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Syndicated Loans in Emerging Markets

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Abstract

There has been a considerable expansion of the volume of syndicated loans in emerging markets in the recent years. We provide the first analysis of the determinants of the decision of banks to syndicate a loan on a sample of loan facilities from 50 emerging countries. We show the significant role of loan characteristics and of financial development, banking regulation, and legal institutions, on the decision to syndicate a loan. We support the efforts of authorities to increase banking competition and efficiency, and to implement binding banking regulation on capital requirement to promote the expansion of syndicated loans.

JEL Codes : G21, C25.

Keywords : Bank, Loan, Syndication, Emerging Markets, Logit Regressions.

I. Introduction

In recent years the volume of syndicated loans in emerging markets has considerably grown from 9,343 billion dollars in 1992 to 251,019 billion USD in 2004.[1] Today, syndicated loans represent an important source of external finance in emerging markets, corresponding in 2004, to more than 10% of the private credit of financial institutions in Malaysia, and more than 18% in Mexico.[2]

A syndicated loan is a loan for which at least two banks jointly grant funds to a borrower. In a nutshell, a lead bank establishes a relationship with the borrower and negotiates the terms of the loan agreement. This bank then finds participant banks which grant a share of the loan, receiving fees for this activity. There is consequently one single loan agreement in which each member bank of the syndicate owns a separate claim on the debtor.

Banks can have several motivations to syndicate loans. First, syndication allows the diversification of loan portfolios. Second, it avoids excessive single-name exposure which can be prohibited by banking regulation, by still preserving the commercial relationship with the borrower. Third, it generates fee income for the lead bank, which can then diversify its income sources. Fourth, it allows banks suffering from a lack of origination capabilities in certain types of transactions to fund loans.

These motivations should however be put into perspective with the potential agency problems generated by syndicated loans. Indeed there exists an adverse selection problem as the lead bank, owning information unavailable to the participants, may syndicate loans with the less favorable information. Furthermore a moral hazard problem arises from the fact that all participating banks have fewer incentives for monitoring than one bank granting the full loan (Pennacchi, 1988).

Some potential benefits also exist for the borrowers. Indeed, according to Allen (1990) and Altunbas and Gadanecz (2004), syndicated loans are less costly than issued bonds in terms of origination fees, and than a series of bilateral loan agreements in terms

[1] These figures are based on computations from the authors on the Dealscan database. They are presented in table 1.

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

of spread. Furthermore, in comparison to bonds, syndicated loans can be arranged more quickly and more discreetly than bonds.

The benefits of syndicated loans for banks and borrowers show that their expansion is important for economic development on emerging markets. On the one hand, this expansion contributes to enhance the sources of external finance and consequently favors investment in emerging countries. Because of the low development of financial markets in these countries, bonds are a limited alternative to bank loans for firms requesting large loans. Additionally, syndicated loans allow circumvention of bank's lending limits. Moreover, if syndicated loans reduce the cost of borrowed funds, they also contribute to favor the financing of companies. On the other hand, 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.

Consequently, the expansion of syndicated loans contributes to the economic development of emerging countries, by encouraging financial development, which has been shown to favor growth (e.g. Levine, 2005 for a survey) and by reducing financial instability.

It is therefore of utmost interest to identify the determinants of a bank's decision to syndicate a loan. Indeed, these determinants provide policy-oriented advice for the authorities in favor of the expansion of syndicated loans, and therefore in favor of financial development and stability. These determinants also help explain the recent expansion of syndicated loans in emerging markets.

Former empirical literature on syndicated loans is relatively scarce, in spite of their recent boom following the generalized use of databases on syndicated loans. Most studies however focus on another issue: identifying the size and composition determinants of loan syndicates, all on developed economies. Nonetheless, three studies can be partly related to ours. Dennis and Mullineaux (2000) study the determinants of the decision to syndicate a loan with a sample of US loans. They support the positive role of several factors in this decision, with notably those related to the transparency of the borrower and the maturity of the loan. Furthermore two papers investigate syndicated loans issues for

emerging markets. While Nini (2004) examines the participation of local bank in loan syndicates, Altunbas and Gadanecz (2004) study the determinants of loan pricing for syndicated loans.

