Attractivity, Rentability: The Strategy of the Lead Lender in the Syndicated Loan Market

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Abstract

In a syndicated loan, being the lead lender increases the costly production of information and the costly monitoring process, which can however be mitigated with significant expertise and/or a relationship with the borrower. In this paper, we test whether the lead lender takes advantage of its strategic position to be more attractive, lowering loan costs, or to extract additional rent from the borrower when submitting its loan offer during the pre-mandate phase of the syndication process. We use the contract bidding theory to develop a stylized model that we empirically test using data from LPC Dealscan. Interestingly, we show that past relationships as well as the geographical proximity between the lead and the borrower contribute to reduce loan costs, while the lead industrial expertise is associated with an increase in these costs, in line with the hold-up theory.

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1 Introduction

In a loan transaction, the lender is assigned a "delegated monitoring" role à la Schumpeter (1939), involving costly production of information and costly monitoring. These delegation costs can nevertheless be mitigated by the expertise of the lender (e.g., Jensen (1986) and De Jonghe et al. (2020) among others), and its past relationships with the borrower (Berger and Udell, 2002; Puri et al., 2011; Campbell et al., 2019; Herpfer, 2020). However, what is not clearly stated in the literature on financial intermediation is whether the borrower may benefit from this reduction in delegation costs or not. On the one hand, the literature shows that past relationships with a bank as well as the bank's industrial expertise improve the borrower's credit access and provide the borrower with better loan terms (Boot and Thakor, 1994; Petersen and Rajan, 1994; Berger and Udell, 1995; Calomiris and Pornrojnangkool, 2009; Chakravarty and Yilmazer, 2009; Bartoli et al., 2013; Giannetti and Saidi, 2019). On the other hand, the lender may take advantage of its strategic position to extract an additional profit from the borrower, as advocated by the hold-up theory (e.g., Stomper (2006)). Our paper contributes to this debate, analysing the role of the lender's Expertise on the loan outcomes.

Our study relies specifically on the syndicated loan market considering the key role of the lead lender in the syndicate. A syndicated loan is a debt contract provided to a borrower by a syndicate, i.e., a group of banks among which a lead lender is responsible for structuring, arranging, underwriting and administering the loan. In other words, participant banks rely on the lead to properly screen and monitor the borrower in order to reduce information asymmetry. As such, the "delegated monitoring" of the lender is all the more important for the lead lender as the financial intermediary between the borrower and the participant banks, hence providing us with an ideal experimental setting. Moreover, this market represents the main source of financing for non-financial corporations, with a large volume of loan issuance, reaching U.S. dollar 4.05 trillion in 2016, hence exceeding the issuance of bonds and equity.[1] As illustrated by Figure 1, the growing trend experienced by this market provides evidence of the importance of syndicated loans in the financial sector.

In the lending process of a syndicated loan, we focus in particular on the pre-mandate phase, where potential candidates to arrange the deal submit bids to the borrower to potentially become the lead arranger of the deal. The pre-mandate phase consists in, from the borrower's perspective to collect bids and select the best alternative. From the candidate lender's perspective, the pre-mandate phase consists in evaluating the project's suitability with

[1] Source: LPC Dealscan, Authors' computations.

the lender's goal, assessing the underlying cost of arranging the deal and, ultimately submit a bid, if the deal is attractive enough. It is during this crucial phase that fixed borrowing costs including upfront fees, irrespective of the borrower's credit risks, are determined. Being the lead arranger might be crucial for a lender. First, it helps strengthen or obtain a dominant position in a given industry or sector. Lead arrangers often communicate and advertise on their strategic position. Second, the selected lead arranger often enters into a long principal-agent relationship in the future. The effort made by the lead to secure and structure the deal are valued by the borrower ((Alexandre et al., 2013; Focarelli et al., 2008)). This contributes to the lead's reputation as well, which in turn strengthen its position ((Gatti et al., 2013)). Third, the lead arranger lies at the middle of all decisions in the syndicated loan process and can reduce information asymmetry ((Sufi, 2007)). Finally, lead arrangers charge their activities to the borrower and earn a significant profit ((Cook et al., 2003)).

In this paper, we analyze whether the selected lead takes advantage of its strategic position (as experts and/or relationship banking partners) to reduce loan costs and become more attractive or to increase loan costs and extract a rent. Given the crucial importance of the pre-mandate phase and the lack of literature elements discussing it, a proper investigation of the selection process of lead arrangers is, in our opinion, required. A better understanding of the pre-mandate phase would also lift the veil on the information asymmetry issue that is inherent to syndicated loans.

We first aim at designing a model that is capable of incorporating all the features and specificities of the pre-mandate phase. More particularly, during the pre-mandate phase, the candidate lead arrangers submit sealed bids not knowing the potential bids of other candidates, resulting in an information asymmetry among the set of bidders. One added value of this paper is to ground this complex process on the well-established literature of auction theory and more specifically to map it onto the contract bidding theory (McAfee and McMillan, 1986; Samuelson, 1986). The pre-mandate phase of syndicated loans indeed shares a lot of features with contract bidding theory, since it relates to competitive bidding in a principal-agent relationship without any existing market where reserve prices are fixed. It also allows to take into account information asymmetry between the principal and the agents and between the agents themselves, the multi-criteria feature of the bids as well as the existence of past relationship between the principal and the agents. The stylized model that we propose is derived from this extensive literature with a few adaptations. Our cost model includes search costs, opportunity costs and all the costs supported by a potential lender to be attractive to a borrower, as well an uncertainty component. We also model more closely the effort made by a potential lender to be selected as a function of a set of drivers, most notably the presence of a full-underwriting clause and the attractiveness of the deal to her, which may take into account a past successful relationship with the borrower, geographical proximity and industry relatedness. Second, we empirically test several features of the relation we highlight in the theoretical model. To the best of our knowledge, our paper is the first to address the syndicated loan's pre-mandate phase, both theoretically and empirically.

Our empirical analysis tests and validates three hypotheses that are derived from our stylized model and are related to the importance of the past relationships between the lender and the borrower, the geographical proximity or home bias and the industry expertise of the lead, respectively. Using LPC Dealscan data, we conclude that these three elements are crucial in the upfront fee determination and should be regarded to design appropriate pre-mandate bidding strategies for lead arrangers. Using different proxies for each of these three elements, all our results highlights the key role of each variables' group. All our variables are highly significant, except the effect of industry expertise of the lead, which might be related to the different strategies a candidate lead can follow depending on its current diversification or specialization, as advocated by the results of the interaction terms.

Our contributions are threefold. First, we aim to contribute to the living debate on the impact for the borrower of the reduction of delegation costs in the financial intermediation theory by investigating the different cost components. Second, although there is a very extensive literature on syndicated loans, the pre-mandate phase has received very little research attention. This can be notably explained by the lack of data availability. And when this phase is addressed, contributions are solely based on empirical approaches. Our study is, to the best of our knowledge, the first attempt to try to elaborate a viable model for the very first, yet crucial, stage of the syndicated loan process. Most papers consist in empirical analyses of the syndicated loan market while the theoretical investigation of this market has received very little attention from the researchers' community. Besides, most of these research studies tend to focus more on the post-mandate phase rather than on the beginning of the syndication process. This paper precisely fills these gaps. Finally, we are the first to empirically test some aspects of a theoretical model designed to represent the pre-mandate phase.

The remainder of the paper is structured as follows. Section 2 presents the background of our study as well as the institutional details underlying the syndicated loans process. Section 3 depicts the conceptual framework of the model. Section 4 is devoted to the model description.

Section 5 presents the database, hypotheses, and results of the empirical part of the study. The final section concludes.

2 Background and existing research

2.1 Institutional details

In the last two decades, academic researchers' attention has been drawn to a better understanding of syndicated loans, both at the empirical and theoretical levels. The formation process of loan syndicates is not straightforward as it involves different participants and different steps.

At the beginning of the syndication process, the issuer or principal, i.e., the borrowing company, contacts a set of banks, the agents, it wants to meet to present its project and solicit bids. The borrower sends them a term sheet and expects them to submit bids. The borrower selects one or several bank(s) based most notably on past successful contractual relationships, expertise in the borrower's industry, geographical proximity and knowledge of syndicated finance (Amstrong, 2003). The term sheet contains the main terms that the borrower wants to be included in the bid. For instance, Esty (2001) mentions that the Walt Disney Company wanted the Hong Kong Disneyland project to be fully underwritten, i.e., the lead arranger will commit to provide all the amount even if it has not been met by the banks forming the syndicate, associated with an amount of HK$3.3 billion with a 15-year tenor. The full underwriting feature is the major way risk-sharing is implemented in syndicated loans. This option consists in having the lead bearing the responsibility for reaching the amount required by the borrowing company disregarding the amount invested by other lenders. This option is riskier for the lead arranger as she may have to invest more than what she initially planned to. However, she is compensated by applying higher fees on the loan. Alternatively, the lead arranger may opt for two other options: best-effort syndication or club deals. With the option called best-effort syndication, the amount raised by the issuer depends on the lenders' willingness to participate. This option is attractive when the loan is risky and/or complex. Finally, the lead arranger may also select a club deal, the third option also called privately placed deals, when the probability of default is higher. Indeed, this syndication type consists in a loan with a smaller amount which is pre-marketed to a group of relationship lenders. The syndicate tends to be more concentrated and homogeneous with respect to the institution's type of lenders involved in the process (Champagne and Coggins, 2011). All lenders get a full cut of fees which are lower and, in this specific situation, the lead arranger is a "first among equals" (Miller, 2011). These club deals tend to be heavily used in Europe and Asia while they are not very popular in the US market (Champagne and Coggins, 2011). This is the pre-mandate phase (Sufi, 2007; Chaudhry and Kleimeier, 2015).

