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The design of bank loan syndicates in Emerging Markets Economies

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The design of bank loan syndicates in Emerging Markets Economies

Abstract

We empirically explore the influence of loan characteristics, banking and financial structure, and regulatory and institutional factors on the design of 10,930 bank loan syndicates in emerging market economies from 1990 to 2006. Our results show that the structure of syndicates is adapted to enhance monitoring of the borrower and to increase the efficiency of re-contracting process in case of borrower's distress. Main syndication motives, such as loans portfolio diversification, regulatory pressure and management costs reduction, influence syndicate design in emerging markets economies.

JEL Codes : G21, C25.

Keywords : Bank, Loan, Syndication, Syndicate Structure, Emerging Markets, Poisson Regressions.

1. Introduction

What are the determinants of bank loan syndicates' design (measured in terms of number of lenders and of arrangers) in emerging markets economies (EME)? The syndicate design might be different in EME and can therefore have important implications for the functioning and the development of syndicated loan markets, and more broadly for the financial and economic development of EME. As these economies are more fragile, a better knowledge of the determinants of bank loan syndicates provides timely policy recommendations on how to encourage the development of syndicated lending in these markets. This article is the first empirical research investigating the design of bank loan syndicates using loan and country level variables for 10,930 loan facilities to borrowers from emerging markets over the 1990-2006 period.

Already in 1991, syndicated loans represented 67% of all emerging market corporate and sovereign borrowers' financing, twice the amount of total bond and equity financing (Altunbas et al., 2006). Furthermore, in the last decade the volume of syndicated loans in emerging markets has considerably grown from 91.8 billion USD in 1995 to 379.8 billion USD in 2005¹. During that period, the number of issues increased from 791 in 1995 to 1124 in 2005. Currently, syndicated loans represent an important source of external finance in emerging markets, comparable to bond markets and often larger than equity markets (Nini, 2004). In 2005, syndicated lending corresponds to more than 11% of the private credit of financial institutions in Singapore, almost 23% in Mexico and close to 36% in the Russian Federation². However, following the Asian crisis

¹ These figures are based on computations from the author on the Dealscan database.

² These figures are based on computations from the author, with figures on syndicated loans from the Dealscan database and with figures for the private credit by financial institutions from Beck et al. (2000).

in 1997, the emerging markets were strongly deprived of syndicated lending. Furthermore, syndicated loans in IMF-assisted countries exhibit specific features. A significant fraction of these funds are used for export industry financing which places these sectors at a disadvantage in the export markets. In addition, a significant portion of syndicated loans (more than 25%) are granted to financial institutions. These loans are usually large but more costly, with high spreads, and have short maturity.

Briefly, bank loan syndication can be considered as a sequential process, which can be separated into three phases³. During the *pre-mandated phase*, the borrower solicits competitive offers to arrange and manage the syndication with one or more banks. From the proposals it receives, the borrower chooses one or more arrangers that are mandated to form a syndicate⁴, and negotiates a preliminary loan agreement. During the *post-mandated phase*, the arranger begins the syndication process, which involves drafting a preliminary loan contract and preparing a documentation package for the potential syndicate members, called an *information memorandum*, containing information about borrower creditworthiness and the loan terms. A *roadshow* is then organized to present and discuss the content of the memorandum, as well as to announce closing fees and to establish a timetable for commitments and closing. After the roadshow, the arranger makes formal invitations to potential participants and determines the allocation given to each participant. The third and last phase takes place after completion. The loan becomes operational, binding the borrower and the syndicate members by the debt contract.

³ See Esty (2001) for a detailed analysis of syndication.

⁴ The syndication can be sole or joint mandated, the latter involving the participation of more than one lead bank. Such syndications are usually chosen by the borrower in order to maximize the likelihood of a successful syndication. The arranger is responsible for the negotiation of key loan terms with the borrower. It acts as the syndicate's agent, which involves such tasks as funds administration, interests' calculation, and covenants enforcement.

A syndicated loan has several advantages that motivate the lenders. It allows to diversify loan portfolios and thus to avoid excessive single-name exposure in compliance with the regulatory limits while maintaining a relationship with the borrower, it helps to exploit comparative advantages of syndicate members in terms of financing and eventually in terms of information sharing and it allows also diversifying income sources through the collection of fees. While these advantages mostly apply to senior syndicate members, lack of origination capability and cutting down origination costs are main advantages for junior participants. These can also benefit from the know-how transfer between members (Tykvova, 2007)⁵.

Loan syndication has also several drawbacks as it generates potential agency problems due to informational frictions between the senior and the junior members of the syndicate. Following Diamond (1984), Holmstrom and Tirole (1997) and Gorton and Pennachi (1995), borrower monitoring by multiple creditors may lead to cost inefficiency and free-riding. Hence, creditors usually delegate monitoring to one financial intermediary, the arranger, who acts as the syndication agent. As his monitoring effort is unobservable, the syndicate faces a moral hazard problem. Additionally, the arranger collects private information through due diligence or through a previous lending relationship. If this information cannot be credibly communicated to the participants, an adverse selection problem arises as the arranger may syndicate loans with the less favorable information. Finally, handling borrower's financial distress is more

⁵ Borrowers can also gain advantages from syndication (Allen, 1990; Altunbas et al., 2006): ability to arrange cross border transactions, restriction of negotiation with one bank, uniform terms and conditions, more competitive pricing resulting in lower spreads, lower fees compared to bond issues, more flexible funding structure, larger amount compared to public finance, and speed and discretion of arranging the deal.

complicated in a syndicate setting because lenders must reach a collective decision. The outcome of negotiations in debt restructurings are affected by the number of creditors, by the allocation of security among the set of creditors, and by the character of stringency of the voting rules among the creditors (Bolton and Scharfstein, 1996).

The advantages of syndicated loans for banks and borrowers show that they provide an important financing vehicle for emerging markets and thus for their economic development as they contribute to enhance the sources of external finance in these countries. Moreover, if syndicated loans reduce the cost of borrowed funds, they also contribute to favor the financing of companies. The expansion of syndicated loans increases the diversification possibilities for banks in terms of risk and income, which decreases the likelihood of bank failures. As a consequence, the expansion of syndicated loans contributes to financial stability, which is a fundamental issue for emerging economies.

While these benefits are especially important for emerging markets finance, the agency problems related to syndications can have severe consequences for the financial stability of these markets. A crucial input to mitigate these problems is the structure of the syndicates that, if adapted, can reduce agency costs related to the syndication process. Therefore, empirical investigation of the factors that influence the size and the composition of syndicates in emerging markets is an important and timely issue.

Academic literature investigating the structure of bank syndicates remains relatively scarce. The first empirical research on syndicate size and composition was performed by Lee and Mullineux (2004), showing that syndicates on the US market are structured to enhance monitoring efforts and to facilitate renegotiation. Jones et al. (2005)

and Sufi (2007) show that the lead bank retains larger share of the loan and forms a more concentrated syndicate when the borrower requires more intense monitoring and due diligence. Finally, François and Missonier-Piera (2007) empirically explore the motives for delegating administrative tasks (e.g.: issuing the legal documents, or holding the collateral) to specialized co-agents.

Contrary to the US syndication market, evidence regarding the structure of syndicates is very scarce for emerging market economies. The investigated issues are rather the determinants of syndicated loan pricing in developing countries (Altunbas et al., 2006) and the participation of local banks in syndications (Nini, 2004). Therefore, the first objective of this work is to test if the same factors as in industrialized markets (along the lines of Lee and Mullineux, 2004) influence syndicates in emerging economies. Furthermore, as the loan contract characteristics are definitely richer we also investigate the impact of such features as covenants, guarantors and sponsors on the syndicate structure. Finally, we also investigate the impact of banking and financial structure, regulatory environment and legal risk on the syndicate design.