Our paper is therefore the first research identifying the factors that comprise a bank's decision to syndicate a loan in emerging markets. With this goal, we will test the role of several loan characteristics along the lines of Dennis and Mullineaux (2000). However, we will investigate the role of country-level variables for legal environment, financial development and banking regulation, thereby extending their analysis. Indeed, there is substantial evidence that institutional framework plays a role in bank behavior (e.g. Qian and Strahan, 2007), which suggests the potential role of these country-level variables.

The rest of the article is structured as follows. Section 2 presents some features for the loan syndication process and the syndicated market in emerging economies. Section 3 discusses the tested determinants of the decision to syndicate the loan. Section 4 presents data and variables, and section 5 displays the results. Section 6 provides our conclusion.

II. Loan syndication in emerging markets

This section explains how the loan syndication process is implemented in the first subsection, and highlights features of syndicated loans in emerging markets in the second subsection.

II.1 The loan syndication process

Bank loan syndication can be considered as a sequential process, which in turn can be separated into three phases[3]. During the pre-mandate phase, the borrower solicits competitive offers from banks to arrange and manage the syndication. It then chooses a lead bank, which is mandated to form a syndicate, and negotiates a preliminary loan agreement. The lead bank 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, interest calculation, and covenant enforcement.

[3] See Esty (2001) for a detailed presentation of syndication.

During the post-mandate phase, the lead bank begins the syndication process by drafting a preliminary loan contract, preparing a documentation package for the potential syndicate members, and also inviting them to participate. The borrower and the lead bank jointly produce an information memorandum for the potential participants, i.e. the banks which might join the syndicate by funding a share of the loan. The memorandum usually contains information about borrower creditworthiness and the loan terms. A roadshow is then organized to present and discuss the content of the memorandum during which the participants can influence the loan characteristics.

After the roadshow, the lead bank makes formal invitations to potential participants. The lead bank, trying to avoid over-subscription and under-subscription, tends to target participants with the “largest appetite” for the loan, making invitations to banks willing to supply the most funds, given the structure of the loan. Then the lead bank determines loan allocation for each participant bank. In the case of over-subscription, the borrower may choose a larger loan or the lead bank can scale back allocations. If the syndication is under-subscribed, the lead bank must either make up the difference or change loan terms and re-market the deal.

The third and last phase takes place after completion. The loan becomes operational, binding the borrower and the syndicate members by the debt contract.

Lender compensation comes in several forms. When the loan agreement is signed, lenders receive closing fees to compensate them for the credit approval. While the lead bank earns an arrangement fee, participant banks may expect to receive a participation fee for joining the syndicate, the actual size of which may vary in accordance with the size of the commitment. Once credit is established and as long as it is not drawn, the syndicate members often receive a facility fee proportional to their commitment. As soon as the facility is drawn, the borrower may have to pay a per annum fee, usually to cover the costs of administering the loan.

II.2 Syndication in emerging markets

Figures on the markets for syndicated loans in emerging markets from 1992 to 2004 are displayed in table 1. We distinguish four geographical areas: Asia, Central and Eastern Europe, Middle East, Latin America.

We observe an impressive increase of the volume of syndicated loans from 1992 to 2004, even considering the reduction after 2000. Surprisingly, after 1996, the number of issues has been halved and since, remained stable. These both trends suggest that the mean amount of the syndicated loan should have considerably increased since 1996.

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 for Central and Eastern Europe.

III. Factors affecting the decision to syndicate a loan

This paper investigates the factors that influence a bank's decision to syndicate a loan. We estimate a logit model in which the explained variable is a dummy variable equal to one if the loan is syndicated and zero else (*Syndicated*). We next discuss the explaining variables of the model.

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 by reducing its implication in large loans and of sources of income with fee income obtained, the enforcement of the lending limits, the possibility for some banks suffering from a lack of origination capacities in certain types of transactions to participate to certain types of loans.

Like all bank loans, syndicated loans involve potential agency problems between the borrower and the lenders. However they also allow for specific agency problems between the member banks of the syndicate resulting from the loan syndicate structure. The importance of these latter agency problems exerts consequently an impact on the decision to syndicate a loan. Syndicated loans generate two specific agency problems. First, the lead bank possesses more information about the borrower either because of the

private information collected through a previous lending relationship, involving screening and monitoring efforts, or through due diligence. This private information creates an adverse selection problem, as the lead bank may be inclined to syndicate loans from bad borrowers. However, such opportunistic behavior generates reputation risk for the lead bank and affects negatively the success of future syndications (Pichler and Wilhelm, 2001).