Among the different propositions, the issuer awards the mandate to the most competitive and attractive bidding. The selected bank then becomes the lead arranger (sole-mandate). In some cases, several financial institutions may be designated as lead arrangers by the borrowing company (joint-mandate) (Esty, 2001; Sufi, 2007). These lenders form the first group of lenders of the syndicate and are entitled to structure, arrange, underwrite and administer the loan. Hence, the first task of the lead arranger is to meet and negotiate with the borrower to establish the commitment letter which will summarize the terms of the loan, the duties of all parties as well as the associated compensation (Sufi, 2007). In addition, the issuer and the lead arranger will agree on either a general or a two-stage syndication strategy. With a general syndication strategy, the lead arranger will directly offer shares of the loan to a large group of potential investors while with a two-stage syndication strategy, the lead arranger and a small group of banks first underwrite the full amount of the loan. Second, the loan is opened to external investors (Esty, 2001). This second step in the syndication process aims at formally market the deal and invite investors to form the second group of lenders of the syndicate, called participant lenders. This is the post-mandate phase.

2.2 Existing research

In a syndicated loan, there are two sources of information asymmetry, i.e., between the lead arranger and the borrower, and between the lead arranger and the other participants. The lead arranger is then at the heart of the syndication process as the financial intermediary between the borrower and the participant lenders. He plays a key role in structuring the loan being not only the credit screener but also the chief monitor. As such, the lead arranger is entitled a "delegated monitoring" role à la Schumpeter (1939). This implies a costly production of information to properly screen and monitor the borrower but she contributes to reduce duplication of efforts as well as free-rider problems of having lenders not evaluating the borrower (Diamond, 1984). This is especially true for syndicated loans that can be large and associated to complex projects.

The literature highlights how the lead arranger can lower these delegation costs. First, being a reputable lead arranger contributes to reduce information asymmetry problems between the borrower and the other participant lenders (Sufi, 2007; Bosch and Steffen, 2011; Delis et al., 2020). Using the arranger's market share in the year prior to loan signing, Chaudhry and Kleimeier (2015) even claim that the level of reputation matters, and that only the most reputable lead arrangers (top 10% of the distribution) are able to reduce adverse selection and moral hazard risk. Studying the French syndicated loan market, Godlewski et al. (2012) confirm these findings and argue that lead arrangers with a strong social capital in the syndicated loan market are able to mitigate informational frictions and agency costs, highlighting the signaling role of the lead arranger reputation and the extent to which it contributes to lower the costs of information asymmetries.

Second, the lead arranger may develop its expertise and focus on one single line of business to develop sector-specific knowledge. By lending to one main industry, a financial institution takes advantage of its expertise to improve its screening ability and to become more efficient in monitoring loans provided to borrowers that belong to the same industry, hence reducing default risk (Jahn et al., 2016), and agency costs (Jensen, 1986; De Jonghe et al., 2020). As such, if the bank' lending activities are underdiversified, it means that the costs of screening a borrower will be lower than for a more diversified bank. Stomper (2006) shows that banks face a higher cost to develop a lending expertise in one industry but that this cost is compensated as soon as these banks gain sufficient market power above a specific threshold. Moreover, being experts in one industry increases lenders' incentives to correctly screen the borrower and to improve monitoring quality, hence reducing further the information asymmetry issues (Böve et al., 2010; De Jonghe et al., 2020).

Geographical proximity is another determinant that contributes to reduce delegation costs. Indeed, the differences in the institutional and regulatory frameworks, the physical or geographical distance (Coval and Moskowitz, 1999, 2001) as well as the cultural distance (Grinblatt and Keloharju, 2001; Hau, 2001) increase the costs of information acquisition for foreign lead arrangers compared with domestic ones, hence providing the latter with a competitive advantage (Van Nieuwerburgh and Veldkamp, 2009) and a higher ability to lower information asymmetry between a domestic borrower and the syndicate that can be international.

Finally, the relationship that exists between the lead arranger and the borrower enhances the lead arranger's ability to lower agency costs. The lead arranger can benefit from its relationship with the borrower to accumulate qualitative (soft) information about the borrower in addition to quantitative (hard) information (Berger and Udell, 2002). Relationship lending can then be profitable for the lender who is more able to collect and process private information in order to properly screen the borrower, hence reducing information asymmetry (Puri et al., 2011; Campbell et al., 2019; Herpfer, 2020). As such, spending time and making efforts to develop a relationship with its borrower in the present contributes to reduce delegation costs in the future.

To sum up, being a lead implies an increase in costs, and more precisely in delegation costs, that can however be mitigated thanks to the lead's Expertise (i.e., its expertise/reputation in arranging syndicated loans, its industrial and geographical expertise, and its expertise in processing qualitative information collected through its relationship with the borrower). One can however wonder whether there exists a transfer of this cost fluctuation onto (the bid offer of) the borrower at the initial stage of the syndicated loans. While the question is raised in the literature, no clear evidence or even guidance has been provided: At best, it remains an open debate.

On the one hand, dealing with an expert lead arranger provides the borrower with better loan terms. Godlewski et al. (2012) find that borrowers benefit from lead arrangers experience and reputation in syndicated loan market, receiving loans at a lower cost. Giannetti and Saidi (2019) provide evidence that high-market-share lenders not only have incentives to extend more credit than other lenders to borrowers in the industry they are specialized in during distressed periods to internalize negative spillovers but that they also act accordingly. Moreover, Giannetti and Yafeh (2012) show that lead banks provide borrowers with more competitive loan terms (e.g., larger amount, lower spread and less guarantees) when they are culturally closer. Ahiabor and James (2019) support this conclusion highlighting a significant decrease in loan spreads when loans are granted by domestic lead arrangers. Finally, Alexandre et al. (2013) show that the existing relationship between the lead arranger and the borrower lowers the loan spread while lengthens the loan maturity.

On the other hand, the expertise of the lead arranger provides her with an informational advantage over the other banks that could lead to hold-up problems. In the hold-up theory, a bank extracts additional rents from high-quality borrowers that cannot easily switch to another bank as this "outside" bank faces higher information asymmetry than the borrower's historical banking partner, resulting in worse credit conditions (Sharpe, 1990). Stomper (2006) shows that the developed expertise enables the lender to extract an additional rent that is proportional to its exposure to industry-specific credit risk. De Jonghe et al. (2020) even show that following a negative funding shock, banks tend to further focus on their industry of expertise where they can ensure larger cash inflows, hence increasing their ability to extract rents through a significant increase in loan interest rates. Considering the relationship time between a borrower and its bank, there exists a positive link with the level of loan costs, in line with the hold-up theory (Degryse and Van Cayseele, 2000; Degryse and Ongena, 2005; Ioannidou and Ongena, 2010; Schenone, 2010). The longer the relationship between a firm and its lender is, the higher the rate on the firm's loan is.

From a borrower's perspective, the choice of a lead arranger is therefore of utmost importance as it can affect the loan terms of its final debt contract. As such, in this paper, we want to contribute to this debate by studying whether the Expertise of the lead arranger affects the loan costs for the borrower. Put it differently, do we observe a reduction in loan costs associated to the level of the lead arranger expertise and/or its relationship with the borrower or does the lead arranger take advantage of its strategic position as an expert to extract additional profits, increasing the loan costs for the borrower? In our analysis, we focus on the pre-mandate phase when the lead arranger is selected by the borrower because being a lead arranger is of crucial importance in the syndicated loan market, as outlined by the extent literature. Moreover, it is also during this phase that the additional loan costs, irrespective of borrower's credit risk, are determined. As such, the pre-mandate phase allows us to study the willingness of the lead candidate to make the borrower benefit from its informational advantage through a reduction of these additional costs.