The rest of the article is organized as follows. Section 2 discusses the tested determinants of the syndicate structure. Section 3 presents data, methodology and variables, and section 4 displays the results. We conclude and provide further research perspectives in section 5.

2. Determinants of bank syndicate design

2.1 Syndicate design and agency problems

This paper investigates the factors that influence syndicate design and analyzes if that design is a response to the specific potential agency problems generated by bank loan syndication. Syndicate design is measured with total syndicate size (*Number of Lenders*) and with the number of senior syndicate members (*Number of Arrangers*). We make this distinction because senior members of the syndicate have different concerns and motivations compared to other participants. Therefore, the influence of the same factors can differ in terms of sign and significance depending on the status of the lender in the hierarchy of the syndicate⁶.

As mentioned in the introduction, syndicated loans present certain benefits and costs which influence their use. Namely, banks may expect benefits from syndicated loans through the diversification of loan portfolios and of sources of income with fee income obtained, the enforcement of the lending limits, and the possibility for some banks suffering from a lack of origination capacities in certain types of transactions to participate to certain types of loans.

However, syndicated loans generate two specific agency problems. First, private information about the borrower creates an adverse selection problem, as the arranger may be inclined to syndicate loans from bad borrowers⁷. Second, the participant banks

⁶ In order to avoid biased results, we do not distinguish the number of participants, as the same financial institution can have several roles in a syndicate being simultaneously an arranger and a participant, which involves senior and junior status.

⁷ However, such opportunistic behavior generates reputation risk for the arranger and affects negatively the success of future syndications (Pichler and Wilhelm, 2001).

delegate monitoring tasks to the arranger whose efforts are unobservable for participant banks, which results in a moral hazard problem⁸.

The structure of a syndicate can be viewed as an organizational response to these problems (Pichler and Wilhelm, 2001). The arranger has concerns about the monitoring efforts of participants and can consequently influence the size and the composition of the syndicate which involve explicit and implicit costs / revenues tradeoff. It decides on the institutions it will invite to participate, chooses the initial menu of designated amounts for participation, the dollar size of each bracket, and the associated fees for each bracket. It also reserves the right to close the syndication at any time prior to the designated end of the offering period.

In order to provide a credible signal about the borrower's quality and to align monitoring incentives, the arranger can adjust its own portion of the loan (Jones et al., 2005; Sufi, 2007). This can be achieved by forming a smaller syndicate and/or a smaller syndicate "core" with few arrangers. Smaller syndicates allow arrangers to minimize the management costs of a group lending process, to prevent free-riding, and to resolve borrower's financial distress problems more efficiently. However, large syndicates might allow exploiting scale economies. Seeking to develop or maintain reputation through reciprocity and repeat dealing is also a potential argument to form larger syndicates. Enhancing fee income could also be achieved by forming a larger syndicate with small proportional holdings for each member.

In summary, the factors that influence the syndicate structure are expected to be those that banks, and especially the arranger, believe will modify the benefits and costs of

⁸ Nonetheless, the arranger has less incentive to monitor the borrower than if it were to lend the full amount of the loan (Pennacchi, 1988).

syndication. These factors are loan characteristics but they can also be country-level variables taking banking regulation, financial development and institutional framework into account.

2.2 Loan characteristics

We first test the role of several loan characteristics that might impact the structure of the syndicate in terms of number of lenders and number of arrangers. Increased loan size (*Loan Size*) is expected to be positively related to syndicate structure. Indeed, the motives to diversify loan portfolios and to be in accordance with regulation are more likely to play a role for larger loans and thus implying more lenders within the syndicate.

Maturity of the loan (*Maturity*) is also considered, although whether it plays a positive or negative role is ambiguous. Greater maturity is associated with greater monitoring costs as long-term loans incur control of collateral and covenant costs. As a consequence, the moral hazard problem involved in syndicated loans is enhanced and therefore implies a smaller syndicate and/or a larger “core” of arrangers. Also, if we consider a positive relationship between maturity and credit risk (Flannery, 1986; Agbanzo et al., 1998), syndicates should be smaller and/or the number of arrangers should be larger to enhance monitoring efforts and prevent free-riding, as well as to resolve potential borrower distress more efficiently. However, if credit risk and maturity are negatively related (Dennis et al., 2000), syndicates should be larger and/or the number of arrangers should be smaller.

We also test several characteristics that provide lenders with better protection in case of loan default and thus reduce loan loss. Such characteristics are expected to exert a role on the syndicate structure mainly through their impact on potential agency problems.

Our first idea was to consider the presence of collateral in the loan agreement through a dummy variable equal to one if the loan is secured. However, since information on the presence of collateral is strongly missing, its inclusion in the estimations would have considerably reduced our sample⁹. We instead take the presence of guarantors in the loan agreement into account, with a dummy variable equal to one if at least one guarantor exists (*Guarantors*). A guarantor gives additional protection for the lenders, as the guarantor will honor a part or the totality of the claim in case of loan default. Therefore, the presence of a guarantor mitigates agency problems resulting from adverse selection in line with the better information owned by the arranger on the borrower. However, empirical literature on the role of collateral in loan contracts provides evidence in favor of the “observed-risk hypothesis” according to which banks would be able to sort borrowers from information they have on their quality (Berger and Udell, 1990; Jimenez and Saurina, 2004). As a consequence, banks would ask more protection schemes from riskier borrowers. Accordingly, the presence of a guarantor may signal a riskier loan and, consequently, a loan plagued by greater agency problems. Smaller syndicates and/or larger syndicates “core” would promote more effective monitoring, also avoiding duplicative monitoring of the collateral, and more efficient loan restructuring in the event of borrower distress.

Additionally, we include a dummy variable (*Sponsors*) equal to one if the loan is sponsored. A sponsor is usually an individual capital investor who is involved in the project and might also act as an advisor and eventually as an additional monitor of the

⁹ Results from estimations with this variable on a reduced sample are very similar to the ones obtained with the alternative proxy for collateralisation. Therefore, we adopt the latter proxy in order to benefit of a larger sample size.

borrower. Therefore, the presence of a sponsor should be positively related to syndicate size and/or negatively to the number of arrangers.

We also take debt seniority into account through a dummy variable (*Senior Debt*) equal to one if the debt is senior. Although debt seniority constitutes an additional protection for the lenders in the case of loan default, its impact is ambiguous similarly to *Guarantors*. If it works as an effective protection for all the lenders, syndicates and number of arrangers should be smaller. But if the seniority does not apply equally to all syndicate members, its influence can be significant for the number of arrangers only. Similarly, the “observed-risk hypothesis” also suggests a negative impact of this variable on the number of lenders and eventually a positive one on the number of arrangers, as the request for seniority may result from the perception of a higher risk of the borrower.

The presence of covenants, which aim at restricting the discretionary power of the borrower, is taken into account with a dummy variable (*Covenants*) equal to one if the loan agreement includes covenants. Therefore, the presence of covenants in a loan agreement is expected to reduce the risk of loan default (Rajan and Winton, 1995), and enhance the ability to monitor the borrower, thereby reducing the monitoring costs. It appears that covenants should favor larger syndicates and/or a smaller number of arrangers as they reduce potential agency problems from moral hazard behavior of member banks during the monitoring process. However, empirical evidence tends to show the opposite: a positive link between the presence of covenants and the probability of default of the borrower (e.g. Foster et al., 1998). This is in accordance with the “observed-risk hypothesis”, where riskier borrowers are offered more binding loan agreements. Therefore, arguments exist for both a positive and negative relationship.