Second, the participant banks delegate some monitoring tasks to the lead bank in charge of the loan documentation and notably of the enforcement of covenants and collateral. Nonetheless, the lead bank has less incentive to monitor the borrower than if it were to lend the full amount of the loan (Pennacchi, 1988). As the efforts of the lead bank are unobservable for participant banks, this results in a moral hazard problem, which is exacerbated with the opacity of the borrower.

Therefore, the factors that influence the syndicate decision are expected to be those which banks believe will modify the benefits and costs of syndicated loans. These factors are loan characteristics but they can also be country-level variables taking the institutional framework into account.

III.1 Loan characteristics

We first test the role of several loan characteristics which might impact the decision to syndicate a loan. Increased loan size (*Loan Size*) is expected to positively influence the decision to syndicate a loan. Indeed, the motives to diversify loan portfolios and to be in accordance with regulation are more likely to play a role for larger loans.

Maturity of the loan (*Maturity*) is also considered, although whether it plays a positive or negative role is ambiguous. On one hand, 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 reduces the attractiveness of the deal for participant banks, resulting in an overall negative impact on the decision to syndicate a loan. On the other hand, greater maturity is generally associated with a greater risk of loan default, which incites the lead bank to syndicate the loan for the diversification motive.

We test several characteristics which provide lending banks with better protection in case of loan default and thus reduce loan loss. Such characteristics are expected to exert a role on the syndication decision 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 not available for one third of our observations, its inclusion in the estimations would have considerably reduced our sample.[4]

We instead include two other variables, which describe the increased protection of the lending banks in case of loan default. We 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 lead bank 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. Such loans might be more difficult to syndicate owing to the potential difficulty faced by the lead bank when finding participating banks. We therefore expect a negative coefficient for this variable.

We also take debt seniority (*Senior Debt*) into account through a dummy variable equal to one if the debt is senior. Although debt seniority constitutes an additional protection for the lending banks in the case of loan default, its impact is ambiguous. If it works as an effective protection for the lenders, it should enhance the potential of syndication. But if the seniority does not apply equally to all syndicate members, its influence can be negative. Similarly, the "observed-risk hypothesis" also suggests a

[4] We performed estimations with this variable with a reduced sample and found no significant coefficient for the presence of collateral. Lack of information for this variable, added to the non-significance of this coefficient, caused us drop this variable from our estimations.

negative impact on this variable, 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 the decision to syndicate the loan since they mitigate 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 (*S&P Rating*) on a bank's decision to syndicate a loan, we include in our regressions a dummy variable, 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. This problem results from information asymmetries between the lead bank and the participant banks regarding the borrower, and consequently favors the decision to syndicate a loan.

We also consider the type and the purpose of the loan through the inclusion of dummy variables. Indeed, these characteristics might influence the decision to syndicate a loan. Therefore, we include two dummy variables for the loan type, which describe whether the loan is a term loan, or a revolving bank facility. Furthermore, we include four dummy variables to describe the purpose of the loan, including general corporate purposes, debt repayment, project finance, or working capital. We do not provide variables for other types and purposes in our regressions, since they represent less than 5% of our sample. Finally, dummy variables taking year, geographical area and industry into account are included in the estimations.

III.2 Country-level variables

We now turn to country-level variables which may be influential in the decision to syndicate a loan. Indeed, Esty and Megginson (2003) and Nini (2004) have pointed out that institutional factors might influence the syndication process in emerging markets. Therefore, we also test the role of the legal environment, financial development, and banking regulation.

Our first category of country-level variables examines the role of financial development. *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 loan syndication. 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 will have on the decision to syndicate a loan. First, a greater concentration means a lower number of potential participants to join and form a syndicate. Second, banks with greater market shares in a banking industry already benefit from diverse 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 thanks to stronger market power.

We also add two variables which take into account the development of financial markets. *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 domestic debt securities to GDP (*Bond Markets*), as 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. Consequently, the expected sign of the development of financial markets is ambiguous.