To model the pre-mandate phase of syndicated loans, we rely on the extensive contract bidding literature (McAfee and McMillan, 1986; Samuelson, 1986; Baron, 1972; Holt Jr, 1980; McAfee and McMillan, 1987; Engelbrecht-Wiggans, 1987). Contract bidding departs from different well established theories. Samuelson (1986) presents this strand with a direct link with auctions and competitive bidding theory while McAfee and McMillan (1986) combine the bidding model with a principal-agent one. Although there have been several insightful contributions to auction, competitive bidding and contract bidding literature prior and after these articles, notably Vickrey (1961), Myerson (1981), Riley and Samuelson (1981) for auctions and Stark (1974), Goldberg (1977) and Reece (1979) for contracts, these two papers are seminal in the field of contract bidding. The initial theory has been developed based on simple cases like government contracts for big and costly projects, like the construction of a road or a warship, as indicated by McAfee and McMillan (1986). The literature has also extensively addressed risk-sharing between the principal and the agents and advocates for the use of cost plus-type contracts, that is, the price paid by the agent is equal to the total cost faced by the contractor plus a fee for profit. We do not discuss these literature elements since the cost-plus feature is unapplicable to syndicated loans, as no manufactured good is produced and no real cost can be easily estimated in the service industry.[2] The more recent literature addresses additional features, such as incomplete contracts and adaptation costs (Bajari et al., 2014) or procurement contracts (Bajari and Tadelis, 2001), that are not applicable for contract bidding in the service industry, i.e., without any commodity or manufactured good produced. As clearly outlined by Samuelson (1986), contract bidding theory needs to include several components as opposed to standard auctions where the price of the best bidder is the only important element. This is particularly true for syndicated loans, as highlighted here above, where a large set of clauses and contract features can make a bid more or less attractive to the principal.

In essence, our objective is to test whether the selected leads take advantage of their strategic position, as experts in an industry or as a result of past successful relationship with the principal, to either reduce the loan costs to become more attractive or to increase the loan costs in order to extract a larger profit. In the latter case, the additional profit might also be related to a premium the borrower is willing to pay to transact with the best contractor, in terms of reputation, expertise or relationship. In the current paper, we do not investigate the key features a candidate lead must own in order to win the lead. This question cannot be addressed since we do not have access to unsuccessful bids in our database. We are therefore not interested in having data on the bidders that have not been selected.

Contract bidding theory offers, in our opinion, the best framework to depart from to model the pre-mandate phase of syndicated loans. It indeed allows to model a contract for service while taking into account the information asymmetry that exists across the lead candidates before they submit their bid to the borrower, the multi-criteria feature of the bids and the principal-agent relationship between the borrower and the potential lead arrangers. Other models are unsuccessful in performing all these characteristics simultaneously. There are however several differences that we discuss in details in the next section. All in all, these differences allow us to significantly simplify contract bidding theory to apply it to the selection of the lead arrangers. To the best of our knowledge, our paper is the first attempt to provide a theoretical model for the pre-mandate phase of syndicated loans and test the implications of such a model empirically.

[2] See Samuelson (1986) and McAfee and McMillan (1986) for a thorough discussion of the differences between fixed-price and cost-plus contracts.

3 Conceptual framework

In our stylized model, we relate the selection of a lead arranger to competitive bidding theory. More precisely, it is the strand associated with contract bidding that has drawn our attention (McAfee and McMillan, 1986; Samuelson, 1986). The stylized model that we design has the virtue to be simple and easy to model while being quite close to reality. Our cost model factors in search costs, opportunity costs, efforts made by the lender to increase the probability to be picked up by the borrower, and uncertainty. We further model the effort a lender is willing to make in terms of cost reduction by notably taking into account the presence of a full underwriting clause and the bidder-specific attractiveness of the deal, which may include past successful relationships with the borrower, geographical proximity, as well as bidder's reputation in this industry to protect. We model the profit and the ex-ante utility of each bidder and find a symmetric Nash equilibrium which, under constant absolute risk aversion, yields a reduced form for the selected bidder's maximum ex-ante expected profit and utility, conditional upon being selected.

Each potential bidder decides whether she will submit a bid to become the lead arranger of the syndicated loan. Esty (2001) reports the three ways to approach a deal, citing Chase Manhattan Bank's Managing Director, Matt Harris: bid aggressively to win, bid less aggressively without fear of losing, and no bid. By evaluating the importance of the contractual relationship, the associated risks and the deal profitability, each bidder will posit herself in one of these approaches.

However, the specificities of the syndicated loans' market enable us to significantly simplify the global theory of contract bidding. In our stylized model, we only focus on sole mandates and exclude joint mandates: The "best" bidder will be the lead arranger for the loan. As such, we exclude sub-underwriting cases, meaning that the winning lead arranger receives all the fees and this represents its tangible profit. We also assume that the mechanism follows a one-stage sealed bid process and that there is no negotiation or renegotiation in subsequent periods. In reality, there may be some negotiations between the borrower and potential bidders, even if it is not frequent.

There is no moral hazard in the contract for the borrower. Bidders will always behave as stipulated in the contract. Adverse selection may still constitute an issue. Yet, the literature has demonstrated that when the lead arrangers are well established firms often acting in the syndicated loans' market, it significantly mitigates the information asymmetries (Sufi, 2007;

Chaudhry and Kleimeier, 2015). Gopalan et al. (2011) also show evidence of a significant damage on the lead's reputation in case of borrower's bankruptcies, especially if this bankruptcy highlights inadequate screening or monitoring. As such, a lead with a strong reputation has an incentive to correctly perform its duties. Moreover, François and Missonier-Piera (2007) argue that lead banks often delegate administrative tasks to co-agents that become able to monitor the lead reducing information asymmetry issues. In our stylized model, we can then neglect adverse selection. The opposite is not necessarily true, though. Some borrowers may engage in activities leading them to default after the contract. They may also voluntarily not disclose information to the potential bidders in order not to discourage them from bidding. Yet, we can neglect these phenomenons as syndicated finance is associated with close relationships between principal and agents and there is no incentive to enter in a conflicting relationship. Alexandre et al. (2013) even show that borrowers have an incentive to maintain good relationships with their lead arrangers as it allows them to get loans during periods of crisis at better terms, i.e., lower spread and longer maturity. Moreover, default risk does not represent a significant issue when dealing with the pre-mandate phase as the loan spread will be adjusted accordingly during the marketing of the loan.

As opposed to the traditional contract bidding theory, there is no manufactured product and the cost to become the lead arranger is essentially the same across all potential bidders, assuming that they already have expertise and knowledge in lead arrangement. Another major difference comes from the multi-criteria feature of the different bids, making the ranking of bidders not straightforward, as outlined by Samuelson (1986). In the general case of syndicated loans, the contract is contingent and bidders compete to receive the right to enter in a contractual relationship with the borrower by dealing with contingencies that are priced by the borrower.

In syndicated finance, at least to select the lead arranger, only fixed-price contracts are considered, in the sense of contract bidding. Cost-plus contracts are not considered since the payment is equal to the firm's bid. While the rate of the contract is always expressed in terms of a spread added to a reference rate, like the EURIBOR or the LIBOR, this only concerns subsequent stages of the syndication process and is not taken into account to select the lead arranger. The same rationale applies for contingent contracts that are not possible in syndicated finance (see Samuelson (1986) for further information). These features of syndicated loans further simplify the mapping of contract bidding model. As a result, the borrower is unaffected by the winning bidder's cost or profit but still has to make a choice based on several criteria, each criterium being evaluated differently by the borrower depending on the characteristics of the loan itself.

The total cost of the bid encompasses all the costs necessary to timely respond the request of the borrower and submit a competitive bid, i.e., search costs, meetings, staff costs, etc. Inflows include interest incomes, service charges, fees, commissions and the value associated by the bank to become the lead arranger, which depends on its willingness to be present in the market for this type of loans or not. As highlighted in the above literature, an indicator variable may be the cultural and/or geographic proximity (Giannetti and Yafeh, 2012; Ahiabor and James, 2019). Another indicator variable could be the level of expertise of the bank.

4 Model

Based on the existing literature on syndicated loans, we create a stylized model for the first stage of the syndicated loan's process by mapping it onto contract bidding theory. Let us assume that the borrower contacts n ($n > 1$) potential bidders, i.e., capable of answering the borrower needs. The cost for a potential bidder i to respond the request and propose a bid encompasses several components, as outlined here above. First, search costs account for the costs to analyze the project, its probability of failure and, reduce the uncertainty of the deal. Search costs are directly related to the bidder's knowledge of the market and its past relationship with the borrower. Second, opportunity costs need to be included since the resources of the bidder could be used in other projects. Third, the effort made by the bidder to be attractive is also a cost component. For instance, reducing fees or adding a full underwriting clause to a contract significantly modifies the risk burden of the lead arranger, increasing its cost. Finally, the persistent uncertainty component, that may not be reduced by an increase in resources allocated to research, needs to be factored in as a function of the risk. The risk of a loan increases with its tenor and with the default probability of the borrower. As discussed previously, in the case of syndicated loans, the loan spread will be adjusted according to the level of borrower's risk during the marketing of the loan. However, while we can neglect the borrower-specific risk for the pre-mandate phase, the market-specific risk has to be taken into account.

The cost of a bidder i to propose a bid b is then given by

$$c_i = s_i + o_i + e_i + w, \tag{4.1}$$

where c_i denotes the total cost for bidder i, s_i is the cost associated to search costs, o_i denotes the opportunity costs, e_i the cost component related to the effort made to become attractive and w a random variable denoting the uncertainty which generates unpredictable costs. s_i decreases with the knowledge of the syndicated loan's market and of the borrower's industry.