To account for the impact of publicly available information on syndicate structure, we include in our regressions a dummy variable (*S&P Rating*) equal to one if a Standard and Poor's senior debt rating is available. We expect a positive coefficient since the existence of a rating mitigates the adverse selection problem and therefore allows to form a larger syndicate and/or a reduced syndicate "core" with few arrangers.

Borrower's market presence is proxied through a variable (*Borrower Presence*) equal to the occurrence of a particular borrower in the sample¹⁰. Although this variable is contingent on the available data within the sample, it gives a broad indication of the borrower's presence on the international syndicated lending and therefore his reputation. We expect a positive coefficient for this variable as a lending to a more present and reputable borrower should involve less informational frictions within the syndicate compared to a new or less present borrower.

We also control for the type (*Term Loan, Revolving Bank Facility*) and the purpose (*General Corporate, Debt Repayment, Project Finance, Working Capital*) of the loan through the inclusion of dummy variables¹¹. Finally, dummy variables taking benchmark rate (*Libor* and *Euribor*), facility issue year, year, region and industry are included in the regressions.

2.3 Country-level variables

We now turn to country-level variables that may influence the design of a syndicate. Indeed, Esty and Megginson (2003) have pointed out that institutional factors might influence the syndication process in emerging markets. Therefore, we also test the

¹⁰ Bharath et al. (2006) construct similar indicators to investigate the benefits of lending relationships for the banks.

¹¹ We do not provide variables for other types and purposes in our regressions, since they represent less than 5% of our sample.

role of the legal environment, financial development, and banking regulation on syndicate structure.

Our first category of country-level variables examines the role of banking structure. *Overheads*, the ratio of banking overhead costs to total banking assets, measures cost inefficiency of a banking industry. Since syndicated loans imply the sharing of administration and origination costs, cost inefficiency is expected to encourage the formation of larger syndicates, both in terms of total number of lenders and arrangers. Consequently, we expect a positive coefficient for this variable. *Concentration*, defined as the assets of the three largest banks as a share of all bank assets, proxies market structure of the banking industry. Several arguments imply a negative influence that this variable should have on the syndicate size. First, a greater concentration means a lower number of potential participants to join a syndicate. Second, banks with greater market shares in a banking industry already benefit from diversified loan portfolios and have little incentive to diversify further. Finally, the motivation provided by increased revenue from syndicated loans should exert a lower impact for banks with greater profitability, generally due to stronger market power.

We also add three variables that take the development of financial markets into account. *Stock Markets*, defined as the value of listed shares to GDP, measures the development of stock markets. The expected sign of this variable is ambiguous. Allen and Gottesman (2006) have shown that stock markets and syndicated loan markets are highly integrated enabling information flow among markets. The development of stock markets contributes to information disclosure, which mitigates the adverse selection problem resulting from the private information owned by the lead bank on the borrower.

We should thus observe a positive coefficient for this variable. However one may also consider that stock markets are an alternative source of financing for large loans requested by companies. Therefore, one might consider that more developed stock markets reduce the potential for syndicated loans in a country, and consequently increase the share of bank loans which are not syndicated. Such influence should be even more prominent for the development of bond markets, measured with the ratio of private domestic debt securities to GDP (*Private Bond Markets*) and the ratio of public domestic debt securities to GDP (*Public Bond Markets*). Bonds directly compete syndicated loans for large financing needs of companies, but this negative influence may also be offset by the positive impact of the existence of bond markets, which contribute to increase information for participant banks in loan syndicates and therefore limits the adverse selection problem in syndicated loans.

Our second category of country-level variables is for banking regulation. We first construct the variable *Mincar*Credit Risk*, which is the product of the minimum capital requirement value and a dummy variable equal to one if the minimum regulatory capital ratio varies with bank credit risk. Indeed, what matters for minimum capital requirement is as much the existence of such requirements than its implementation. On the one hand, we expect a positive coefficient for this variable as the existence of capital requirement should contribute to favor the syndication through the motivation of respecting the lending limits. This takes into consideration the fact that a stronger requirement increases the relevance of this motivation. On the other hand, a negative coefficient can also be observed as this capital requirement reduces the number of potential syndication participants eligible in terms of adequate capitalization and thus in terms of funding

advantages. A supervisory feature is introduced through *NPL Definition*, a dummy variable equal to one if a formal definition of non performing loans exists. If binding, such regulatory feature should have a positive influence on syndicate size as it enhances transparency on loans portfolio of participant banks. The regulation on lending abroad should positively impact syndicate size, as such regulation reduces diversification opportunities for domestic banks. We therefore expect that the coefficient of *Abroad Loan Prohibited*, a dummy variable equal to one if abroad loan making is prohibited, should be positive, as such prohibitions make syndication more attractive to gain more diversified loan portfolios.

Our third and last category of country-level variables takes legal environment into account. Following a large body of research on law and finance pioneered by La Porta et al. (1997) and recently completed by Qian and Strahan (2007), legal institutions may exert an impact on syndicate structure. Legal risk can affect the way banks perform their governance function, mainly monitoring and re-contracting, and in consequence their syndicate structure. Two indicators for legal institutions are included in our estimations. Protection of creditor rights is measured with the index provided by La Porta et al. (1998) (*Creditor Rights*). This index is scored on a scale from zero to four with a higher score indicating better protection. Law enforcement is measured with the ‘Rule of Law’ index also provided by La Porta et al. (1998) (*Rule of Law*). This indicator ranges from zero to ten with a higher score indicating a better enforcement of the law.

The expected sign of the coefficient for these both variables is ambiguous. Esty and Megginson (2003) find that syndicates funding project finance in countries with weak creditor rights and poor legal enforcement are larger and more diffuse. Thus,

lenders seem to structure the syndicates in order to facilitate re-contracting in countries where creditors have strong and enforceable rights. Additionally, better legal protection of banks mitigates the moral hazard problem induced by syndicated loans. Indeed, a better protection of creditors decreases the need to monitor the borrower, which reduces agency problems resulting from the monitoring efforts of banks involved in the syndicate. Furthermore, in high legal risk countries, efficient reorganization of a distressed borrower might be difficult. Hence, larger syndicate structure are more adapted as they minimize hold-up problems in case of reorganization. However, on a more global basis, the agency problems resulting from all lending decisions should also be mitigated which may favor the choice of a standard loan rather than a syndicated loan for the lead bank. Indeed, the motive of the risk-sharing should play a lesser role in well-protected legal environments. Hence, monitoring should be more important in the presence of high legal risk (few legal rights and low contract enforcement), through a smaller syndicate and/or a larger number of arrangers.

We also control for the number of syndicated loan facilities in a particular country through the inclusion of the *Syndicated Loan Issues* variable. The latter allows controlling for the development of the syndicated lending market, which should be positively related to the syndicate design.

3. Syndicated lending in EME, data, and methodology

This section is devoted to the discussion of the evolution of the syndicated lending markets in EME and the presentation of the sample and methodology used in the article.

3.1 Syndicated lending in EME

In the third quarter of 2006¹², Asia (excluding Australasia) is the largest syndication market within the emerging economies. It has reached a total amount of 119.2 billion USD (4.3% of global market) and 549 issues. Middle East and Eastern Europe come as second, totaling 50.7 billion USD (1.8% of global market) and 45.2 billions USD respectively, with 59 and 148 issues. Finally, Central and South America has issued 70 deals for a total amount of 30.5 billion USD (1.1% of global market). We observe a similar pattern for the syndicated loans volume and issues in Dealscan on figure 1.

