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What Drives the Arrangement Timetable of
Bank Loan Syndication ?

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Abstract

We investigate the influence of loan and syndicate characteristics and information disclosure and legal environment factors on the arrangement timetable of bank loan syndications (measured as the time elapsed from the launching until the completion of the deal) from 68 countries over the 1992-2006 period. Employing accelerated failure time models from survival analysis methodology, we find that loan, syndicate, legal environment and information disclosure characteristics which reduce agency problems related to syndication reduce the arrangement timetable. Among the country level characteristics, information disclosure which reduces moral hazard due to informational frictions between syndicate members appears to be the most important driver of a faster deal arrangement timetable, while better creditor rights protection increase the arrangement timetable, consistently with recontracting risk issues.

Keywords : Syndicated loans arrangement timetable, Agency problems, Information disclosure, Legal risk, Survival analysis, Accelerated failure time models.

JEL Classification : G21, C41.

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Abstract

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1 Introduction

The global syndicated lending market has reached 2.8 trillion USD and 6,580 issues in the third quarter of 2006¹. Currently, syndicated loans are an important source of external finance for financial and non financial companies, comparable to bond markets and often larger than equity markets. For instance, they represent 51% of total corporate financing in U.S. (The American Banker, 2000).

Briefly, a syndicated loan is a loan granted jointly and under common terms by a group of banks to a borrower. Usually, the borrower mandates a lead bank (the arranger) to arrange the syndication. The terms of the loan agreement are negotiated by these two agents. The arranger then finds participant banks that grant a share of the loan, receiving compensation in terms of fees and/or spread for this activity. Consequently, every syndicate member has a separate claim on the debtor within a single loan agreement.

In a syndication, apart from several borrower related advantages² and lenders related advantages³, the deal arrangement timetable is of special interest in this article. Factors which can speed up the arrangement timetable of a loan syndication process allow to obtain funds more quickly. These factors are of primary interest for the borrower, who is the primary initiator and beneficent of the syndication. In a rapidly evolving economic and financial reality, fast and efficient funding arrangement provides a competitive advantage allowing to exploit existing investment opportunities⁴. Arrangers

¹Thomson Financial (2006).

²Such as the ability to arrange cross border transactions, the restriction of negotiation with one bank (the arranger), uniform terms and conditions, more competitive pricing resulting in lower spreads, lower fees compared to bond issues, more flexible funding structure, larger amount compared to public finance, and bilateral relationships with participants (Allen, 1990; Altunbas and Gadanecz, 2004).

³Syndication allows to diversify loan portfolios and thus avoid excessive single-name exposure in compliance with the regulatory limits while maintaining a relationship with the borrower. It helps to exploit comparative advantages of syndicate members in terms of financing and eventually in terms of information sharing (Song, 2004). Syndication allows also to diversify income sources through the collection of fees, as well as to tackle lack of origination capability and origination costs. Finally, it can serve as a sector risk controlling device (see Schure et al., 2005).

⁴Syndicated loan announcement has a positive impact on borrower's wealth through a positive stock market response (see Preece and Mullineux, 1996).

are also concerned by the arrangement timetable of a syndication, as quick and efficient deal arrangement and activation signals a more efficient and reputable arranger and thus enhances the probability of further syndications and increases market presence. Other syndicate participants are also concerned by arrangement timetable as a faster syndication process allows to benefit quicker from the compensation related to funding a tranche of the deal as well as from potential bilateral relationships with the borrower. Finally, financial regulators can also gain valuable information from the knowledge of individual and country level characteristics which influence the arrangement timetable of loan syndication in order to set up appropriate regulatory environment for the development of syndicated lending.