Each agent i can assess its expected cost $c_i^* = s_i + o_i + e_i$. However, neither the borrower, nor the agents other than i know c_i^*. As in McAfee and McMillan (1986), let us assume that c_i^* is an independent realization of a distribution $G(c_i^*)$, $g = G'$, c_l the lowest possible cost and c_h the highest possible cost.

Without loss of generality, we can assume that the opportunity costs are the same for all the bidders $o_i = o \; \forall \; i$, i.e., each bidder can borrow the amount at the risk free rate, r_f. We set this cost to 0 since it is not determinant to win the deal in our model. We can also assume that $E[w] = 0$ and that all agents face the same distribution of unpredictable costs $F(w)$ and $f = F'$ (McAfee and McMillan, 1986). This implies that all bidders sufficiently spend in s_i in order to reduce deal-related uncertainty, which also does not constitute a huge constraint for the model, nor for its potential applications.

e_i is the most determinant factor to win the bid. Efforts can be made on the amount of fees charged to become the lead arranger or on the inclusion of some contingencies to the contract, like full underwriting. Assuming that m is the total amount requested by the borrower and α the amount covered by the members of the syndicate, the inclusion of a full underwriting clause to the contract implies that the lead arranger actually lends $(1 - \alpha) * m$ which costs $(1 - \alpha) * m * r_f$ assuming that $(1 - \alpha) * m$ is borrowed from the market at the risk-free rate or equivalent interbank rate, r_f. α is then the *a priori* judgement of the lead about the attractiveness of the deal for lenders. α will converge to 1 if the lead arranger thinks that many lenders will be willing to join the syndicate. The effort e_i is then given by

$$e_i = \beta_i * f + u_i * (1 - \alpha) * m * r_f - \gamma_i * u_i * f, \tag{4.2}$$

where f is the amount of fees, $\beta_i * f$ denotes the fee discount, $u_i * (1 - \alpha) * m * r_f$ denotes the cost of a full underwriting clause with $u_i = 1$ if the clause is added to the bid and $u_i = 0$, otherwise. This cost is compensated by an increase in the fees materialized by $\gamma_i * u_i * f$. If $\alpha = 1$ then the agent will set $u_i = 1$ since more fees can be charged to the borrower. As such, in this specification, β_i represents the fee discount unconditional on u_i while γ_i represents the fee premium conditional on u_i. We assume that the theoretical amount of fees f is the same across all bidders and that the fee structure they include in their bid only changes depending on the effort they are willing to make to win the bid.

Each bidder will set β_i, u_i and γ_i depending on the attractiveness of the deal and the probability that at least one other bidder submits a more aggressive bid. The attractiveness of the deal is bidder-specific and encompasses factors like past successful relationships with the borrower, geographic proximity, the bidder's reputation in this industry to protect, and the global uncertainty around the deal. e_i also depends on the other bidders' strategies. Syndicated loans imply sealed bids. Yet, each bidder should have some beliefs about the other bidders, i.e., at least knowing whether or not they are interested in the deal and whether or not they will bid aggressively. For instance, in the Hong Kong Disneyland project discussed by Esty (2001), Chase had a reputation to protect and knew that the local banks would bid aggressively. Each bidder also evaluates the extent to which the deal is attractive to them and this determines the level of aggressiveness in their bid.

The borrower is supposed to select the best bidder. Yet, the borrower may decide to select another bidder based on past successful transactions made with that bidder, since it reduces risk. For the sake of simplicity and without loss of generality, we can assume that the selected bidder is always the best bidder. The best bidder will most likely be the cost-efficient one, as outlined by McAfee and McMillan (1986). Since past successful relationships reduce the risk of a deal, search costs and uncertainty are significantly reduced, generating a better bid. In the case of syndicated loans, all contracts are fixed-price contracts, which means that the payment p to the winning bidder is always equal to b_i, the amount of the bid, i.e., the total fees charged to become the lead arranger. Each agent will set b_i depending on the costs faced and a provision for profit.

As standard in the contract bidding literature, we can assume that all potential bidders are rational, risk averse and are subject to the same utility function U. Each agent i maximizes the expected utility function. The profit for bidder i, if selected by the borrower, π_i, is given by

$$\begin{aligned}\pi_i &= b_i + (1-\alpha)u_i * m * r - c_i && (4.3)\\ &= b_i + (1-\alpha)u_i * m * r - (s_i + o_i + \beta_i * f + u_i * (1-\alpha) * m * r_f - \gamma_i * u_i * f + w) && (4.4)\\ &= b_i + (1-\alpha)u_i * m * (r - r_f) - s_i - o_i - \beta_i * f + \gamma_i * u_i * f - w, && (4.5)\end{aligned}$$

with r being the interest rate associated to the loan. We can assume without loss of generality that being a lender is not the final purpose of lead arrangers. As outlined by Champagne and Kryzanowski (2007), there is a constancy in lead arranging banks and only participating banks. In essence, the panel of potential bidders is restricted to banks that regularly act as lead arrangers. As such, we can neglect the impact on the lead arranger's profit of the actual return of the money provision to the borrower by the lead arranger, i.e., $(u_i * (1 - \alpha) * m) * (r - r_f)$. This is not a strong assumption and it simplifies significantly the reality. A lead arranger will gauge the appetite of potential participating lenders and fix r in order to clear the market, i.e., setting α to 1, which annihilates the impact of the rate premium over the risk-free rate. If $\alpha < 1$, we can assume that the risk premium exactly compensates for the level of risk (market and borrower-specific) of the deal, so that the expected profit of the lending activity equals 0. As outlined here above, we can also neglect s_i and o_i given that search costs and opportunity costs will most likely be constant across all bidders. We can then rewrite 4.3 as

$$\pi_i = b_i - \beta_i * f + \gamma_i * u_i * f - w. \tag{4.6}$$

Each agent wants to maximize the expected utility of profit $EU(\pi_i)$, where the expectation is taken over the source of uncertainty w. If $EU(\pi_i) < 0$, the agent does not bid on the deal. Building on McAfee and McMillan (1986), we can assume that a symmetric Nash equilibrium to this bidding game exists. As previously outlined, the game is a first-price sealed-bid auction. The Nash equilibrium can be characterized by a bid function B such that agent i bids $b_i = B(c_i^*)$ if all other agents follow the bidding strategy $b_j = B(c_j^*)$. Assuming that B is a strictly monotonic function, the probability for agent i to win the competitive bidding game with bid b_i is equal to the probability that $B(c_j^*) > b_i$ for all other bidders, that is $[1 - G(B^{-1}(b_i))]^{n-1}$. The expected utility of profit, prior to being selected by the borrower, that we denote as EAU (ex-ante utility), is

$$\begin{aligned} EAU &= [EU(\pi_i)][1 - G(B^{-1}(b_i))]^{n-1} & (4.7) \\ &= [EU(b_i - \beta_i * f + \gamma_i * u_i * f - w)][1 - G(B^{-1}(b_i))]^{n-1}. & (4.8) \end{aligned}$$

Each bidder wants to maximize the ex ante utility by setting b_i. As shown by McAfee and McMillan (1986), from the initial first-order condition of the ex ante utility function and from $b_i = B(c_i^*)$, the symmetric Nash equilibrium, we can rewrite the first-order condition with

$$\frac{EU'}{EU} B'(c_i^*) = \frac{(n-1)g(c_i^*)}{1-G(c_i^*)} \; for\ all\ i = 1, ..., n, \tag{4.9}$$

with EU' being the expected value of U' over w.

Further building on McAfee and McMillan (1986) and assuming constant absolute risk aversion, i.e., $U(x) = \frac{1-e^{-\lambda x}}{\lambda}$, $\lambda \geq 0$, the selected bidder's maximum ex-ante expected profit is given by

$$\begin{aligned} E\pi_i(c_i^*) = -\frac{1}{\lambda} \Bigg[& log(n-1) - (n-1)log(1-G(c_i^*)) - log\left(\int_{-\infty}^{\infty} e^{\lambda w} f(w)dw\right) \\ & +log\left(\int_{c_i^*}^{c_h} e^{-\lambda(c-c_i^*)}(1-G(c))^{n-2} g(c)dc\right)\Bigg] \end{aligned} \tag{4.10}$$

and the expected utility conditional on being selected is

$$EU(c_i^*) = [1-G(c_i^*)]^{-(n-1)} e^{\lambda c_i^*} \int_{c_i^*}^{c_h} [1-G(c)]^{n-1} e^{-\lambda c} dc. \tag{4.11}$$

Globally, the theoretical results reported in McAfee and McMillan (1986) can be applied to this model. The next section provides an empirical analysis to test the extent to which this model can be applied to real data.

The main lesson we can draw from the conceptual framework and model developed in the previous sections, and more precisely from Equation 4.6 is that the profit the lender that wins the deal aims at maximizing depends on three parameters: the lender's efforts to decrease the amount of fees associated to its offer (β_i), the inclusion of a full underwriting clause (u_i) and the associated increase in costs (γ_i). These three parameters are mainly driven by the lender's willingness to aggressively bid and provide the best offer to the borrower. The literature presented here above highlights that the attractiveness of a deal is bidder-specific and may vary according to several characteristics such as the previous relationships between a lender and a borrower, the level of expertise of the lender and/or its reputation. In this section, we explore empirically the lender's motivation to aggressively bid the deal using three major hypotheses provided by the literature.