- **Insert Figure 1 about here** -

We remark an impressive increase of the volume and issues of syndicated loans from 1995 to 2005. Asia is by far the greatest market for syndicated loans in emerging markets, representing more than half of the volume and issues of syndicated loans for all dates. However the other emerging markets have increasing shares in syndicated loans, with a particularly fast increase in Central and Eastern Europe. Middle East and Latin America are also “catching up”, both syndicated markets being close to 50 billion USD.

This evolution can be explained by the fact that following financial liberalization, spate of privatizations in emerging markets, and economic development funding needs, local companies started to displace sovereign borrowers in these regions. However, the Asian crisis in 1997 significantly affected financing flows to emerging markets, which dropped from 274 billion USD in 1997 to 149 billion USD in 1998. As a consequence, foreign syndicated lenders, mostly Japanese banks, restructured their portfolios putting

¹² Thomson Financial (2006).

large quantities of syndicated loans up for sale in the secondary markets. The Japanese stake of the global syndicated loan market corresponding to 10-15%, this withdrawal curbed the activity in the market. Following the Russian and the South American crises in 1998 and 2001 respectively, emerging markets were strongly deprived of syndicated lending.

These observations bring the discussion of the link between syndicated lending and financial stability in emerging markets. This link can be investigated by analyzing the loan terms obtained by borrowers in IMF-assisted countries following a financial instability. For instance, Altunbas et al. (2006) note that syndicated loans in IMF-assisted countries are larger but more expensive with shorter maturities. A significant fraction of these funds raised on the syndicated loan markets is used for export industry financing which places their goods and services sectors at a disadvantage in the export markets. Furthermore, more than 25% of syndicated loans are granted to the financial sector. These loans have short maturities and their costs is more than twice high as that of loans granted to financial institutions in non-assisted countries. Overall, lower growth rates in IMF-assisted countries could be explained by the higher cost of funds in the syndicated loan markets.

3.2 Data and methodology

The sample of syndicated loans comes from the Dealscan database, provided by the Loan Pricing Corporation (LPC, Reuters). Data concerning financial structure and regulatory and supervisory characteristics come from Beck et al. (2000), while data on banking regulation come from Barth et al. (2005). Indicators of legal environment come from La Porta et al. (1998). Sample size is determined by information availability on the

variables used in the regressions. Following Lee and Mullineaux (2004), we use only syndicated, completed, and fully confirmed deals, excluding private placements. We therefore have a sample of 10,930 loan facilities from 50 emerging countries for the period between 1990 and 2006. The frequencies of loan facilities by country are displayed in table A.1 in the appendix.

Following our focus on emerging countries, syndicated loans come from four geographical areas¹³: Asia, Latin America, Central and Eastern Europe, and Middle East, which account respectively for 70.6%, 12.7%, 9.7%, and 7% of the total number of loan facilities in our sample. Therefore, Asia represents almost three quarters of the loans in our sample. These shares are in accordance with the relative importance of each geographical area on the syndicated loans markets for emerging countries.

Table 1 lists descriptive statistics for the variables. Tables A.2 and A.3 in the appendix provide their definitions and their correlation coefficients respectively.

- **Insert Table 1 about here** -

We observe that the average syndicate has almost 11 lenders and 3 arrangers¹⁴. The average loan size is 206,929 million USD with an average maturity of 4,5 years¹⁵. The covenants are only included in one quarter of loan contracts. The presence of guarantors and sponsors is scarcer, being observed in only 8.98% and 9.26% of loan contracts respectively. More than half of the loans are senior debt for the lenders. An

¹³ We do not have any syndicated loans to borrowers from Africa in our sample.

¹⁴ The average size of a bank loan syndicate, measured in terms of number of lenders, is close to 10 in Asia and Latin America, while it increases in Central and Eastern Europe (more than 12) and is the most important in Middle East (more than 18). The number of arrangers is the lowest in Asia (less than 3), average in Latin America and Central and Eastern Europe (close to 4) and large in Middle East (close to 5).

¹⁵ For comparison, from 1987 to 1995 in USA, Lee and Mullineux (2004) have an average number of lenders equal to 9, with average loan volume at 221 millions USD and average maturity equal to almost 4 years. On a more recent time span (1992-2003), Sufi (2007) observes average number of lenders and arrangers at 8 and 2 respectively. Average loan is equal to 364 million USD and average maturity is 3 years.

average borrower had 5 syndicated loan facilities during the time span of the sample. On average, bank markets are relatively concentrated and rather cost efficient. Stock market capitalization is important while the bonds market is rather small. Non performing loans formal definition is quite common, with a minimum capital to assets ratio above 8%. Creditor rights and rule of law are in the upper-average.

Following Lee and Mullineux (2004), we estimate the following set of individual equations using Poisson regressions¹⁶:

$$\begin{aligned} \text{Number of Lenders} = f(\text{Intercept, Loan characteristics, Banking structure,} \\ \text{Financial development, Regulation and supervision, Legal risk}) \end{aligned} \tag{1}$$

$$\begin{aligned} \text{Number of Arrangers} = g(\text{Intercept, Loan characteristics, Banking structure,} \\ \text{Financial development, Regulation and supervision, Legal risk}) \end{aligned} \tag{2}$$

4. Results and discussion

We perform six series of Poisson regressions, with varying combinations of tested factors, for the two individual equations (1) and (2) where the endogenous variables are the *Number of Lenders* and the *Number of Arrangers* respectively. All regressions include the loan characteristics. However, we test alternatively the role of the four categories of country-level variables. Namely, while the first set of regressions does not include any country-level variable, the four following regressions alternatively add one

¹⁶ Poisson regression assumes the data follows a Poisson distribution, which is skewed with non-negative and discrete values and variance increasing with the mean. Given the integer nature of the dependent variable, this estimation technique is the most appropriate. We do not use negative binomial regressions as overdispersion is weak in our sample. Given the skewness of the dependent variables distribution we also do not perform OLS regressions, although, as well as Tobit regressions, OLS regressions give qualitatively similar results.

category of country-level variables to explain the bank's decision to syndicate a loan. Therefore, the second, third, fourth and fifth sets of estimations respectively consider the role of banking structure, financial development, banking regulation, and legal risk, on the syndicate structure. The last set of estimation includes all of the country level variables as a robustness check, as well as to investigate which country level factors are the most important determinant of syndicate design.

- Insert Table 2 about here -

Results are provided in table 2. All five regressions have satisfactory statistics in terms of likelihood ratio Chi-square statistic, as well as in terms of pseudo R², greater than 20% and 10% for equations (1) and (2) respectively.

Loan Size (in logarithm) is positive and significant in all regressions, suggesting as expected that larger syndicates, both in terms of total number of lenders and arrangers, form around larger loans in accordance with the motives of the diversification of loan portfolios and regulatory-driven issues (as in Lee and Mullineux, 2004 and Sufi, 2007). The coefficient of *Maturity* is significantly negative in all estimations of equation (1) and significantly positive in most of estimations of equation (2). This finding can be explained by the fact that greater maturity strengthens the moral hazard problem through higher monitoring costs of the loan as well as by a positive relationship between maturity and credit risk (Flannery, 1986; Agbanzo et al., 1998). This finding contrasts with prior literature on the USA market and advocates for the specificity of syndicate design in emerging markets.

Among the variables taking into account the reduction of the loan loss in case of default, we observe that *Senior Debt* is almost always negative and significant in all

estimations, while *Sponsors* is negatively and weakly related to the number of arrangers only. *Guarantors* and *Covenants* are significantly positive in most of estimations of equation (1).