Our second category of country-level variables is for banking regulation. We first construct the variable *Mincar*CreditRisk*, 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 decision to syndicate a loan 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.

Solvency is a dummy variable equal to one if the regulation establishes pre-determined levels of solvency deterioration which forces automatic regulatory actions. Since syndicating the loan can help avoid the threat of regulatory intervention in the case of disregarded solvency levels (as long as the regulation is binding), we expect a positive sign for the coefficient. A similar supervisory feature is introduced through *NPL Definition*, a dummy variable equal to one if a formal definition of non performing loans exists.

Asset diversification guidelines (*Asset Diversification,* a dummy equal to one if such guidelines exist) should positively influence the syndication process since they foster motivation for the diversification of loan portfolios. The regulations on lending abroad should also impact a bank's decision to syndicate a loan, 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), legal institutions may exert a role on the decision to syndicate a loan. The most obvious channel of this impact should be through the agency problems that syndicated loans induce.

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. On one hand, we may expect a positive coefficient, as a 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. On the other hand, 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.

IV. Data and variables

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 the database "A New Database on Financial Development and Structure" provided by Beck et al. (2000), while data on banking regulation come from the database "Bank Regulation and Supervision" compiled by Barth et al. (2005). Indicators of legal environment come from La Porta et al. (1998).

The sample size is determined by information availability on the variables used in the regressions. Following Dennis and Mullineaux (2000) and Lee and Mullineaux (2004), we use only completed and fully confirmed deals, excluding private placements. We therefore have a sample of 13,941 loan facilities from 50 emerging countries for the period between 1990 and 2006. The frequencies of loan facilities by country are displayed in table 2. Following our focus on emerging countries, syndicated loans come from 4 geographical areas, Asia, Latin America, Central and Eastern Europe, and Middle East, which account respectively for 75.98%, 8.88%, 8.74%, 6.41% 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 3 lists descriptive statistics for the variables. Appendix A.1 provides their definitions. We observe that 73.95% of loans are syndicated, which is in accordance with the coverage of the Dealscan database on large loans. The loan size confirms this fact with a mean of 200.96 million USD. We observe that syndicated loans are larger than non-syndicated loans, with respective means of 217,70 and 153,44 billion USD. Both facilities do not differ for maturity, as the mean maturity is almost the same (54 months).

The covenants are only included in one quarter of loan contracts, with a far greater inclusion for syndicated loans (25.41% vs. 2.22%). The presence of guarantors is scarcer, being observed in only 8.67% of loan contracts with very similar means for both categories of loans. Furthermore, non-syndicated loans are more commonly senior debt for the lenders than syndicated loans (74.94% vs. 54.63%). These preliminary observations on these three latter variables are particularly interesting. Indeed, all three

were expected to have a similar positive influence on the decision to syndicate a loan by reducing potential loan loss in the case of default, while this first glance does not support this view.

V. Results

In this section, we will present our results. Our study explains the factors of the decision to syndicate a loan. We perform four logit regressions, with varying combinations of tested factors.

All regressions include the loan characteristics. However, we test alternatively the role of the three categories of country-level variables. Namely, while the first regression does not include any country-level variable, the three following regressions alternatively add one category of country-level variables to explain the bank's decision to syndicate a loan. Therefore, the second, third and fourth estimations respectively consider the role of financial development, banking regulation, and legal institutions, on the decision to syndicate a loan. All four regressions have satisfactory statistics in terms of likelihood ratio and Hosmer & Lemeshow statistic, as well as in terms of classification power, equal to 85% at least.

Our two first major findings are the significant impact of most loan characteristics, and their robustness on any tested combination of determinants. *Loan Size* is positive and significant in all regressions, suggesting as expected that larger loans are more likely to be syndicated in accordance with the motives of the diversification of loan portfolios and of the regulatory-driven issues. The coefficient of *Maturity* is significantly negative in all estimations. This finding can be explained by the fact that greater maturity strengthens the moral hazard problem through higher monitoring costs of the loan.