5 Empirical Analyses

We then assess the model empirically. Using LPC dealscan data, we test the part of the model predictions related to the candidate lender's incentive and effort to reduce loan costs (using the upfront fees paid only to the lead lender as a proxy), since most data are not accessible for the pre-mandate phase, notably, whether or not the deal has been fully underwritten. We test and validate three hypotheses on the importance of the past relationships between the lender and the borrower, the geographical proximity or home bias and the industry expertise of the lead, respectively. All in all, we conclude that these three elements are crucial in the upfront fee determination and should be regarded to design appropriate pre-mandate bidding strategies for lead arrangers. This paper is, to the best of our knowledge, the first to model the selection of lead arrangers in syndicated loans and test the implications of such a model empirically.

5.1 Hypotheses

To take the lending decision, a lender collects a wide set of information about the borrower, its project, its industry, its economic environment, etc. in order to clearly understand the loan demand and to correctly price it according to the risk level it represents. This process can be time-consuming and costly while it aims at reducing the information asymmetry between the lender (the principal) and the borrower (the agent). When the two counterparties meet for the first time, the search costs (s_i in Equation 4.1) may be significantly larger than when they are used to working together (Berger and Udell, 2002). In other words, past relationships between a lender and a borrower significantly contribute to reduce the level of information asymmetry by increasing the availability of soft information to the lender (Schenone, 2010) while lowering the search costs. This may provide the lender with an incentive to grant new loans even during distressed times (Beck et al., 2018) and to improve lending terms of the new loans (Lopez-Espinosa et al., 2017). Our first hypothesis is then stated as:

Hypothesis 1: *The lender lowers the loan fees for borrowers it already lent to in the past.*

Another factor that may affect the level of information asymmetry, and hence the lender's incentive to be more or less aggressive in the deal offer, is the lender's expertise for a specific market and/or sector. This expertise enhances the lender's ability to evaluate firms and projects, to interpret subtle signals and to improve risk management allowing her to save time and to lower search costs. As for the existence of a past relationship, it relies on the lender's capacity to reuse information previously collected across time and consumers to adjust lending terms according to her exposure to market- and/or industry-specific credit risk (Stomper, 2006).

The literature highlights two main sources of expertise: geographical and industrial. First, this literature identifies a home bias in banks lending and shows that a lender is more willing to lend to borrowers located in the same country because of the lower physical, geographical (Coval and Moskowitz, 1999, 2001), and cultural distance (Grinblatt and Keloharju, 2001; Hau, 2001). The lenders tend to overweight domestic assets in their portfolio because they have the feeling that they can better evaluate local conditions and management practices (Brennan and Cao, 1997; Van Nieuwerburgh and Veldkamp, 2009; Dziuda and Mondria, 2012) as well as the credit risk of domestic assets (Epstein, 2001). Moreover, they may have the incentive to build on their competitive advantage for their domestic market compared to foreign lenders (Van Nieuwerburgh and Veldkamp, 2009). All this brings us to our second hypothesis:

Hypothesis 2: *The lender lowers the loan fees for borrowers located in its country (Home Bias).*

Then, the literature shows that the industry of the borrower may also be a strategic determinant of banks' lending decisions. A bank is a financial intermediary with a key role as a delegated monitor, able to reduce information asymmetry (Diamond, 1984). As such, the acquisition and the interpretation of information is key and may be enhanced if the lender has an industrial expertise. This specialized lender may benefit from economies of scale by re-using the information she collected about other borrowers belonging to the same industry to save both search and monitoring costs. Hence, this expertise may have an impact on the lender's bid terms with two potential outputs: either the lender wants to focus on her area of expertise and will bid aggressively for a deal in industries she already has a large market share and/or she wants to maintain her reputation as a leader on this market,[3] or the lender

[3] Considering the second main lender for a specific sector, we may hypothesize that this lender can have the incentive to bid aggressively to become the first player. However, the costs that this lender will face to win and get the deal are so high that the remaining profit will be lower than the leader on this sector.

wants to diversify her portfolio to limit her exposure to a specific sector and to reduce her risk (Acharya et al., 2006). We state our third hypothesis as:

Hypothesis 3: *The industry of the borrower is a key determinant of the bid terms offered by the lender (Strategic decision).*

5.2 Data and summary statistics

The main issue when analyzing the choice of the lead arranger in syndicated loans is the availability of data. For this research study, we ground our empirical work on the main source of information about the syndicated loan market: the LPC Dealscan database. However, LPC Dealscan provides only information about syndicated loans that are closed and have already been granted. As such, we only have access to the winning agent's bid. As such, the first objective was to find how we can estimate the effort made by the lead to win the deal. One option would have been to consider whether the loan contains the full underwriting clause (i.e., $u_i = 1$) as a signal of the lead's aggressive bid. However, this database does not mention whether the loan is associated with the full underwriting clause or not, hence limiting our ability to test empirically the impact of both u_i and γ_i on fees. Nevertheless, with the implementation of the pricing "flex" system since the late 1990s, the actual pricing of a loan is determined through the loan marketing process. As such, the risk for a lead to fully underwrite a loan has significantly decreased. Hence, with the emergence of this new flex language now common, loans have mainly been issued using the best-effort clause. As such, without loss of generality, we can assume that a lender's motivation to aggressively bid the deal is mainly driven by the level of fee discount this lender is willing to grant to the borrower, unconditional on u_i, i.e., β_i. The objective for the empirical assessment of our model is then to identify the impact of β_i on lender's profit π_i (Equation 4.6).

One alternative option is to study the loan terms assuming that the final terms represent the most attractive offer the borrower received, leading to the choice of this specific lead. More precisely, our idea is to focus on the loans upfront fees paid once to the lead for arranging and originating the financing, structuring the syndicate, and marketing and distributing the syndicated facilities. Hence, we can then compare the level of upfront fees across the winning leads assuming that banks with past relationships, and/or a higher level of expertise would bid more aggressively by decreasing the level of upfront fees they expect to be paid.

In line with these assumptions, LPC Dealscan provides us with information about the identity of the borrower and the lender, the date of the loan, the loan fees, the geographical position of both the lender[4] and the borrower, the industry of the borrower, the amount each lender has invested in one specific loan and the role this lender has in the syndicate. Our sample period starts in 1998 and ends in 2016. Focusing on loans with information on the loan amount, we obtain an initial sample of 257,411 loans. Restricting the sample to borrowers with several loans during the sample period, to be able to identify repeated transactions and measure the potential relationships between one borrower and the lenders, drops the amount of loans to 230,874. We then clean the database to keep only loans for which we have information about the syndicate (lenders names, share invested in the loan), leading to a sample of 215,671 loans. The next step is to focus on syndicated loans only since LPC Dealscan also includes club deal loans, bilateral loans, etc. which are out of the scope of this paper. This results in a sample of 177,142 loans. The last filters we apply to fit our stylized theoretical model is to keep only loans with an amount different from 0 and with one unique lead lender identified thanks to its role in the syndicate that should be lead arranger or lead manager. As such, we obtain a sample of 21,990 lead-borrower transactions. Finally, we clean the database to keep only the observations with the required information to estimate our model (Equation 5.1) resulting in a final sample of 1,991 syndicated loans provided by 401 lead lenders to 983 borrowers between 1998 and 2016. Although, this significantly reduces the records used in the regressions, the sample size is sufficient to test our hypotheses and the implications of our theoretical model.

Table 1 provides the descriptive statistics of our final sample.

Insert Table 1 about here.

The average level of upfront fees paid to the lead lender, $Fees$, is 56.02 bps with a minimum at 0 bps and a maximum at 1,000 bps. The repetition of the same lender-borrower transaction during the previous year of one loan, Rel^{dummy}, remains rare with an average of 0.03 while the average length between two loans involving the same lender and the same borrower, Rel^{length}, is 449 days. On average, one borrower represents 18% of the lead's portfolio of loans with a maximum at 100% (Rel^{amount}). Regarding home bias, roughly one loan out of two (48%) is granted by leads to domestic borrowers ($Spe^{G,dummy}$) while it represents only around a

[4]For the geographical position of the lender, we manually complete LPC Dealscan data with information from Thomson Reuters and ultimately the bank's website when the information is missing in both databases. The definition used to complete the database considers the headquarters of the physical standalone entity except if the parent name is in the name of the subsidiary for which we then consider the headquarters of the parent.

third (36%) of its loan portfolio in terms of amount ($Spe^{G,share}$). Finally, in terms of lead's expertise, the leads identified in our sample do not highlight a specific market power in the industries of borrowers they are lending to during the year preceding the loan ($Spe^{I,share}$). However, some leads tend to have a loan portfolio that is more concentrated than the other leads with an average HHI equal to 0.18 and a maximum at 12.31 ($Spe^{I,HHI}$).

Table 2 presents the correlation matrix for our variables.

Insert Table 2 about here.