Debt seniority seems to work as an effective protection device for all the lenders, leading to smaller syndicates and a lower number of arrangers. The presence of a sponsor involved in the funded project leads effectively to a smaller number of arrangers. The presence of a guarantor mitigates agency problems resulting from adverse selection, in line with the better information owned by the arranger on the borrower, leading to a larger syndicate. This result contrasts with Lee and Mullineux (2004) who find significant and negative relationship between syndicate size and secured loans. The restriction of discretionary power of the borrower through the presence of covenants effectively reduces the risk of loan default, and enhance the ability to monitor the borrower, thereby reducing the monitoring costs and leading to larger syndicates.

We also observe that borrower transparency, proxied with the existence of a senior debt rating by Standard and Poor's, has no impact on syndicate structure. This finding contrasts with the results obtained by Lee and Mullineux (2004) and Sufi (2007). This finding might be driven by the small number of borrowers being rated (less than 7%) or alternatively, by the fact that syndicate lenders, especially the arrangers, perform screening actions within a relationship based framework and external public information does not add supplementary elements to reduce borrower opaqueness. Finally, as expected, borrower presence is positively related to syndicate design¹⁷.

¹⁷ Performing our regressions omitting borrowers from Asia as this area account for 70% of our sample and might drive our main findings. A vast majority of the results obtained on a smaller sample (close to 3,200 observations) hold, with a slightly lower level of significance for the loan characteristics which proxy lender protection.

We now turn to the analysis of the country-level variables. The main finding is the significance of most variables. In other words, institutions matter for the syndicate structure. All kinds of institutions matter in the sense that we observe significant variables for legal risk, financial development, and banking structure and regulation.

Banking structure clearly matters for the syndicate structure in emerging markets. As expected, the cost level of the banking industry exerts a positive impact on the syndicate size, both in terms of total number of lenders and arrangers, as the coefficient of *Overheads* is significantly positive. The sharing of administration and origination costs encourages the formation of larger syndicates¹⁸. Concentration of the banking industry is negatively related to the number of lenders forming the syndicate. As expected, greater concentration lowers the number of potential participants to join and form a syndicate. Also, banks holding greater market shares already benefit from diverse loan portfolios and have little incentive to diversify further. The positive and significant sign for this factor in equation (2.2) can be explained by the necessity for arrangers to form a larger “core” of the syndicate to enhance monitoring of participants who benefit of a comfortable market power and therefore might have less incentive to perform their monitoring duties in an efficient way.

Furthermore, the development of bond markets reduces syndicate size as they are direct competitors to syndicated loans. Public bonds affect the number of arrangers only, which is consistent with the fact that syndicated loans often fund public large public

¹⁸ Let also note that the mean level of *Overheads* is relatively low in our sample (less than 5%), therefore larger syndicates do not necessarily imply more agency costs as the participating banks do not carry a burden of cost-inefficiency that would probably exacerbate the free-riding problems and inefficient monitoring.

companies as well as local administrations in emerging markets. The development of stock markets has no significant impact on syndicate structure¹⁹.

Specifications (1.4) and (2.4) display our results for banking regulation. The coefficient of *Mincar*Credit Risk* is in accordance with the positive influence of a capital requirement on the syndicate size in order to respect the lending limits, as a stronger requirement increases the impact of this motivation. The coefficient of *NPL Definition* is significant in both specifications but influences positively the number of lenders and negatively the number of arrangers. Such regulatory feature seems to enhance bank transparency, allowing forming a larger syndicate with fewer arrangers, as problems related to informational frictions regarding loans portfolio quality of participants are less important. Finally, the regulation on lending abroad positively impacts syndicate size, as such regulation reduces diversification opportunities for domestic banks and increase their “appetite” to fund a share of a syndicated loan while diversifying their portfolio.

The results with the legal environment variables are presented with the specifications (1.5) and (2.5). We observe that better creditor rights protection has a negative and significant influence on the number of lenders whereas it has a positive and significant impact on the number of arrangers. A better protection of creditors might reduce lenders’ incentives to monitor borrowers and consequently exacerbates free-riding problems, which can be tackled through an adapted syndicate structure of small size and a larger “core” of arrangers. Let also note that as the other creditors can benefit from such protection, monitoring of the borrower by the syndicate must increase to avoid inefficient

¹⁹ We also test alternative proxies for financial structure and legal risk. For instance, we replace *Stock Markets* with the ratio of private credit of financial institutions to GDP which can be considered as another proxy of the country’s financial structure development. Results from specifications (1.3) and (2.3) are robust to this replacement.

re-contracting in case of distress. Smaller syndicates with larger cores are more suitable for such task. As the quality of institutions increases (i.e. legal risk decreases), the number of arrangers diminishes as monitoring is more effective in such legal environment. This result is in accordance with the findings of Esty and Megginson (2003)²⁰.

- Insert Table 3 about here -

Finally, we perform a full estimation taking all of the proxies of country-level variables into account²¹. Results are displayed in table 3. Most of the coefficients remain very similar to those obtained in the regressions from table 2. Regarding individual loan characteristics, we observe that the presence of financial covenants have a positive and significant influence on both the number of lenders and of arrangers, while debt seniority is no longer significant for the total size of the syndicate. Bank costs affect positively arrangers only while bank market concentration reduces the number of lenders, according to the arguments already discussed previously. Private bond markets appear to be the only competitor of the syndicated loans market. Bank regulation significantly influences the syndicate design, both in terms of lenders and arrangers. Finally, legal risk proxied by the credit rights index, influences in a significant and positive manner the number of arrangers, according with Esty and Megginson (2003)²².

²⁰ Replacing *Rule of Law* with alternative proxies from La Porta et al. (1997, 1998) such as *Risk of Expropriation and Repudiation of Contracts* (defined as indexes, scaled from 0 to 10 with lower scores for higher risks, assessing the risk of “outright confiscation” or “forced nationalization” and of the “risk of a modification in a contract” respectively) does not affect our results, while these alternative proxies exhibit significant and consistent signs.

²¹ Due to significant correlations between country-level variables, we drop *Stock Markets*, *Mincar*Credit Risk* and *Syndicated Loan Issues* from the regressions.

²² We also perform all our regressions on a limited sample (less than 2,000 observations) taking borrower’s risk characteristics into account through balance sheet ratios from Compustat. Following Sufi (2007), we include the following ratios in our regressions : *Total Debt to Total Capital*, *Quick Ratio*, *Net Income to Total Assets*, and logarithm of *Total Assets*. The first two variables are borrower’s risk proxies and affect

5. Summary and conclusion

In this paper, we have investigated the determinants of the syndicate design by analyzing the role of loan characteristics following the study design of Lee and Mullineaux (2004) on US syndicated loans. Additionally, we examined institutional factors inspired by recent literature on the role of institutions on a bank's loan behavior (Esty and Megginson, 2003; Qian and Strahan, 2007).

Our main findings can be summarized as follows. First, we have provided evidence to explain the role of several loan characteristics in the structure of bank syndicates funding loans to borrowers from emerging markets.

Second, we have shown that institutions influence the syndicate structure. Indeed we undoubtedly found that banking structure, financial development, banking regulation, and legal environment exert an impact on the syndicate size.