Loan syndication has also several drawbacks as it generates potential agency problems due to informational frictions between the senior (arrangers) and the junior (participants) members of the syndicate. Following Diamond (1984), Gorton and Pennachi (1995), and Holmstrom and Tirole (1997), borrower monitoring by multiple creditors may lead to cost inefficiency and free-riding. Hence, creditors usually delegate monitoring to one financial intermediary, the arranger in a syndicated loan context. As his monitoring effort is unobservable, the syndicate faces a moral hazard problem. Furthermore, the latter is exacerbated by the fact that all participating banks have fewer incentives for monitoring than one bank granting the full loan. Additionally, the arranger collects private information through due diligence or through a previous lending relationship. Therefore, he plays the role of an informed lender on whom rely the other less informed lenders. If the information cannot be credibly communicated to the participants or verified by them, an adverse selection problem arises as the arranger may syndicate loans with the less favorable information.

To our knowledge, this is the first empirical study investigating the duration of international syndication arrangement. Former literature on syndicated lending is relatively scarce and focus on other issues: identifying the factors driving the decision to syndicate a loan (Dennis and Mullineux, 2000; Altunbas et al., 2005), the structure and composition of a syndicate (Lee and Mullineux, 2004; Song, 2004; François and Missionier-Piera, 2007;

Sufi, 2007) and the impact of a syndicated loan on borrowers's wealth (Preece and Mullineaux, 1996)⁵. We use a sample of more than 4,800 syndicated loans from 68 countries on the period 1992 – 2006. Employing accelerated failure time models, we test the influence of individual and country level characteristics, such as loan agreement and syndicate characteristics, as well as information disclosure and legal risk, on the arrangement timetable of bank loan syndications.

The rest of the article is organized as follows. Section 2 presents the timetable of a loan syndication arrangement and discusses the determinants of the arrangement timetable. Section 3 presents the accelerated failure time model methodology and the data. Results are displayed and discussed in section 4. Finally, we conclude in section 5.

2 Determinants of loan syndication timetable arrangement

In this section we present in details the different stages of a loan syndication process and then discuss the individual and country level determinants of the arrangement timetable.

2.1 Loan syndication process

Bank loan syndication can be considered as a sequential process, which can be separated into three main stages⁶. During the *pre-mandated stage*, the borrower solicits competitive offers to arrange and manage the syndication with one or more banks, usually its main banks⁷. From the proposals it receives, the borrower chooses one or more arrangers that are mandated to

⁵The results show that the decision of loan syndication is notably related to the transparency of the borrower and the maturity of the loan. It appears also that poorly performing banks tend, on average, to be more involved in syndications. Syndicates are structured in order to enhance monitoring efforts and to facilitate renegotiation.

⁶See Esty (2001) for a detailed analysis of the syndication process.

⁷The borrower chooses an arranger taking into consideration his placing power (ability to attract participants into the syndicated loan), structuring ability, and experience with arranging and pricing a deal.

form a syndicate and negotiates a preliminary loan agreement⁸. The arranger is responsible for the negotiation of key loan terms with the borrower, the production of an *information memorandum*, the appointment of participants and the structuring of the syndicate. The arranger's role is normally completed once the deal is signed but it will often continue its involvement in the facility by acting as agent who manages the syndicated loan. This role involves such tasks as funds administration, interests calculation, covenants enforcement, information sharing and re-negotiation management⁹. Under *fully underwritten loans* (or *firm commitment deals*), the arranger takes the entire transaction risk as he guarantees to provide the full amount of the loan with all the terms and conditions agreed in advance. Under *best effort loans*, the arranger commits for the amount it will lend and agrees to arrange and syndicate the balance of the loan. He can change the terms of the loan (e.g. increase pricing or shorten maturity) to make it more attractive to participants. Some portion of the post-mandate phase is then repeated to attract larger commitments or new participants.

During the *post-mandated stage*, the borrower and the arranger execute a *commitment letter* that confirms key terms, duties and compensation. This syndication stage also involves preparing a documentation package for the potential syndicate members, called an information memorandum, which is produced collectively by the borrower and the arranger. It usually contains information about borrower creditworthiness and loan terms¹⁰. The initial set of targeted participants is strongly determined by the arranger. Their previous experience with the borrower, the industry sector or the geographic

⁸The syndication can be sole or joint mandated, the latter involving the participation of more than one lead bank. Such syndications are usually chosen by the borrower in order to maximize the likelihood of a successful syndication, in terms of loan characteristics, subscription and duration of the syndication process.