The correlation levels remains acceptable except when considering the two variables accounting for the home bias in lead's lending, $Spe^{G,dummy}$ and $Spe^{G,share}$, for which the correlation equals 0.91. This is fairly logical considering the way the two variables are constructed. However, we always consider them in two separate equations. Moreover, we can observe that the correlations between the upfront fees, $Fees$, on the one hand and, Rel^{dummy} and Rel^{length}, on the other hand are negative. In addition, $Spe^{G,dummy}$ and $Spe^{G,share}$ are also negative, consistent with our hypotheses. First, an existing relationship between a lead and a borrower is negatively associated with the level of upfront fees the lead will earn on the deal. We can draw the same conclusion when considering the geographical position of the borrower with a decrease in the upfront fees when the borrower is located in the same country as the lead. The correlation between $Fees$ and Rel^{amount} as well as with the two variables related to the lead's industrial expertise, $Spe^{I,share}$ and $Spe^{I,HHI}$, is positive highlighting potentially an increase in the risk associated with the lead's exposition to one specific borrower and a different use of the lead's expertise to take a strategic decision towards diversification, respectively.

5.3 Results

To test these hypotheses and explore empirically the lenders' motivation to aggressively bid the deal, we estimate the following model that allows us to identify the key determinants of the fees associated to the loans:

$$fees_{iblt} = \alpha + \theta_1 * Rel_{iblt} + \theta_2 * Spe^G_{lt} + \theta_3 * Spe^I_{lt-1} + \delta_b + \delta_l + \delta_t + \epsilon_{iblt} \quad (5.1)$$

where $fees_{iblt}$ are the fees paid by the borrower b to the lead lender l that wins the deal i at time t. We focus our analysis on the upfront fees paid to the lead lender when the loan is closed.[5] These upfront fees are paid only once and compensate the lead for loan syndication costs and syndication risk at the loan initiation.

To test Hypothesis 1, we use three alternative measures of the relationship (Rel_{iblt}) that may exist between a borrower b and a lead lender l at time t. First, we use a dummy variable, Rel^{dummy}, equal to one when the lead lender l already lent to the borrower b during the year that precedes the loan i and 0 otherwise, as in Calomiris and Pornrojnangkool (2009). We expect this variable to have a negative impact on the level of fees perceived by the lead, highlighting the lead's effort to win the deal. Second, we compute the *length* in days between the loan i and the previous loan between the same borrower b and the same lender l and we apply the following formula:

$$Rel^{length} = \frac{1}{ln(length)}\, if\, length > 0\, and\, 0\, otherwise. \tag{5.2}$$

This transformation allows us not only to set the variable at 0 when there is no previous interaction between one borrower and one lender but also to ease the interpretation of the final coefficient. As such, Rel^{length} increases when the *length* between two consecutive loans involving the same two counterparties decreases, highlighting a closer relationship. To confirm our first hypothesis, we then expect the associated coefficient to be negative and significant as for the first measure of the relationship. Finally, we proxy the potential relationship that may exist between a borrower and a lender by computing the amount lent by lender l to borrower b as a percentage of the total amount lent by this lender l during the year of the loan i and denote it Rel^{amount}. We argue that the lead will bid aggressively and will invest a large amount in a loan when it has a strong relationship with the borrower. Hence, we also expect this variable to lower the loan fees as a signal of the lead's willingness to take an additional amount of risk for this specific borrower by significantly investing in its project.[6]

To test Hypothesis 2 related to the level of geographical expertise of the lead lender and its impact on the lead's incentive to win the deal, we investigate the home bias (Spe^{G}_{lt}) in bank lending with two different variables: a dummy variable equal to one if borrower b is located in the same country as the lender l and 0 otherwise that we denote $Spe^{G,dummy}$. Then we replace

[5] In the case of several lead lenders, the fees are proportional to the commitment of each lead lender, the lead arranger receiving the highest one.

[6] An alternative measure of the relationship between a lender and a borrower would have been the number of lenders in the syndicate as a proxy for the number of credit sources available to the borrower (Chakravarty and Yilmazer, 2009). However, this measure is not relevant in our analysis as the final syndicate is not known during the pre-mandate phase that we investigate in this paper.

this dummy variable (when it is equal to one) by the ratio of the total amount lent by lender l to domestic borrowers to the total amount lent by this lender l during year t. We denote this second variable $Spe^{G,share}$. We expect these two variables to have a negative impact on loan fees to validate our second hypothesis and to confirm the lead's incentive to aggressively bid for domestic borrowers.

To test Hypothesis 3, we examine the impact of the borrower's industry on the lead's incentive to win the deal taking into account the lead expertise for this industry (Spe^I_{lt-1}). We consider two variables to measure the market power of the lead in a specific industry using the 2-digit SIC code. We first use the amount lent by lender l to the industry of borrower b during year $t-1$ as a percentage of the total amount lent by all lenders (leads and participants) during the same year $t-1$) and denote the measure $Spe^{I,share}$. Then, we proxy this industrial expertise with the lead's level of concentration in their loan portfolio, using the Herfindahl Hirschman Index (HHI) of year $t-1$ for lead l, $Spe^{I,HHI}$. We complement our model with the interaction of these two variables to distinguish the leads that would have a large market power in one industry but a diversified portfolio of loans and the leads with a large market power in one industry as well as a concentrated loan portfolio. The latter would clearly highlight the lead's incentive to be focused and expert on some industries while the other leads would be considered as the main players on the syndicated loan market on average.

Finally, we control for all the other characteristics specific to each borrower, each lender, and each year using fixed effects, i.e. $\delta_b, \delta_l, and \delta_t$ respectively, as it is common in the literature on syndicated loans. We also run an alternative version of Equation 5.1 by adding the loan characteristics that are known *a priori* during the pre-mandate phase, to better control for the risk of the project the borrower wants to finance. These controls include the type of the loan (with a dummy equal to one when it is a term loan, and another dummy equal to one if it is a revolver line), its objective (with a dummy equal to one for loans with corporate purposes), its maturity (i.e., the number of months), and its currency (with a dummy equal to one if the loan is denominated in USD).

Table 3 presents the results of our estimations based on Equation 5.1.

Insert Table 3 about here.

We first consider all the variables separately before horse-racing the three hypotheses by combining the different possible sets of variables. As such, in the six first specifications, we consider the relationship, the home bias and the lead's expertise, separately and using the different proxies. In specifications (7), (8) and (9), we combine the three different relationship variables with $Spe^{G,dummy}$ while in specifications (10), (11) and (12), we combine the same three relationship variables with $Spe^{G,share}$, that is the home bias variable based on lead's amount to domestic borrowers. In these last six specifications, we use the same three variables for lead's expertise.

Our results remain consistent across the different specifications. First, two of the three relationship variables, Rel^{dummy} and Rel^{amount}, are negatively correlated with the level of upfront fees. As such, in specification (10), the upfront fees decrease by 23.881 bps on average when a loan is preceded by another loan between the same lead and the same borrower (Rel^{dummy}). Moreover, in specification (12) when a lead raises the amount lent to a borrower during a specific year by 5% for example, hence increasing the weight of this borrower in her loan portfolio, this contributes to a decrease in the upfront fees by 3.5 bps.[7] Overall, these results highlight the willingness of the lead to be more aggressive for borrowers she has already lent to in the past year or borrowers she is lending a large amount of its annual loan portfolio. These conclusions are in line with our stylized model, our first hypothesis as well as the literature. We support the justification stating that a borrower may benefit from more interesting loan terms thanks to the relationship she develops with her lenders (Lopez-Espinosa et al., 2017). Berger and Udell (1995) also show a significant and negative impact of the lender-borrower relationship on the level of interest rates and the pledged collateral. When a borrower and a lead are used to interacting together, their discussions provide the lead with valuable information about the borrower's behavior and its credit quality (Schenone, 2010), contributing to the role of the lead as an information provider and reinforcing the lead's ability to evaluate the borrower, ultimately leading to a better adjustment of loan terms (Boot and Thakor, 1994; Petersen and Rajan, 1994).

Second, one of the two home bias variables, $Spe^{G,share}$, is significant and negatively correlated with the level of upfront fees. In specifications (10) and (12), we observe a decrease in the upfront fees by 3.66 bps and 2.93 bps respectively when the share of loans to domestic borrowers increases by 5% while the dummy remains insignificant across the different specifications. This validates our second hypothesis, i.e., leads tend to be more aggressive to win domestic deals in which they invest large amounts. As previously discussed, the lead may have the incentive to win domestic deals because it is easier to evaluate domestic assets subject to the same institutional and legal framework. The cultural proximity may also contribute to the

[7] This effect is computed by taking the difference between a 15% and a 10% amount. $(-70.024 * 0.15) - (-70.024 * 0.10) = -3.5bps$. This effect might be related to reputational aspects. Yet, controlling for lead fixed effects in the equation mitigates this unmeasured impact.

lead's decision to win the deal (Grinblatt and Keloharju, 2001). An alternative explanation relies on the lead's propensity to focus on markets where they already have a competitive advantage to increase its profits (Van Nieuwerburgh and Veldkamp, 2009). Overall, these arguments imply a decrease in costs for the lead to collect information, and to understand this information, which may be combined with an increase in benefits for the lead, thanks to its competitive advantage over foreign leads.