Among the three variables taking into account the reduction of the loan loss in case of default, we observe that only *Guarantors* is not significant in all estimations. We explain this finding by the compensation between two opposite influences: the reduction of the agency problems, and the association between this element and a greater risk of the borrower. Unlike the presence of a guarantor, the presence of covenants in the loan agreement matters as we observe a positive and significant sign for *Covenants* in all

estimations. This supports the view that *Covenants* contribute to mitigate the agency problems associated with syndicated loans.

Oppositely, debt seniority plays a negative role in the decision to syndicate a loan. This finding may result from the fact that the rank of seniority does not apply homogenously for all member banks of the syndicate and might concern only the lead bank. This would result in making syndication less attractive for participant banks and thus limit the possibility to syndicate a loan. It is therefore of utmost interest to observe that, among the three variables reducing loan loss in the event of default, only the presence of covenants exerts a positive influence on the decision to syndicate the loan.

Finally, the positive sign of *S&P Rating*, significant in three estimations, is in accordance with the fact that publicly available information favors the decision to syndicate a loan. Such information mitigates the adverse selection problem results from the better information possessed by the lead bank on the borrower.

We can compare some of our findings with those from Dennis and Mullineaux (2000). Both studies differ on the type of countries analyzed (these authors study the USA, while we investigate emerging countries), but also on the tested determinants. Nevertheless, three of our determinants were also tested in this study to explain the decision to syndicate a loan: the size of the loan, the maturity of the loan, and the availability of public information through the existence of bond ratings.

Our results are similar to those of Dennis and Mullineaux (2000) for the presence of a bond rating and for the size of the loan. They also find a positive impact of these determinants on the syndicate decision. However we disagree on the sign of the maturity. Indeed, they observe that the probability of loan syndication increases with maturity of the loan while we conclude the opposite. This difference in findings may be explained by the differences between the countries studied.

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 decision to syndicate a loan. All kinds of institutions matter in the sense that we observe significant variables for legal development, financial development, and banking regulation.

Estimation (2) in table 3 presents findings for financial development variables. Financial development clearly matters for the decision to syndicate a loan, as all tested

variables are significant at the 1% level. The cost level of the banking industry exerts a negative impact on the syndicate decision, as the coefficient of *Overheads* is significantly negative. This finding was not expected since greater costs were supposed to increase a bank's motivation to syndicate a loan. An interpretation of this finding may come from the fact that as cost inefficient banks have on average weaker managerial skills, their managers may be more reluctant to benefit from the opportunities allowed by syndicated loans. Concentration of the banking industry hampers as expected the probability for a loan to be syndicated. A concentrated industry means fewer potential participants at the local level to join a syndicate and also fewer incentives for banks to diversify their loan portfolios, since their larger market shares contribute to diversification.

Furthermore, the development of stock and bond markets reduces the probability of syndicating a loan, as *Stock Markets* and *Bond Markets* have both a significantly negative coefficient. We explain this sign through the competing role of financial markets on syndicated loans. Indeed the potential market for syndicated loans is comprised of large financing needs which can generally be financed also by financial markets. Therefore, a greater degree of development of financial markets reduces the volume of loans which can potentially be syndicated by banks. As a consequence, it hampers the decision to syndicate a loan, as among the financing needs which are not financed by financial markets, there are fewer loans which could potentially be syndicated by banks.

Regression (3) displays the findings for banking regulation variables in table 5. All have a significant influence on the decision to syndicate a loan. The three variables in connection with the lending limits have all the expected influence on this decision. Namely, the positive and significant coefficient of *Mincar*CreditRisk* is in accordance with the positive influence of a capital requirement on the syndicate decision in order to respect the lending limits, as a stronger requirement increases the impact of this motivation to syndicate loans. Similarly, following the positive and significant sign of *Solvency* and *NPL Definition*, the presence of a regulation establishing predetermined levels of solvency deterioration or a formal definition of non-performing loans favors the decision to syndicate a loan.

Although both variables were expected to exert an impact through the diversification motive, their influence is inconsistent with our predictions. Indeed we

observe that the presence of asset diversification guidelines which were supposed to foster the motive of diversification for banks has a negative influence on the decision to syndicate a loan. Finally, the existence of regulations reducing the diversification opportunities for domestic banks does not exert a significant impact on the decision to syndicate a loan, in accordance with the lack of significance of *Abroad Loans Prohibited*. From these results on the five variables for banking regulation emerge interesting conclusions for syndicated loans in emerging markets. Indeed, the lending limits motive seems to matter more than the diversification motive.