⁹These functions can be delegated to specialized agents, such as *administrative agent*, *documentation agent*, *collateral agent*, etc. See François and Missonier-Piera (2007) for an empirical investigation of the motives for delegating these tasks to specialized agents.

¹⁰At this point, the arranger and the borrower usually agree on one of two basic syndication strategies: a *single-stage general syndication* (the loan is distributed to a bank group that is large enough to commit the desired amount) or a *two-stage syndication with sub-underwriting* (the arranger and a small group of banks underwrite the full amount of the deal before offering shares to a broader group of banks).

area are strong drivers for being chosen by the arranger to join the syndicate¹¹. A *roadshow* is then organized to present and discuss the content of the information memorandum, as well as to announce closing fees and establish a timetable for commitments and closing. The participants can make comments and suggestions in order to influence the structure and the pricing of the loan. They are also free to make commitments on any tier offered. After the roadshow, the arranger makes formal invitations to potential participants. The final step is to determine the allocation given to each participant. The lead bank tends to target participants with the “largest appetite” for the loan and make invitations to banks willing to supply most funds given the structure of the loan. Indeed, the arranger wants to avoid *over-subscription*, since that can leave participants with smaller amounts than they were anticipating. He also wants to avoid *under-subscription*, since it can leave an impression of failure that will hurt future business. In the case of over-subscription, the borrower may choose a larger loan or the arranger can scale back allocations. If the syndication is under-subscribed, the arranger must either make up the difference or change loan terms and re-market the deal.

The third and last phase takes place after the *completion date* when the deal becomes active and the loan is operational, binding the borrower and the syndicate members by the debt contract. The latter sets out the terms and conditions of the loan: the amount, the purpose, the period, the rate of interest plus any fees, the periodicity and the design of repayments and the presence of any security.

2.2 Determinants of loan syndication arrangement timetable

We investigate the factors that influence the arrangement timetable¹² of a loan syndication - from the launching date until the completion day (when the deal becomes active) - measured in days for each syndicated loan. This process is illustrated on figure 1.

¹¹However, Sufi (2007) shows that previous bank-borrower relationships play a more important role in the arranger’s decision to invite a particular participant to the syndicate than previous arranger-participant bank relationships.

¹²For clarity purpose, we will use the term timetable in the rest of the article.

[Insert Figure 1 about here]

Loan syndication is a complex process involving specific agency and recontracting risks. It involves several actors: the arranger, the participants and the borrower. Each of them have an influence on the arrangement timetable of the syndication process. At the completion of the deal, the loan contract is binding, so that all the parties involved in the syndication should anticipate most of the problems and risks related to funding the deal during the arrangement timetable. Depending on the attractiveness of the deal in terms of terms and structure and the borrower risk profile, participants will be more or less willing to fund a share of the loan. The arranger can influence these issues as he is concerned with over and under subscription problems and his own reputation and market presence. Finally, the borrower is concerned with the loan terms and structure and with the speed of funding availability.

Agency problems can interfere with the arrangement timetable of the syndication process. First, the arranger possesses more information about the borrower either because of the private information collected through a previous lending relationship or through due diligence. This private information creates an adverse selection problem as the arranger may be inclined to syndicate loans from bad borrowers. However, such opportunistic behavior generates reputation risk for the arranger and affects negatively the success of future syndications (Pichler and Wilhelm, 2001). Second, the participant banks delegate some monitoring tasks to the arranger in charge of the loan documentation and notably of the enforcement of covenants and collateral. 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. Nonetheless, the arranger has less incentive to monitor the borrower than if it were to lend the full amount of the loan (Pennachi, 1998). Another important issue is related to borrower's financial distress which handling is more complicated in a syndicate setting because lenders must reach a collective decision. As shown by Bolton and Scharfstein (1996), the outcome of negotiations in debt restructuring are affected by the number of creditors, by the allocation of security among the set of creditors, and by the character

of stringency of the voting rules among the creditors.