Finally, when considering the industrial expertise of the lead, only the interaction between the market power ($Spe^{I,share}$) of the lead in a specific industry and the level of concentration of its loan portfolio ($Spe^{I,HHI}$) is significant and positive. In other words, the market power of a lead in one specific industry or the average concentration level of its loan portfolio are not linked to the level of upfront fees of a deal on their own. However, for an average level of loan portfolio concentration (market power), an increase in the lead's market power (concentration of its loan portfolio) contributes to an increase in the upfront fees associated to a deal. To interpret this coefficient in economic terms, we consider the descriptive statistics of the two variables provided in Table 1. As such, in specifications (10), for an average $Spe^{I,HHI}$ equal to 0.18, the upfront fees increase by 1.47 bps when the lead's market power $Spe^{I,share}$ goes up by one standard deviation. Alternatively, for an average market power of 0.44%, an increase by one standard deviation of $Spe^{I,HHI}$ contributes to raise the upfront fees by 2.92 bps.

On the one hand, these results are in line with the strand of the literature stating that the fact of being focused on its industries of expertise for a lead lender allows her to get higher profits and returns (Acharya et al., 2006; Tabak et al., 2011). DeLong (2001) even shows an increase by 3% of a bank's stockholder value after the announcement of a merger that focus on both bank's activity and geographical proximity. Moreover, De Jonghe et al. (2020) highlight a significant increase in rents for banks that reallocate their loan portfolios towards sectors in which they have a high presence after a negative funding shock.

On the other hand, we show that borrowers may still select a lead despite a higher level of upfront fees. More precisely, borrowers will opt for leads that are recognized as experts in lending to their industry. This conclusion goes in line with the study by Paravisini et al. (2017). In their analysis, the authors argue that credit demand is lender-specific and that borrowers select lenders that are specialized in the market where they want to expand out. Moreover, Paravisini et al. (2017) set forth that the probability that a firm starts a banking relationship with a new banking partner increases by 6.9% if the latter is recognized as an expert in the sector the firm wants to invest in. Overall, this may be the signal of the lead's ability to win a deal and to earn a higher rent on this deal thanks to its expertise. Hence, our results support the hypothesis related to the lead's reputation.

Table 4 displays the results of our estimations of Equation 5.1 when adding loan characteristics.

Insert Table 4 about here.

Our conclusions remain strictly similar. The only noticeable difference is the coefficient of $Spe^{G,dummy}$ which becomes significant and negative in all the different specifications. As such, in specifications (7) and (9), we observe a decrease by 138.29 bps and 128.85 bps when the loan is granted to a domestic borrower. These results reinforce the first set of results, and highlight the lead's willingness to bid aggressively by reducing the upfront fees to win the deal when it is a domestic borrower.

6 Concluding remarks

Syndicated loans have become a cornerstone in bank lending over the recent years. The literature has extensively discussed a large set of issues from past relationships to cultural differences. Yet, the existing literature on the selection of lead arrangers in the syndicated loan's process is quite limited. This pre-mandate phase is however crucial given the strategic position of the lead arranger in the syndicated loan process and its access to and generation of costly information.

On the one hand, from the financial institution's perspective, understanding the selection process of a lead arranger and its consequences is of utmost importance. Banks and lending institutions can indeed optimize their bidding strategy given their current relationship with the candidate borrower, the geographical proximity and the industry expertise. On the other hand, from the borrower's perspective, a proper targeting of the potential lead arrangers on the project should help select the most effective bidder in terms of cost and/or service provided. Therefore, a proper analysis of the syndicated loan's pre-mandate phase is required. Our paper aims at filling that gap.

We develop a stylized model to sketch the way lead arrangers answer a borrower's request to bid. We map our stylized model onto contract bidding theory, as described in McAfee and McMillan (1986) and Samuelson (1986). Given the specificity of the syndicated loans' market, we were able to significantly simplify this theory to adapt it to loans. Our cost model includes search costs, opportunity costs and all the costs supported by a potential lender to be attractive to a borrower, as well an uncertainty component. We also model more closely the effort made by a potential lender to be selected as a function of a set of drivers, most notably the presence of a full-underwriting clause and the attractiveness of the deal to her, which may take into account a past successful relationship with the borrower, geographical proximity and industry relatedness.

We test some features of this model on LPC Dealscan data. We validate the hypotheses stating that past relationship, geographical proximity and industry relatedness play an important role in the determination of the upfront fees that are reserved to lead arrangers. All in all, our results are totally consistent with the existing literature as well as what is proposed by our stylized model, further justifying its usefulness.

This research study opens wide avenues for future research. The model could for instance be adapted to evaluate joint mandates, though changes would be significant. More detailed data, notably on the presence of a full-underwriting clause, could also help discuss and improve the model's features. Going beyond the model presented in this study and opening it to several loan or mandate specificities will be part of our future research agenda. An investigation of the key features that a potential lead should display to ensure its selection as the lead arranger, as well as the analysis of the impact of the expertise and relationship on the probability of being selected are also left for future research.

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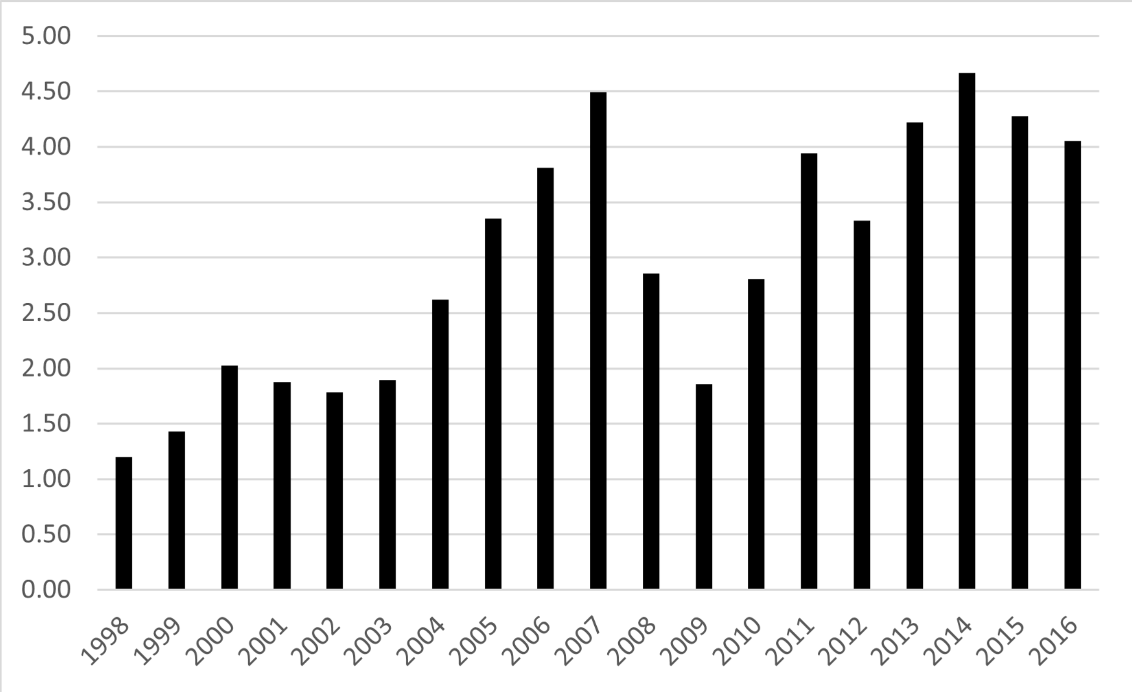
Figure 1: Loan issuance (Trillion of U.S. Dollars)



This chart presents the evolution of loan issuance. The figures are reported in trillion of U.S. dollars.

Table 1: Descriptive statistics

Variable	N. obs.	Mean	Std. Dev.	Min	Max
$Fees$	1,991	56.02	57.36	0.00	1,000.00
Rel^{dummy}	1,991	0.03	0.18	0.00	1.00
Rel^{length}	1,991	0.03	0.06	0.00	0.62
Rel^{amount}	1,991	0.18	0.29	0.00	1.00
$Spe^{G,dummy}$	1,966	0.48	0.50	0.00	1.00
$Spe^{G,share}$	1,966	0.36	0.41	0.00	1.00
$Spe^{I,share}$	1,991	0.00	0.01	0.00	0.09
$Spe^{I,HHI}$	1,991	0.18	0.64	0.00	12.31

This table presents the descriptive statistics of the variables used in the models. $Fees$ denotes the amount of upfront fees in basis points associated to a syndicated loan. Rel^{dummy} is the first measure to proxy the relationship between the lender and the borrower following Calomiris and Pornrojnangkool (2009). Rel^{length} is the second proxy for this relationship using the length between deals that gathers the same lender-borrower couple. Rel^{length} is the percentage of the amount lent by the lender to the borrower out of the total amount lent by the lender during the year of the loan. $Spe^{G,dummy}$ is a dummy materializing the geographical specialization of the lender. $Spe^{G,share}$ also proxies for geographical specialization and is computed as the ratio of the total amount lent by the lender to the borrowers to the total amount lent by the lender during a given year. $Spe^{I,share}$ is a proxy for industry specialization and is computed as the ratio of the amount lent by the lender to the industry of a given borrower over year $t-1$ to the total amount lent by all lenders (leads and participants) during the same year. $Spe^{I,HHI}$ proxies for industrial specialization through the level of concentration in the lender's loan portfolio for year $t-1$, using the Herfindahl Hirschman Index (HHI). We report the number of observations, the mean, the standard deviation, the minimum and the maximum.