Lastly, the results with the legal environment variables are presented with the regression (4) in table 5. We observe that both variables are significantly negative, meaning that greater protection of creditor rights and stronger law enforcement hamper the decision to syndicate a loan. This may seem surprising at first glance. We might indeed have expected that better-protected creditors would participate more willingly in a loan syndicate. However we must remember that we are not explaining the volume of syndicated loans but rather the decision to syndicate a loan. The alternative to syndicate a loan is to grant a non-syndicated loan. Therefore, as all types of loans are favored by better protection of creditors, there is no straightforward reason why this latter element should foster loan syndication.

Greater creditor protection weakens the diversification argument for use of a syndicated – rather than normal – loan and therefore provides a negative influence. This is the obvious motivation behind risk-sharing. This enhanced protection allows banks to increase risk exposure while protecting against excessive loan loss.

Our main findings can be summarized as follows. First, we have provided evidence to explain the role of several loan characteristics in the decision to syndicate a loan, helping illuminate the decision to syndicate a loan at the bank level.

Second, we have shown that institutions influence the decision to syndicate a loan. Indeed we undoubtedly found that financial development, banking regulation, and legal environment exert an impact on this decision. Therefore, the cross-country differences in the expansion of syndicated loans may be explained by cross-country differences in institutional framework.

Third, the observed impact of tested variables suggests the prominence of certain motives for the use of syndicated loans. Namely, all variables associated with the motive of respecting lending limits have expected signs in accordance with this motive. The motive of diversification appears to play a smaller role for the syndicate decision, as the impact of country-level variables with connections to this motive is not consistent in sign. The agency problems implied by syndicated loans seem to matter in the decision to syndicate a loan, but not as much as expected. This remark is based on the fact that only one among the three tested variables contributing to increase lender protection in case of loan default exerts a positive influence on the loan syndication. A more thorough analysis would be needed to conclude the hierarchy of the motives of the syndicated loans.

Fourth, our findings on the role of the institutional factors provide useful insights for authorities wishing to favor syndicated loans, owing to the associated benefits in terms of diversification of loan portfolios of banks and reduction of the cost of borrowed funds. Authorities should implement more binding banking regulation on capital requirements, solvency levels and non-performing loans, and favor banking competition and cost efficiency. However, efforts to enhance the development of financial markets and the improvement of the legal institutions should not favor the expansion of syndicated loans. We do not mean that such efforts are useless for economic development, but we argue that they do not enhance financial development through a larger volume of syndicated loans.

VI. Conclusion

Syndicated loans have undergone a major expansion in emerging markets in the last decade, representing now an important source of external finance. Syndicated loans offer several benefits in comparison to other types of loans, which make them of utmost importance for the economic development of the emerging countries. Namely, they favor the diversification of bank's loan portfolios and help reduce the cost of borrowed funds, thereby improving financial stability and investment. To better understand the recent expansion of these loans and, more specifically, to provide policy-oriented advice for the

authorities to favor syndicated loans, it is of utmost interest to know which determinants favor loan syndication.

In this paper, we have investigated the determinants of the decision to syndicate a loan by analyzing the role of loan characteristics following the study design of Dennis and Mullineaux (2000) on US syndicated loans. Additionally, we examined institutional factors inspired by recent literature on the role of institutions on a bank's loan behavior (e.g. Qian and Strahan, 2007). Our findings show that several loan characteristics are influential in the decision to syndicate a loan. We also observe the impact of institutional factors taking into account financial development, banking regulation, and the legal environment. This finding suggests that cross-country differences in the expansion of syndicated loans may be explained by cross-country differences in institutions.

The normative implications of our findings are the support of the efforts to increase banking competition and efficiency, and to implement binding banking regulation on capital requirements. Conversely, a striking result is the negative impact of the development of the financial markets and the strengthening of the legal institutions on the syndicate decision.

Our analysis can be extended in a number of ways. It would be of interest to know the determinants of the composition of the syndicate (i.e. the number of lenders involved), as well as the determinants of the proportion of the loan sold by the lead bank. Such investigations will contribute to a better understanding of the syndicated loans markets in the emerging markets. We let these issues for further research.