Third, the observed impact of tested variables suggests the prominence of certain motives for the formation of syndicates with adapted structure. Syndicates are structured in order to minimize agency problems related to loan characteristics and country financial, regulatory and institutional environment. The numbers of lenders and arrangers increase with loan size but are not affected by borrower's transparency. The overall size of the syndicate increases with covenants and guarantor presence. It decreases with debt seniority as well as with loan maturity, while the latter positively affects the number of arrangers. More costly banking industry involves larger syndicates

mostly the number of arrangers in a consistent manner, with positive coefficients as riskier borrowers imply greater agency costs for the syndicate. The third variable proxy profitability and is positively related to the number of arrangers. The last variable allows to control for borrower size and has a positive and significant influence on the number of arrangers. Except the size, all other borrower's risk proxies variables do not have significant impact on the number of lenders. Our main results regarding the significance and the sign of the loan characteristics and country-level factors remain unaffected.

while more concentrated banking industry reduces the number of lenders. Financial development, in particular bonds markets, affects negatively the size of the syndicate. Bank capital and banking activities regulation, as well as loan portfolio transparency, have a positive impact on syndicate size. Finally, syndicates are structured in a consistent manner in order to mitigate legal risk. These main findings are robust to sample, proxy variables and estimation methods used in the regressions.

Overall, the structures of syndicates are adapted to enhance monitoring of the borrower and to increase the efficiency of re-contracting process in case of borrower's distress. Main syndication motives, such as loans portfolio diversification, regulatory pressure and management costs reduction, also influence syndicate structure in emerging markets.

Our analysis can be extended in a number of ways. An important input to understand syndication process would be to include borrowers and lenders characteristics into regressions explaining the syndication process (following Altunbas et al., 2006). Furthermore, the formation of syndicates, its heterogeneity and dynamics, as well as its dependence upon business cycles, industrial sectors and geographic areas, should be more deeply investigated. Ultimately, empirical knowledge regarding “who syndicates with whom” and the factors influencing this process should be empirically modelled, using more developed econometric techniques. Finally, due to its specific nature of mixed finance, merging relationship based and transaction based lending, a closer look at the advantages in terms of information production (hard versus soft) and the motivations and drawbacks of forming and entering into a syndicate should be performed, both within theoretical and empirical settings.

Appendix

- Insert Table A.1 about here -

- Insert Table A.2 about here -

- Insert Table A.3 about here -

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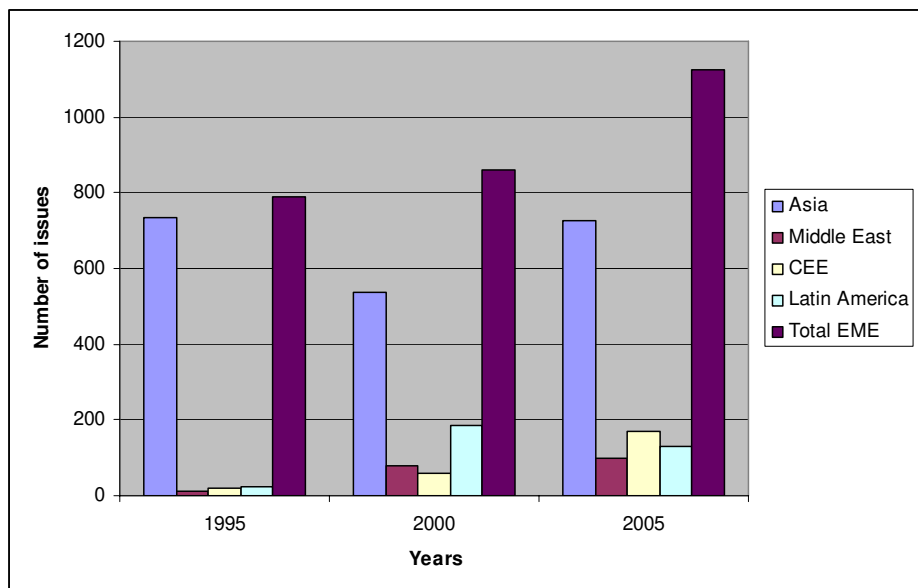
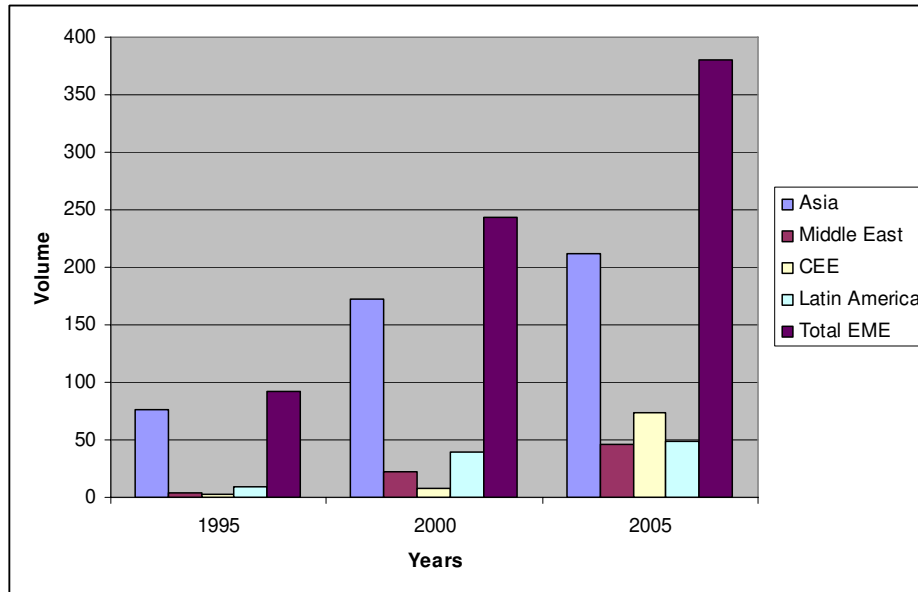


Figure 1 Evolution of syndicated loans volume (in billion USD) and syndicated loans issues from 1995 to 2005 in emerging markets economies (source: author calculations on Dealscan database).

CEE : Central and Eastern Europe, EME : Emerging Markets Economies.

Table 1 Descriptive statistics for the sample

The table below provides descriptive statistics computed on our dataset of loan facilities. Definition of variables appears in table A.1 in the appendix. Std.dev. : standard deviation, Min.: minimum, Max.: maximum.

Variable	Sample size	Mean	Std. dev.	Min.	Max
Number of Lenders	10,930	11.2983	8.1207	2.0000	78.0000
Number of Arrangers	8,747	3.0388	2.9404	1.0000	32.0000
Loan Size	10,930	206,929	903,528	0,022	81,078,450
Maturity	10,930	54.3310	39.1371	1.0000	600.0000
S&P Rating	10,930	0.0673	0.2506	0.0000	1.0000
Guarantors	10,930	0.0898	0.2858	0.0000	1.0000
Sponsors	10,930	0.0926	0.2899	0.0000	1.0000
Covenants	10,930	0.2436	0.4293	0.0000	1.0000
Senior Debt	10,930	0.5270	0.4993	0.0000	1.0000
Borrower Presence	10,930	5.0209	5.8614	1	36
Syndicated Loans Issues	10,930	795.7952	552.3781	9	1515
Overheads	10,207	0.0327	0.0217	0.0063	0.1418
Concentration	10,219	0.5610	0.1843	0.2493	1.0000
Stock Market	10,084	0.8976	1.0102	0.0021	4.9921
Private Bonds Market	8,646	0.1720	0.1524	0.0003	0.5570
Public Bonds Market	9,150	0.1563	0.1219	0.0033	0.5375
Credit Risk	9,127	0.1688	0.3746	0.0000	1.0000
Mincar	9,150	8.6874	1.3679	8.0000	12.0000
Solvency	8,699	0.7021	0.4573	0.0000	1.0000
NPL Definition	9,131	0.6746	0.4685	0.0000	1.0000
Abroad Loan Prohibited	9,150	0.4099	0.4919	0.0000	1.0000
Creditor Rights	8,724	2.7727	1.2614	0.0000	4.0000
Rule of Law	8,724	6.3505	1.8141	1.9000	8.5700

Table 2 Estimations (1/2)

Poisson regression results taking bank market structure, financial development, bank regulation and legal risk into account respectively. The dependent variables are *Number of Lenders* and *Number of Arrangers* (equations 1 and 2 respectively), equal to the number of lenders and arrangers forming the syndicate. Definitions of variables appear in table A.1 in the appendix. Dummy variables for loan type (Term and Revolver), loan purpose (General Corporate, Debt Repayment, Working Capital, Project Finance), benchmark rate (Libor, Euribor), year, region, industry sector, and loan facility active date are included in the regressions but are not reported. Robust standard errors clustered at the borrower level in brackets. ***, **, and * correspond to coefficients significantly different from zero at the 1%, 5%, and 10% level.