Table 2: Correlation matrix

	$Fees$	Rel^{dummy}	Rel^{length}	Rel^{amount}	$Spe^{G,dummy}$	$Spe^{G,share}$	$Spe^{I,share}$	$Spe^{I,HHI}$
$Fees$	1.00							
Rel^{dummy}	-0.05	1.00						
Rel^{length}	-0.14	0.54	1.00					
Rel^{amount}	0.18	-0.03	-0.15	1.00				
$Spe^{G,dummy}$	-0.25	0.00	0.16	-0.14	1.00			
$Spe^{G,share}$	-0.25	0.00	0.14	-0.07	0.91	1.00		
$Spe^{I,share}$	0.04	0.19	0.11	-0.17	-0.23	-0.24	1.00	
$Spe^{I,HHI}$	0.09	0.19	0.13	-0.08	-0.17	-0.19	0.52	1.00

This table presents the correlation matrix of the variables used in the models. $Fees$ denotes the amount of upfront fees in basis points associated to a syndicated loan. Rel^{dummy} is the first measure to proxy the relationship between the lender and the borrower following Calomiris and Pornrojnangkool (2009). Rel^{length} is the second proxy for this relationship using the length between deals that gathers the same lender-borrower couple. Rel^{length} is the percentage of the amount lent by the lender to the borrower out of the total amount lent by the lender during the year of the loan. $Spe^{G,dummy}$ is a dummy materializing the geographical specialization of the lender. $Spe^{G,share}$ also proxies for geographical specialization and is computed as the ratio of the total amount lent by the lender to the borrowers to the total amount lent by the lender during a given year. $Spe^{I,share}$ is a proxy for industry specialization and is computed as the ratio of the amount lent by the lender to the industry of a given borrower over year $t-1$ to the total amount lent by all lenders (leads and participants) during the same year. $Spe^{I,HHI}$ proxies for industrial specialization through the level of concentration in the lender's loan portfolio for year $t-1$, using the Herfindahl Hirschman Index (HHI).

Table 3: Regressions - Baseline Model

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Intercept	62.764***	58.760***	78.479***	61.770***	75.149***	65.477***	76.773***	65.521***	76.547***	86.540***	84.349***	94.504***
	(8.017)	(8.029)	(9.575)	(13.431)	(11.218)	(13.686)	(18.231)	(18.069)	(18.568)	(14.547)	(15.120)	(16.205)
Rel^{dummy}	-24.663*						-23.348*			-23.881*		
	(13.162)						(13.355)			(13.288)		
Rel^{length}		8.346						13.165			4.432	
		(26.421)						(26.745)			(26.099)	
Rel^{amount}			-79.217***						-75.183***			-70.024***
			(23.601)						(25.941)			(25.959)
$Spe^{G,dummy}$				-5.421			-35.732	-3.980	8.463			
				(18.555)			(24.740)	(20.706)	(19.857)			
$Spe^{G,share}$					-60.442**					-73.286**	-68.809**	-58.623**
					(29.686)					(29.061)	(26.696)	(28.581)
$Spe^{I,share}$						-973.882	-764.351	-1,060.082	-666.630	-1,050.997	-1,276.526	-920.834
						(980.210)	(862.047)	(1,007.974)	(986.452)	(817.485)	(984.162)	(963.588)
$Spe^{I,HHI}$						-10.545	-4.544	-11.110	-3.457	-4.054	-10.404	-3.662
						(17.040)	(17.678)	(16.842)	(16.021)	(14.640)	(14.440)	(14.414)
$Spe^{I,share}$						1,266.557**	947.875	1,299.983**	920.470	1,049.673*	1,380.224**	1,031.471*
$*Spe^{I,HHI}$						(643.893)	(684.430)	(629.393)	(619.517)	(597.403)	(561.468)	(569.353)
Borrower FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan characteristics												
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,991	1,991	1,991	1,966	1,966	1,991	1,966	1,966	1,966	1,966	1,966	1,966
R-squared	0.897	0.897	0.897	0.896	0.896	0.897	0.897	0.896	0.897	0.897	0.897	0.897

This table presents the results of the estimations of the models using robust standard errors. Each column refers to a given specification with part of the regressors. *Fees* denotes the amount of upfront fees in basis points associated to a syndicated loan. Rel^{dummy} is the first measure to proxy the relationship between the lender and the borrower following Calomiris and Pornrojnangkool (2009). Rel^{length} is the second proxy for this relationship using the length between deals that gathers the same lender-borrower couple. Rel^{length} is the percentage of the amount lent by the lender to the borrower out of the total amount lent by the lender during the year of the loan. $Spe^{G,dummy}$ is a dummy materializing the geographical specialization of the lender. $Spe^{G,share}$ also proxies for geographical specialization and is computed as the ratio of the total amount lent by the lender to the borrowers to the total amount lent by the lender during a given year. $Spe^{I,share}$ is a proxy for industry specialization and is computed as the ratio of the amount lent by the lender to the industry of a given borrower over year $t-1$ to the total amount lent by all lenders (leads and participants) during the same year. $Spe^{I,HHI}$ proxies for industrial specialization through the level of concentration in the lender's loan portfolio for year $t-1$, using the Herfindahl Hirschman Index (HHI). * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table 4: Regressions - Model with Loan Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Intercept	87.396***	83.689***	101.359***	113.202***	98.785***	88.684***	111.781***	111.366***	122.196***	106.310***	105.479***	113.720***
	(12.992)	(13.832)	(12.669)	(15.802)	(14.289)	(20.886)	(25.104)	(26.535)	(26.351)	(20.131)	(21.230)	(21.861)
Rel^{dummy}	-25.012*						-23.644*			-24.163*		
	(13.297)						(13.427)			(13.372)		
Rel^{length}		8.727						12.488			4.043	
		(27.518)						(29.228)			(28.806)	
Rel^{amount}			-79.907***						-75.543***			-70.626***
			(24.466)						(26.826)			(26.842)
$Spe^{G,dummy}$				-158.121***			-138.270***	-141.225***	-128.854***			
				(29.156)			(42.711)	(45.585)	(45.639)			
$Spe^{G,share}$					-58.112*					-69.880**	-65.379**	-54.915*
					(30.845)					(30.245)	(28.028)	(29.880)
$Spe^{I,share}$						-858.418	-591.995	-948.647	-571.760	-865.013	-1148.758	-809.588
						(1,053.568)	(971.885)	(1,104.892)	(1,044.292)	(932.211)	(1,084.730)	(1,027.265)
$Spe^{I,HHI}$						-11.570	-5.601	-12.094	-4.322	-5.129	-11.423	-4.526
						(17.626)	(18.173)	(17.415)	(16.628)	(15.293)	(15.168)	(15.132)
$Spe^{I,share}$						1,284.228*	960.284	1,316.417**	933.458	1,057.256*	1,392.114**	1,038.091*
$*Spe^{I,HHI}$						(666.922)	(707.940)	(653.631)	(641.432)	(625.973)	(590.722)	(595.010)
Borrower FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,969	1,969	1,969	1,944	1,944	1,969	1,944	1,944	1,944	1,944	1,944	1,944
R-squared	0.899	0.898	0.899	0.898	0.898	0.899	0.899	0.898	0.899	0.899	0.899	0.899

This table presents the results of the estimations of the models using robust standard errors. Each column refers to a given specification with part of the regressors. *Fees* denotes the amount of upfront fees in basis points associated to a syndicated loan. Rel^{dummy} is the first measure to proxy the relationship between the lender and the borrower following Calomiris and Pornrojnangkool (2009). Rel^{length} is the second proxy for this relationship using the length between deals that gathers the same lender-borrower couple. Rel^{length} is the percentage of the amount lent by the lender to the borrower out of the total amount lent by the lender during the year of the loan. $Spe^{G,dummy}$ is a dummy materializing the geographical specialization of the lender. $Spe^{G,share}$ also proxies for geographical specialization and is computed as the ratio of the total amount lent by the lender to the borrowers to the total amount lent by the lender during a given year. $Spe^{I,share}$ is a proxy for industry specialization and is computed as the ratio of the amount lent by the lender to the industry of a given borrower over year $t-1$ to the total amount lent by all lenders (leads and participants) during the same year. $Spe^{I,HHI}$ proxies for industrial specialization through the level of concentration in the lender's loan portfolio for year $t-1$, using the Herfindahl Hirschman Index (HHI). * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.