Hidden information problems should be positively related to the timetable. For instance, funding opaque borrowers is more complicated as such borrowers exacerbate adverse selection risk for the syndicate and thus increase the timetable. However, arranger's reputation risk can curb this effect as faster timetables can be considered as signals on arranger's efficiency. Hidden action problems should also be positively related to the timetable as well as reorganization and recontracting risks. Here, borrower's risk profile, deal terms and structure, and arranger reputation play an important role, as well as country level factors such as information disclosure and legal risk. Ultimately, arrangement timetable is affected by the factors which have an impact on the magnitude of agency problems related to syndicated loans. We discuss these factors in the following subsections.

2.3 Loan and syndicate characteristics

We first discuss the role of several loan and syndicate characteristics that might impact the timetable of the syndication process. Loan size (measured as the logarithm of the loan facility size) is expected to have a positive impact on the timetable as larger deals imply more risk, are more plagued by agency problems, and involve larger syndicates in terms of participants for diversification purposes. This makes the process more time consuming in terms of information memorandum and roadshow until the lenders reach a collective decision upon the deal terms as well as the final formation of the syndicate.

Lenders compensation also influences the timetable¹³. The senior members earn an *up-front fee* (also called a *praecipium* or *arrangement fee*) in

¹³Lenders compensation comes in several forms. When the loan agreement is signed, lenders receive *closing fees* to compensate them for the credit approval. Other participants may expect to receive a *participation fee* for agreeing to join the syndicate, with the actual size of the fee generally varying with the size of the commitment. Once the credit is established and as long as it is not drawn, the syndicate members often receive a *facility fee* proportional to their commitment, to compensate for the cost of regulatory capital. As soon as the facility is drawn, the borrower may have to pay a *per annum fee*, usually payable to cover the costs of administering the loan.

exchange for putting the deal together. The most junior syndicate members typically only earn the spread over the reference yield (such as six month Libor). The level of the spread earned by these lenders is expected to positively influence the duration, as a higher spread signals a higher risk profile. As the up-front fee is a part of the arrangers compensation, we expect a negative coefficient for this variable parameter as larger fees provide incentives to the lead banks to complete the deal quicker.

Maturity of the loan is also considered, although whether it plays a positive or negative role is ambiguous. On the one hand, if we consider a positive relationship between maturity and credit risk (Flannery, 1986; Agbanzo et al., 1999), greater maturity should be associated with longer timetable. On the other hand, if credit risk and maturity are negatively related (Dennis et al., 2000), timetable should be shorter.

The structure of a syndicate can be viewed as an organizational response to the agency problems (Pichler and Wilhelm, 2001; Lee and Mullineux, 2004; Sufi, 2007). Hence, the structure and size of the syndicate should also have an influence on the timetable. The size of the “core” of the syndicate is measured with the *Number of Arrangers* variable¹⁴. We expect the latter to have a negative influence on the timetable as a larger syndicate “core” implies better handling of agency problems related to monitoring of the borrower as several delegated monitors are present, reducing moral hazard related to private information which is now spread among several arrangers (Lee and Mullineux, 2004; Sufi, 2007). Furthermore, a larger number of arrangers is usually associated to a higher likelihood of successful syndication, of which an integral part is the speed of arranging the deal. Finally, it is likely that some of the arrangers will act as specialized agents during the syndication, thus contributing to a better handling of the process, through increased cost efficiency and reduced informational asymmetry (François and Missionier-Piera, 2007).

To account for the impact of publicly available information on the timetable of syndication process, we include in our regressions a dummy variable (*SEP*

¹⁴The total size of the syndicate measured with the number of lenders is significantly correlated with the size of the loan, therefore we do not include this variable in our estimations.

Rating) equal to one if a Standard and Poor's senior debt rating is available. We expect a negative coefficient since the existence of a rating mitigates the adverse selection problem due to hard information on borrower's creditworthiness which reduce its opacity (Dennis and Mullineux, 2000) and therefore allows to reduce the timetable.

We also test several characteristics that provide lenders with better protection in case of borrower distress. Such characteristics are expected to exert an influence on the timetable of the syndication process mainly through their impact on potential agency problems. Overall, we expect that better protection of the lenders should reduce the timetable.