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Table 1
Figures on syndicated loans

The table below provides the volume in billion USD and the number of issues for syndicated loans. Source: own computations from the authors on the Dealscan database.

Variable	Asia	Middle East	Central and Eastern Europe	Latin America	Total
Volume					
1992	6,208	3,135	-	-	9,343
1996	121,726	10,656	10,514	15,230	158,126
2000	183,800	25,721	8,936	44,597	263,055
2004	149,209	21,230	42,890	37,689	251,019
Number of issues					
1992	78	12	-	-	90
1996	1306	54	78	108	1546
2000	647	93	74	226	1040
2004	662	76	156	148	1042

Table 2
Frequencies of loan facilities by country

The table below provides frequencies of loan facilities by country, with the breakdown between syndicated and non-syndicated loans, for the sample.

Country	N	Syndicated loans	Non-syndicated loans	Country	N	Syndicated loans	Non-syndicated loans
Argentina	214	208	6	Mexico	388	375	13
Azerbaijan	14	14	0	Oman	45	39	6
Bahrain	63	63	0	Pakistan	46	41	5
Brazil	210	205	5	Panama	34	30	4
Bulgaria	27	26	1	Peru	35	34	1
Chile	194	179	15	Philippines	299	216	83
China	647	570	77	Poland	146	128	18
Colombia	80	78	2	Qatar	46	39	7
Croatia	67	62	5	Romania	51	45	6
Czech Rep.	80	74	6	Russia	362	336	26
Egypt	71	67	4	Saudi Arabia	77	64	13
El Salvador	8	8	0	Singapore	580	385	195
Estonia	24	21	3	Slovak Rep.	47	42	5
Guatemala	12	12	0	Slovenia	72	65	7
Hong-Kong	3010	1222	1788	Sri Lanka	17	9	8
Hungary	150	144	6	Taiwan	1684	1467	217
India	473	403	70	Thailand	588	482	106
Indonesia	793	729	64	Trin. Tobago	11	11	0
Iran	28	26	2	Turkey	386	348	38
Israel	34	31	3	Ukraine	36	35	1
Kazakhstan	92	86	6	UAE	95	64	31
Korea	1873	1373	500	Uruguay	6	3	3
Koweit	48	42	6	Venezuela	46	45	1
Latvia	25	24	1	Viet-Nam	30	18	12
Lithuania	25	20	5	Total	13941	10310	3631
Malaysia	552	302	250				

Table 3
Descriptive statistics for the sample

The table below provides means and frequencies computed on our dataset of loan facilities. Definition of variables appears in the Appendix A.1.

Variable	Sample size	Full sample	Syndicated loans	Non-syndicated loans
Panel A: Descriptive statistics for dummy / discrete variables				
Syndication	13 941	0.7395	1	0
S&P Rating	13 941	0.0626	0.0679	0.0476
Covenants	13 941	0.2457	0.2541	0.0222
Senior Debt	13 941	0.5992	0.5463	0.7494
Guarantors	13 941	0.0867	0.0875	0.0843
Term Loan	13 941	0.5051	0.629	0.1534
Revolving	13 941	0.1085	0.1375	0.0262
Corporate Purposes	13 941	0.2891	0.2088	0.5169
Debt Repayment	13 941	0.1723	0.2001	0.0934
Project Finance	13 941	0.0838	0.1034	0.0281
Working Capital	13 941	0.0745	0.0834	0.0493
Credit Risk	10 442	0.1615	0.1731	0.1053
Solvency	9 805	0.7185	0.7077	0.7750
Asset Diversification	10 467	0.1706	0.1598	0.2233
NPL Definition	10 443	0.6606	0.6699	0.6155
Abroad Loan Prohibited	10 467	0.4185	0.4132	0.4438
Panel B: Descriptive statistics for continuous variables				
Loan Size	13 941	200.96	217.70	153,44
Maturity	13 941	54.00	53.99	54.00
Overheads	12 931	0.0321	0.0327	0.0304
Concentration	12 945	0.5725	0.5594	0.6105
Stock Market	12 771	1.2591	0.8889	2.3364
Bond Market	10 882	0.3556	0.3352	0.407
Creditor Rights	11 533	3.0030	2.7852	3.5293
Rule of Law	11 533	6.6130	6.3414	7.2694
Min CAR	10 467	8.7108	8.7146	8.6922

Table 4
Estimations (1/2)

Logit regression. The dependent variable is *Syndicated*, a dummy variable equals to one whether the loan is syndicated and zero else. Definitions of variables appear in the Appendix. Dummy variables for loan type, loan purpose, year, geographic area, industry sector are included in the regressions but are not reported.