Specification	(1.1)	(2.1)	(1.2)	(2.2)	(1.3)	(2.3)	(1.4)	(2.4)	(1.5)	(2.5)
Endogenous variable	<i>Number of Lenders</i>	<i>Number of Arrangers</i>	<i>Number of Lenders</i>	<i>Number of Arrangers</i>	<i>Number of Lenders</i>	<i>Number of Arrangers</i>	<i>Number of Lenders</i>	<i>Number of Arrangers</i>	<i>Number of Lenders</i>	<i>Number of Arrangers</i>
Intercept	-5.3215*** (0.7539)	-6.7571*** (1.1282)	-5.2691*** (0.8655)	-7.0675*** (1.5027)	-3.2669*** (0.8318)	-7.0578*** (1.6453)	-5.1780*** (0.9069)	-6.8716*** (1.4572)	-5.0564*** (0.8321)	-6.9609*** (1.2306)
Log(Loan Size)	0.3368*** (0.0090)	0.3131*** (0.0148)	0.3463*** (0.0098)	0.3141*** (0.0153)	0.3524*** (0.0099)	0.3296*** (0.0169)	0.3420*** (0.0100)	0.2938*** (0.0164)	0.3525*** (0.0100)	0.3289*** (0.0166)
Maturity	-0.0015*** (0.0003)	0.0010** (0.0004)	-0.0015*** (0.0003)	0.0013*** (0.0004)	-0.0012*** (0.0003)	0.0007 (0.0004)	-0.0016*** (0.0003)	0.0011*** (0.0004)	-0.0010*** (0.0003)	0.0011** (0.0004)
S&P Rating	0.0186 (0.0279)	0.0585 (0.0490)	0.0064 (0.0286)	0.0625 (0.0503)	-0.0181 (0.0267)	0.0674 (0.0515)	0.0200 (0.0314)	0.0803 (0.0550)	0.0073 (0.0298)	0.0573 (0.0523)
Guarantors	0.0466** (0.0218)	0.0068 (0.0380)	0.0489** (0.0231)	-0.0052 (0.0387)	0.0467** (0.0238)	-0.0271 (0.0425)	0.0638*** (0.0231)	-0.0052 (0.0401)	0.0327 (0.0250)	-0.0029 (0.0431)
Sponsors	0.0050 (0.0264)	-0.0729* (0.0421)	-0.0021 (0.0275)	-0.0757* (0.0420)	-0.0253 (0.0269)	-0.0614 (0.0468)	-0.0004 (0.0289)	-0.0854** (0.0431)	-0.0253 (0.0288)	-0.0708 (0.0468)
Covenants	0.0554** (0.0246)	-0.0246 (0.0429)	0.0426* (0.0195)	-0.0216 (0.0430)	0.0671** (0.0259)	-0.0248 (0.0483)	0.0442* (0.0264)	0.0641 (0.0433)	0.0572** (0.0285)	0.0214 (0.0473)
Senior Debt	-0.1147*** (0.0321)	-0.1598*** (0.0572)	-0.1164*** (0.03456)	-0.1475** (0.0575)	-0.0344 (0.0358)	-0.1924*** (0.0652)	-0.0976*** (0.0346)	-0.1137** (0.0597)	-0.1444*** (0.0398)	-0.2197*** (0.0673)
Borrower Presence	0.0045** (0.0019)	0.0097*** (0.0033)	0.0041** (0.0020)	0.0104*** (0.0033)	0.0053** (0.0022)	0.0102*** (0.0036)	0.0059*** (0.0019)	0.0081** (0.0033)	0.0039** (0.0019)	0.0090*** (0.0033)
Syndicated Loans Issues	0.0001** (0.0001)	0.0001** (0.0001)	0.0000 (0.0001)	0.0001* (0.0001)	0.0002*** (0.0001)	0.0001 (0.0001)	-	-	0.0000 (0.0001)	0.0002*** (0.0001)

(Table 2 continued)

Specification	(1.1)	(2.1)	(1.2)	(2.2)	(1.3)	(2.3)	(1.4)	(2.4)	(1.5)	(2.5)
Endogenous variable	<i>Number of Lenders</i>	<i>Number of Arrangers</i>	<i>Number of Lenders</i>	<i>Number of Arrangers</i>	<i>Number of Lenders</i>	<i>Number of Arrangers</i>	<i>Number of Lenders</i>	<i>Number of Arrangers</i>	<i>Number of Lenders</i>	<i>Number of Arrangers</i>
Overheads	-	-	2.4280*** (0.6556)	4.6426*** (0.7956)	-	-	-	-	-	-
Concentration	-	-	-0.1430*** (0.0519)	0.2115** (0.0836)	-	-	-	-	-	-
Stock Markets	-	-	-	-	-0.0072 (0.0094)	0.0177 (0.0166)	-	-	-	-
Private Bond Markets	-	-	-	-	-0.6745*** (0.0822)	-0.0615 (0.1403)	-	-	-	-
Public Bond Markets	-	-	-	-	0.1332 (0.1120)	-0.5598*** (0.1771)	-	-	-	-
Mincar*Credit Risk	-	-	-	-	-	-	0.0058* (0.0034)	-0.0023 (0.0048)	-	-
NPL Definition	-	-	-	-	-	-	0.1757*** (0.0212)	-0.1441*** (0.0354)	-	-
Abroad Loan Prohibited	-	-	-	-	-	-	0.1271*** (0.0220)	0.0249 (0.0365)	-	-
Creditor Rights	-	-	-	-	-	-	-	-	-0.0252** (0.0105)	0.0750*** (0.0177)
Rule of Law	-	-	-	-	-	-	-	-	-0.0017 (0.0067)	-0.0447*** (0.0095)
N	10,930	8,747	10,207	8,342	8,376	7,101	9,108	7,265	8,724	7,144
LR Chi2	22,159.64***	5,022.06***	21,551.19***	5,039.51***	14,575.64***	3,955.59***	19,476.18***	3,974.18***	18,803.15***	4,227.11***
Pseudo R ²	0.2242	0.1192	0.2323	0.1253	0.2106	0.1189	0.2358	0.1168	0.2403	0.1252

Table 3 Estimations (2/2)

Poisson regression results taking all of country-level variables into account (due to significant correlations, some of the country-level variables are dropped).. The dependent variables are *Number of Lenders* and *Number of Arrangers* (equations 1 and 2 respectively), equal to the number of lenders and arrangers forming the syndicate. Definitions of variables appear in table A.1 in the appendix. Dummy variables for loan type (Term and Revolver), loan purpose (General Corporate, Debt Repayment, Working Capital, Project Finance), benchmark rate (Libor, Euribor), year, region, industry sector, and loan facility active date are included in the regressions but are not reported. Robust standard errors clustered at the borrower level in brackets. ***, **, and * correspond to coefficients significantly different from zero at the 1%, 5%, and 10% level.