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 (*Guarantor*)¹⁵. A guarantor gives additional protection for the lenders, as it will honor a part or the totality of the claim in case of loan default, such as agency problems resulting from adverse selection are mitigated in line with the better information owned by the arranger on the borrower. If that holds, we should observe a negative coefficient associated to *Guarantor*. 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 and the presence of a guarantor may signal a riskier loan and, consequently, a loan plagued by greater agency problems, increasing therefore the timetable.

Additionally, we include a dummy variable (*Sponsors*) equal to one if the loan is sponsored. A sponsor is usually an individual capital investor who is involved in the project and might also act as an advisor and eventually as an additional monitor of the borrower. Its presence should reduce agency problems and therefore be negatively related to the timetable.

The presence of covenants, which aim at restricting the discretionary power of the borrower, providing the lender with an early warning signal

¹⁵Since information on the presence of collateral is strongly missing in the database, its inclusion in the estimations would have considerably reduced our sample.

and eventually triggering loan default, is taken into account with a dummy variable (*Covenants*) equal to one if the loan agreement includes financial covenants. 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. Hence, covenants should be negatively related to the timetable, as they reduce potential agency problems from moral hazard behavior of lenders 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, and implies a positive influence of covenants on the timetable.

We also take debt seniority into account through a dummy variable (*Senior Debt*) equal to one if the debt is senior. If it works as an effective protection for all the members of the syndicate, especially in case of borrower distress and reorganization, the timetable should be shorter. If the seniority does not apply equally to all syndicate members, then agency problems remain exacerbated and the timetable might be longer. Also, if the “observed-risk hypothesis” hold, the request for seniority may result from the perception of a higher risk of the borrower and therefore increases the timetable.

We also control for the type and the purpose of the loan through the inclusion of dummy variables. Indeed, these characteristics might influence the syndication process as they exhibit different risk profiles (see Ackert et al., 2007) and therefore have different influence on agency problems within the syndicate. We include a dummy variable if the loan is a term loan and five dummy variables to describe the purpose of the loan, including corporate purposes, debt repayment, leveraged buy out, project finance, and working capital¹⁶. Depending on the magnitude and sign of the risk profile effect of the loan purpose, timetable will be positively (higher risk) or negatively

¹⁶We do not provide variables for other purposes in our regressions, since they represent less than 5% of our sample.

(lower risk) affected. Finally, dummy variables taking benchmark rate (Libor and Euribor), facility issue year, geographical area and industry into account are included in the estimations.

2.4 Country characteristics

We now turn to the description of country-level variables that influence the duration. Qian and Strahan (2007) show that bank lending and financial contracts respond to legal and institutional environment, while Esty and Megginson (2003) show that institutional factors might influence the syndication process. Therefore, we also test the impact of legal environment, which affects both agency and recontracting risks, as well as of the level of information disclosure, which affects agency problems, on the timetable.

Our first category of country-level variables is related to information disclosure within the country of the borrower. Regulatory features enhancing information disclosure should have an influence on agency problems within the syndicate and should therefore allow for shorter timetable. Indeed, as shown by Jappelli and Pagano (2002), information sharing among lenders reduces agency problems and lowers credit risk. We proxy the level of information disclosure through three variables. *Public Credit Registries* is a dummy variable equal to one if a public credit registry operates in the country of the borrower (Djankov et al., 2007)¹⁷. This type of disclosure influences the level of informational frictions between the borrower and the syndicate. *Risk Management Disclosure* and *NPL Definition* are two dummy variables equal to one if bank regulation requires public disclosure of risk management techniques¹⁸ and if the regulator provides a formal definition of non performing loans respectively (Barth et al., 2005). That type of information disclosure influences the level of information asymmetry between the syndicate members. Public information regarding risk management of lenders is valuable for

¹⁷The registries collect information on credit histories and current indebtedness of borrowers and share it with lenders. Public credit registries are databases managed by a government agency (usually the central bank).

