital Structure with Multiple Investors. *Quarterly Journal of Economics* 109, no. 4 (November): 1055-1084. doi:http://www.mitpressjournals.org/loi/qjec.

Besanko, David, and Anjan V. Thakor. 1987. Collateral and Rationing Sorting Equilibria in Monopolistic and Competitive Credit Markets. *International Economic Review* 28, no. 3 (October): 671. doi:Article.

Bester, Helmut. 1985. Screening vs. Rationing in Credit Markets with Imperfect Information. *American Economic Review* 75, no. 4: 850-855. doi:Article.

Bolton, Patrick, and David S. Scharfstein. 1996. Optimal debt structure and the number of creditors. *Journal of Political Economy* 104, no. 1 (February): 1. doi:Article.

Bris, Arturo, and Ivo Welch. 2005. The Optimal Concentration of Creditors. *Journal of Finance* 60, no. 5 (October): 2193-2212. doi:10.1111/j.1540-6261.2005.00796.x.

Brunner, Antje, and Jan Pieter Krahnen. 2008. Multiple Lenders and Corporate Distress: Evidence on Debt Restructuring. *Review of Economic Studies* 75, no. 2: 415-442. doi:10.1111/j.1467-937X.2008.00483.x.

Carletti, Elena. 2004. The structure of bank relationships, endogenous monitoring, and loan rates. *Journal of Financial Intermediation* 13, no. 1 (January): 58. doi:10.1016/j.jfi.2003.04.001.

Carletti, Elena, Vittoria Cerasi, and Sonja Daltung. 2007. Multiple-bank lending: Diversification and free-riding in monitoring. *Journal of Financial Intermediation* 16, no. 3 (July): 425-451. doi:10.1016/j.jfi.2007.03.001.

Carmignani, Amanda, and Massimo Omiccioli. 2007. Costs and benefits of creditor concentration: An empirical approach. Text. November. http://econpapers.repec.org/paper/bdiwptemi/td_5F645_5F07.htm.

Degryse, Hans, and Steven Ongena. 2007. The impact of competition on bank orientation. *Journal of Financial Intermediation* 16, no. 3 (July): 399-424. doi:10.1016/j.jfi.2007.03.002.

Detragiache, Enrica, Paolo Garella, and Luigi Guiso. 2000. Multiple versus Single Banking Relationships: Theory and Evidence. *The Journal of Finance* 55, no. 3: 1133-1161. doi:10.1111/0022-1082.00243.

Dewatripont, M., and E. Maskin. 1995. Credit and Efficiency in Centralized and Decentralized Economies. *Review of Economic Studies* 62, no. 4 (October): 541-555. doi:http://www.blackwellpublishing.com/journal.asp?ref=0034-6527.

Djankov, Simeon, Caralee McLiesh, and Andrei Shleifer. 2007. Private Credit in 129 Countries. *Journal of Financial Economics* 84, no. 2 (May): 299-329. doi:http://www.elsevier.com/wps/find/journaldescription.cws_home/505576/description#description.

Elsas, Ralf, Frank Heinemann, and Marcel Tyrell. 2004. Multiple but Asymmetric Bank Financing: The Case of Relationship Lending. doi:http://www.cesifo.de/DocCIDL/1251.pdf. http://www.cesifo.de/DocCIDL/1251.pdf.

Flannery, Mark J. 1986. Asymmetric Information and Risky Debt Maturity Choice. *Journal of Finance* 41, no. 1 (March): 19-37. doi:Article.

Godlewski, Christophe J., and Ydriss Ziane. 2008. *How many banks does it take to lend? Empirical evidence from Europe*. Laboratoire de Recherche en Gestion et Economie, Université Louis Pasteur, Strasbourg (France). RePEc. http://ideas.repec.org/p/lar/wpaper/2008-11.html.

Guiso, Luigi, and Raoul Minetti. 2004. Multiple Creditors and Information Rights: Theory and Evidence from US Firms. doi:http://www.cepr.org/pubs/dps/DP4278.asp. http://www.cepr.org/pubs/dps/DP4278.asp.

Klemperer, Paul. 1987. The competitiveness of markets with switching costs. *RAND Journal of Economics* 18, no. 1 (Spring87): 138-150. doi:Article.

Kornai, Janos. 1980. 'Hard' and 'Soft' Budget Constraint. *Acta Oeconomica* 25, no. 3-4: 231-245. doi:http://www.akkrt.hu/kerdesek/reszletes_hjour.jsp?id=032.

Mahrt-Smith, Jan. 2005. The Interaction of Capital Structure and Ownership Structure. *Journal of Business* 78, no. 3 (May): 787-815. doi:Article.

Ongena, Steven, and David C. Smith. 2000. What determines the number of bank relationships? Cross-country evidence. *Journal of Financial Intermediation* 9, no. 1 (January): 26. doi:Article.