	Regressions			
	(1)		(2)	
Explanatory variables	Coefficient	Std error	Coefficient	Std error
Intercept	-5.4388***	0.67	11.5871	299.00
Loan Size	0.4078***	0.03	0.4190***	0.03
Maturity	-0.0074***	0.01	-0.0083***	0.01
Covenants	1.0247***	0.08	1.0240***	0.09
Senior Debt	-0.5167***	0.13	-0.8249***	0.16
Guarantors	0.0289	0.10	0.1080	0.12
S&P Rating	0.3402***	0.12	0.3263**	0.15
Overheads	-	-	-15.2575***	2.75
Concentration	-	-	-1.9785***	0.22
Stock Markets	-	-	-0.2567**	0.03
Bond Markets	-	-	-1.7729***	0.22
N	13 941		10 749	
Log-likelihood	-4 230.93		-3 008.46	
Likelihood ratio	7 529.37***		6 893.57***	
Hosmer & Lemeshow st.	299.98***		188.62***	
% concordant	90.6		92.7	

Table 5
Estimations (2/2)

Logit regression. The dependent variable is *Syndicated*, a dummy variable equals to one whether the loan is syndicated and zero else. Definitions of variables appear in the Appendix. Dummy variables for loan type, loan purpose, year, geographic area, industry sector are included in the regressions but are not reported.

	Regressions			
	(3)		(4)	
Explanatory variables	Coefficient	Std error	Coefficient	Std error
Intercept	-0.1678	0.82	-3.7367***	0.77
Loan Size	0.1355***	0.03	0.4178***	0.03
Maturity	-0.0080***	0.01	-0.0075***	0.01
Covenants	0.8469***	0.09	1.0016***	0.09
Senior Debt	-0.5847***	0.16	-0.5238***	0.15
Guarantors	0.1337	0.13	-0.0824	0.11
S&P Rating	0.0898	0.14	0.2791**	0.14
Mincar*Credit Risk	0.0483***	0.02	-	-
Solvency	0.3001**	0.15	-	-
Asset Diversification	-1.0598***	0.16	-	-
NPL Definition	0.6755***	0.08	-	-
Abroad Loan Prohibited	-0.0070	0.16	-	-
Creditor Rights	-	-	-0.4419***	0.04
Rule of Law	-	-	-0.0700***	0.02
N	9 773		11 533	
Log-likelihood	-2 819.37		-3 350.85	
Likelihood ratio	2992.50***		7 243.41***	
Hosmer & Lemeshow st.	182.71***		197.10***	
% concordant	85.6		92.3	

Appendix A.1: Brief description of all variables and their sources

Variable	Description	Source
Loan contract characteristics		
Syndicated	=1 if the loan is syndicated	Dealscan
Loan Size	Logarithm of the size of the loan in thousand dollars	Dealscan
Maturity	Maturity of the loan in months	Dealscan
Loan Type	=1 if the loan is a term loan	Dealscan
S&P Rating	=1 if a Standard & Poor's senior debt rating exists	Dealscan
Guarantors	=1 if there is at least one guarantor	Dealscan
Covenants	=1 if the loan agreement includes covenants	Dealscan
SeniorDebt	=1 if debt is senior	Dealscan
Country characteristics		
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)
Bond Markets	Domestic debt securities to GDP	Beck et al. (2000)
Mincar	Minimum capital requirement value	Barth et al. (2005)
CreditRisk	=1 if the minimum regulatory capital ratio varies with bank credit risk	Barth et al. (2005)
Solvency	=1 if the law establishes pre-determined levels of solvency deterioration which forces automatic actions such as intervention	Barth et al. (2005)
Asset Diversification	=1 if asset diversification guidelines exist	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)

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