Specification	(1.6)	(2.6)
Endogenous variable	Number of Lenders	Number of Arrangers
Intercept	-1.013 (1.0335)	-7.0200*** (1.8680)
Log(Loan Size)	0.3583*** (0.0127)	0.3152*** (0.0197)
Maturity	-0.0009*** (0.0003)	0.0010*** (0.0004)
S&P Rating	-0.0196 (0.0316)	0.0863 (0.0621)
Guarantors	0.0629** (0.0280)	-0.0339 (0.0489)
Sponsors	-0.0316 (0.0331)	-0.0534 (0.0493)
Covenants	0.0655** (0.0291)	0.1263*** (0.0487)
Senior Debt	-0.0515 (0.0425)	-0.1821** (0.0757)
Borrower Presence	0.0059** (0.0023)	0.0040 (0.0036)
Overheads	-2.5744 (1.3878)	5.1474*** (1.4067)
Concentration	-0.1899** (0.0800)	-0.2265 (0.1227)
Private Bond Markets	-0.4844*** (0.1333)	-1.1272*** (0.2668)
Public Bond Markets	-0.1576 (0.1375)	-0.2528 (0.1942)
NPL Definition	0.2186*** (0.0526)	-0.6026*** (0.0941)
Abroad Loan Prohibited	0.2044*** (0.0342)	-0.1151** (0.0543)
Creditor Rights	0.0059 (0.0142)	0.0624** (0.0256)
Rule of Law	-0.0114 (0.0103)	0.0326 (0.0178)
N	6,028	5,051
LR Chi2	10,341.07***	3,030.53***
Pseudo R ²	0.2114	0.1318

Table A.1 Frequencies of loan facilities by country

The table below provides frequencies (N) of loan facilities by country for the full sample.

Country	N	Country	N
United Arab Emirates	62	Latvia	23
Argentina	208	Mexico	429
Azerbaijan	14	Malaysia	314
Bulgaria	26	Oman	40
Bahrain	61	Pakistan	38
Brazil	278	Panama	38
Chile	211	Peru	47
China	661	Philippines	219
Colombia	75	Poland	119
Czech Republic	72	Qatar	37
Egypt	66	Romania	44
Estonia	19	Russia	313
Guatemala	18	Saudi Arabia	64
Hong Kong	1,372	Singapore	366
Croatia	58	El Salvador	11
Hungary	133	Slovakia	40
Indonesia	790	Slovenia	62
India	404	Thailand	582
Iran	24	Trinidad and Tobago	13
Israel	28	Turkey	344
Kazakhstan	85	Taiwan	1,515
Korea	1,42	Ukraine	35
Kuwait	40	Uruguay	9
Sri Lanka	9	Venezuela	53
Lithuania	15	Vietnam	26
		Total	10,930

Table A.2 Brief description of all variables and their sources

Variable	Description	Source
Loan contract characteristics		
Number of Lenders	Number of lenders in the syndicate.	Dealscan
Number of Arrangers	Number of arrangers in the syndicate.	Dealscan
Loan Size	Size of the loan in million USD.	Dealscan
Maturity	Maturity of the loan in months	Dealscan
S&P Rating	=1 if the borrower has a senior debt rating by Standard & Poor's	
Guarantors	=1 if there is at least one guarantor	Dealscan
Covenants	=1 if the loan agreement includes covenants	Dealscan
Senior Debt	=1 if debt is senior	Dealscan
Borrower Presence	Number of times a particular borrower is present in the sample	Dealscan
Control variables		
Term Loan	=1 if the loan is a term loan	Dealscan
Revolver	=1 if the loan is a revolving bank facility	Dealscan
Corporate Purposes	=1 if the loan purpose is general corporate purposes funding	Dealscan
Debt Repayment	=1 if the loan purpose is debt repayment funding	Dealscan
Working Capital	=1 if the loan purpose is working capital funding	Dealscan
Project Finance	=1 if the loan purpose is project finance funding	Dealscan
Libor	=1 if the benchmark rate is Libor	Dealscan
Euribor	=1 if the benchmark rate is Euribor	Dealscan
Country characteristics		
Syndicated Loan Issues	Number of syndicated loan facilities in a particular country	Dealscan
Overheads	Ratio of banking overhead costs to total banking assets	Beck et al. (2000)
Concentration	Assets of the three largest banks as a share of total banking assets	Beck et al. (2000)
Stock Markets	Value of listed shares to GDP	Beck et al. (2000)
Private Bond Markets	Public domestic debt securities to GDP	Beck et al. (2000)
Public Bond Markets	Private domestic debt securities to GDP	Beck et al. (2000)
Mincar	Minimum capital requirement value	Barth et al. (2005)
Credit Risk	=1 if the minimum regulatory capital ratio varies with bank credit risk	Barth et al. (2005)
NPL Definition	=1 if a formal definition of non-performing loans exists	Barth et al. (2005)
Abroad Loan Prohibited	=1 if banks are prohibited from granting loans abroad	Barth et al. (2005)
Creditor rights	An index aggregating four aspects of creditor rights. The index ranges from zero (weak creditor rights) to four (strong creditor rights)	La Porta et al. (1998)
Rule of Law	An index indicating the law enforcement. The index ranges from zero (weak enforcement) to ten (strong enforcement)	La Porta et al. (1998)

Table A.3 Loan and country characteristics variables correlation coefficients

	Loan size	Maturity	S&P Rating	Guarantors	Sponsors	Covenants	Senior Debt	Borrower Presence
Loan size	1.00							
Maturity	0.13***	1.00						
S&P Rating	0.01	0.02	1.00					
Guarantors	-0.00	-0.03**	-0.05***	1.00				
Sponsors	-0.01	-0.01	-0.02**	-0.04***	1.00			
Covenants	0.03***	0.04***	0.01	-0.02*	0.00	1.00		
Senior Debt	0.06***	-0.03***	0.03***	-0.03***	0.02*	0.46***	1.00	
Borrower Presence	0.03***	-0.06***	0.01	-0.00	0.01	0.01	0.01	1.00

	Syndicated Loan Issues	Overheads	Concentration	Stock Markets	Private Bond Markets	Public Bond Markets	Abroad Loan Prohibited	Mincar	Credit Risk	NPL Definition	Creditor Rights	Rule of Law
Syndicated Loan Issues	1.00											
Overheads	-0.39***	1.00										
Concentration	-0.29***	0.05***	1.00									
Stock Markets	0.44***	-0.12***	0.20***	1.00								
Private Bond Markets	0.55***	-0.36***	-0.45***	0.15***	1.00							
Public Bond Markets	-0.29***	0.08***	-0.22***	-0.06***	0.22***	1.00						
Abroad Loan Prohibited	0.89***	-0.37***	-0.44***	0.12***	0.51***	-0.19***	1.00					
Mincar	-0.45***	0.37***	0.17***	0.09***	-0.18***	0.14***	-0.42***	1.00				
Credit Risk	-0.40***	0.51***	0.21***	-0.24***	-0.38***	0.16***	-0.36***	0.03***	1.00			
NPL Definition	-0.21***	0.04***	-0.10***	0.40***	-0.37***	0.31***	-0.11***	0.13***	-0.02**	1.00		
Creditor Rights	0.23***	-0.48***	0.34***	0.40***	0.09***	-0.28***	0.20***	-0.14***	-0.66***	-0.11***	1.00	
Rule of Law	0.53***	-0.29***	0.03***	0.67***	0.29***	0.08***	0.17***	0.12***	-0.32***	0.25***	0.15***	1.00

***, **, and * correspond to coefficients significantly different from zero at the 1%, 5%, and 10% level.