Ongena, Steven, Günseli Tümer-Alkan, Natalja von Westernhagen, and Tümer-Alkan Steven Ongena. 2008. Creditor concentration: an empirical investigation. Text. http://econpapers.repec.org/paper/zbwbubdp2/6927.htm.

la Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer. 2006. What Works in Securities Laws? *Journal of Finance* 61, no. 1 (February): 1-32. doi:10.1111/j.1540-6261.2006.00828.x.

la Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny. 1998. Law and finance. *Journal of Political Economy* 106, no. 6 (December): 1113. doi:Article.

Rajan, Raghuram, and Andrew Winton. 1995. Covenants and Collateral as Incentives to Monitor. *Journal of Finance* 50, no. 4: 1113-1146. doi:Article.

Rajan, Raghuram G. 1992. Insiders and Outsiders: The Choice between Informed and Arm's-Length Debt. *Journal of Finance* 47, no. 4: 1367-1400. doi:Article.

Rajan, Raghuram G., and Luigi Zingales. 1998. Which Capitalism? Lessons from the East Asian Crisis. *Journal of Applied Corporate Finance* 11, no. 3: 40-48. doi:10.1111/j.1745-6622.1998.tb00501.x.

Sharpe, Steven A. 1990. Asymmetric Information, Bank Lending, and Implicit Contracts: A Stylized Model of Customer Relationships. *Journal of Finance* 45, no. 4: 1069-1087. doi:Article.

von Thadden, Ernst-Ludwig. 1992. *The Commitment of Finance, Duplicated Monitoring and the Investment Horizon*. European Science Foundation Network in Financial Markets, c/o C.E.P.R, 53--56 Great Sutton Street, London EC1V 0DG, December. RePEc. http://ideas.repec.org/p/cpr/ceprfm/0027.html.

Volpin, Paolo F. 2001. Ownership Structure, Banks and Private Benefits of Control. *SSRN eLibrary* (August). http://papers.ssrn.com/sol3/papers.cfm?abstract_id=255968.

Table 1. Definitions and descriptive statistics of the variables

This table provides the definitions and main descriptive statistics of the variables used in the regressions. The endogenous variable and the loan characteristics come from the Dealscan (LPC, Reuters) database. Firm characteristics come from the Amadeus (Bureau Van Dijk) database. Economic characteristics come from different databases (la Porta et al. 1998; Beck, Demirguc-Kunt, and Levine 2001; la Porta, Lopez-de-Silanes, and Shleifer 2006; Djankov, McLiesh, and Shleifer 2007).

Variable	Definition	Obs.	Mean	Std. Dev.
Explained variable				
Lenders concentration	Hirschman-Herfindhal normalized index computed on the lenders shares of the loan to a borrower	2692	.3409	.2389
Loan characteristics				
Loan size	Logarithm of the loan facility amount (in USD)	2692	13.2597	1.0524
Maturity	Maturity of the loan facility (in months)	2692	60.3696	20.8516
Guarantor	=1 if there is at least one guarantor	2692	.1277	.3339
Covenants	=1 if there are financial covenants	2692	.0698	.2549
Syndication	=1 if the loan is syndicated	2692	.7414	.4379
Revolver	=1 if revolving loan	2692	.7875	.4091
Debt repayment	=1 if loan purpose is debt repayment	2692	.8187	.3853
Firm characteristics				
Firm size	Logarithm of firm's total assets (in USD)	2692	14.9298	1.7895
Firm age	Logarithm of firm's age (in years since creation)	2401	2.6539	1.1306
Liquidity	(Cash + accounts receivable) / (Current liabilities)	2692	.9871	.2503
Profitability	Operating profit / Total assets	2692	.1318	.0982
Leverage	Total debt / Total equity	2692	1.9303	1.4705
Euronext	=1 if borrower is listed on Euronext	2692	.2373	.4255
Independence	Indicator characterizing the degree of independence of a company with regard to its shareholders (A: strong independence to D)	2692	2.5820	1.1654
Shareholders	Number of shareholders	2692	38.1701	29.9583
Eastern Europe	=1 if the borrower is from Eastern Europe	2692	.2500	.4330
Economic characteristics				
Market concentration	Assets of the three largest banks as a share of all commercial banks	1449	.7583	.2099
Bank costs	Bank overhead costs / Total assets	1449	.0313	.0104
Credit development	Private credit of deposit banks and other financial institutions / GDP	1715	.8187	.4587
Creditor rights	Index of assessment of creditor rights (0: weak creditor rights to 4).	1907	1.3985	.6108
Shareholder rights	Index of anti-director rights (0: weak anti-director rights to 6).	1907	2.4362	.6913
Rule of law	Index of assessment of the law and order tradition (0: less tradition for law to 10)	1907	9.7615	.5244

Table 2. Lenders concentration breakdown by main explanatory variables

This table provides the means of *Lenders concentration* by main explanatory variables. Definition of all variables is provided in Annex 1 (table 1). Large (Small) if *Firm size* strictly above (below) its median value (15.29). Old (Young) if *Firm age* strictly above (below) its median value (2.70). Transparent (Opaque) if *Euronext* equals 1 (0). High leverage (Low leverage) if *Leverage* strictly above (below) its median value (1.40). High profit (Low profit) if *Profitability* strictly above (below) its median value (.12). High liquidity (Low liquidity) if *Liquidity* strictly above (below) its median value (1.02). Many shareholders (Few shareholders) if *Shareholders* strictly above (below) its median value (50). Strong independence (Weak independence) if *Independence* strictly above (below) its median value (B). Long maturity (Short maturity) if *Maturity* strictly above (below) its median value (60).Strong concentration (Weak concentration) if *Market concentration* strictly above (below) its median value (0.87). High costs (Low costs) if *Bank costs* strictly above (below) its median value (0.03). T statistic for the test of equal means in brackets. ***, **, and * indicate coefficient statistically significant at the 1%, 5% and 10% level.

Firm	Large	Small	Old	Young	Transparent	Opaque
Lenders concentration	.3871	.2949	.3954	.2592	.2407	.3721
	(15.93***)		(6.68***)		(12.48***)	
Firm	High leverage	Low leverage	High profit	Low profit	High liquidity	Low liquidity
Lenders concentration	.3570	.3254	.4000	.2860	.2791	.3982
	(1.74*)		(7.05***)		(13.34***)	
Firm	Many shareholders	Few shareholders	Strong independence	Weak independence		
Lenders concentration	.2676	.3929	.3154	.3566		
	(13.87***)		(4.36***)			
Firm	Guarantor	No guarantor	Covenants	No covenants	Long maturity	Short maturity
Lenders concentration	.1566	.3679	.1441	.3556	.2592	.3600
	(16.03***)		(12.01***)		(8.71***)	
Firm	Strong concentration	Weak concentration	High costs	Low costs		
Lenders concentration	.3730	.2686	.3835	.2518		
	(12.91***)		(11.57***)			

Table 3. Influence of loan, borrower and economic characteristics on lenders concentration

This table provides Tobit regression results for the full sample. The dependant variable is *Lenders concentration*. Definition of all variables is provided in table 1. Model (1) includes borrower and loan characteristics. Models (2), (3), and (4) include borrower, loan and economic characteristics. Robust standard errors clustered at the loan facility level in brackets. Dummy variables for year and industry sector included but not reported. ***, **, and * indicate coefficient statistically significant at the 1%, 5% and 10% level.

Variable	(1)	(2)	(3)	(4)
Firm size	0.0091	-.0331***	-.0560***	-.0754***
	(0.0099)	(0.0069)	(0.0155)	(0.0171)
Firm age	-.0816***	-.0379***	-.0483***	-.0471***
	(0.0108)	(0.0064)	(0.0085)	(0.0095)
Leverage	-.0952***	-.0410***	-.0550***	-.0443***
	(0.0102)	(0.0087)	(0.0132)	(0.0134)
Liquidity	0.1707***	-.0427	-.1215***	-.0918***
	(0.0407)	(0.0273)	(0.0362)	(0.0345)
Profitability	-.9389***	-.3048***	-.2196	-.2215
	(0.1146)	(0.1041)	(0.1705)	(0.1546)
Euronext	-.0958***	-.0942*	-.1009**	-.0820
	(0.0184)	(0.0483)	(0.0514)	(0.053)
Independence	-.0477***	-.0231*	0.0122	0.0108
	(0.0106)	(0.0138)	(0.0135)	(0.0131)
Shareholders	-.0019***	0.0011**	0.0003	0.0004
	(0.0007)	(0.0005)	(0.0006)	(0.0006)
Eastern Europe	0.3065***	0.0631		
	(0.0274)	(0.0589)		
Loan size	0.0137	-.0550***	-.0236	-.0007
	(0.0144)	(0.0144)	(0.0217)	(0.021)
Maturity	-.0008	0.0001	-.0002	0.0004
	(0.0006)	(0.0004)	(0.0007)	(0.0007)
Guarantor	-.1084***	-.0677***	-.0627***	-.0664***
	(0.0255)	(0.0168)	(0.0212)	(0.0188)
Covenants	-.2189***	-.0429	-.1399***	-.1318***
	(0.0636)	(0.0507)	(0.0485)	(0.0489)
Syndicated	-.0976***	-.0089	-.0374	-.0390
	(0.0296)	(0.0193)	(0.0262)	(0.0258)
Revolver	0.1579***	0.0489**	0.06**	0.0307
	(0.0261)	(0.0209)	(0.0265)	(0.0281)
Debt repayment	-.0801*	0.0122	0.0625**	0.0062
	(0.0409)	(0.0272)	(0.0317)	(0.035)
Credit development		0.0718	0.0418	0.0702
		(0.0494)	(0.0619)	(0.0545)
Market concentration		0.247***		

		(0.0594)		
Bank costs		-.7993		
		(1.3361)		
Creditors rights			-.0275	
			(0.0378)	
Shareholders rights				0.0849***
				(0.0284)
Rule of law			0.1178***	0.1226***
			(0.0364)	(0.0321)
Intercept	0.7464***	1.5216***	0.6788**	0.2838
	(0.158)	(0.1505)	(0.2789)	(0.276)
N. obs.	2401	1424	1302	1302
F. stat.	3344.651	7991.273	3313.789	12138.95

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