¹⁸An additional candidate variable for regulatory information disclosure was the obligation to publicly disclose off-balance sheet items, but we do not include it in our estimations as this dummy variable equals one for more than 95% of the sample.

the arranger during the selection process of potential participants to the syndication as well as for further relationship within the syndication regarding risk diversification effects and borrower monitoring. A regulatory definition of NPL should also have a similar effect.

Syndicated loans agency problems and debt restructuring efficiency can be influenced by the country legal environment. Following a large body of research on law and finance pioneered by LaPorta et al. (1997) and recently completed by Qian and Strahan (2007), legal institutions and legal risk can affect the way banks perform their governance function, mainly monitoring and re-contracting, and in consequence the syndication process and its timetable. For instance, Esty and Megginson (2003) find that lenders structure the syndicates in order to facilitate recontracting in countries where creditors have strong and enforceable rights. Hence, our second category of country-level variables takes legal environment into account. Two indicators for legal institutions are included in our estimations. Protection of creditor rights (*Creditor Rights*) and law enforcement (*Rule of Law*) are measured with the indexes provided by Djankov et al. (2007) and LaPorta et al. (1997)¹⁹. The expected sign of the coefficient for these both variables is ambiguous. If recontracting in countries where creditors have strong and enforceable rights is difficult, we can expect a positive coefficient for *Creditor Rights*. Similarly, if in high legal risk countries efficient reorganization of a distressed borrower is difficult, we can expect a negative influence of *Rule of Law* on the timetable. Apart from arguments regarding the handling of borrower default and recontracting, we can also consider the impact of legal risk on agency problems within the syndicate before the distress of the borrower. Indeed, as better legal protection of banks mitigates the moral hazard problem induced by syndication and decreases the need to monitor the borrower, we can also expect the opposite coefficients. Finally, we also control for the legal origin into account with a dummy equal to one if legal origin is English²⁰.

¹⁹These indexes are scored on a scale from zero to four and from zero to ten, with a higher score indicating better protection and a better enforcement of the law respectively.

²⁰We obtain similar results when replacing the legal origin variable with the *French Legal Origin* proxy.

3 Methodology and data

The econometric methodology employed to investigate the determinants of the timetable of syndication process as well as the data used for empirical application are presented in this section. We begin by introducing terminology common to survival analysis and describe hazard function estimators. Then we present the sample and the descriptive statistics.

3.1 Econometric specification

Since the dependent variable is the timetable of a syndicated loan arrangement, the appropriate methodology is *survival analysis* which is used to analyze data in which the time until the event is of interest, called an *event time*.

Survival data are generally described and modelled in terms of two related functions²¹, namely the *survival* and *hazard* functions respectively. Let T represent the duration of time that passes before the occurrence of a certain random event. Here T is the arrangement timetable of a loan syndication process. The survival probability (also called the *survivor function*), $S(t)$ is the probability that the syndication process lasts from the time origin (launching date) to a future time t , and is defined as

$$S(t) = Prob(T \geq t) = 1 - F(t), \quad (1)$$

where $F(t)$ is the cumulative distribution function for T .

The hazard is usually denoted by $h(t)$ (also called *instantaneous event rate*) and is the rate of transition of the syndication arrangement timetable to completion, given it has not been completed before. Put another way, it represents the instantaneous event rate for the syndication process which has already lasted to time t . The hazard function is defined formally by

$$h(t) = \lim_{\Delta t \rightarrow 0} \frac{Prob(t \leq T < t + \Delta t | T \geq t)}{\Delta t} = \frac{f(t)}{S(t)}, \quad (2)$$

²¹See Kiefer (1988) and Harrell (2001) for a detailed description of survival analysis.

where $f(t)$ is the probability density function of T evaluated at t . Since $\frac{\delta S(t)}{\delta t} = -\frac{f(t)}{S(t)}$, the hazard function can be expressed as

$$h(t) = -\frac{\delta \log S(t)}{\delta t}, \quad (3)$$

the negative of the slope of the log of the survival function.

When estimating hazard functions, we need to assume a hazard function specification. The latter can be using parametric survival models known as *accelerated failure time* (AFT) models²². An AFT model specifies that the predictors act multiplicatively on the event time or additively on the log of event time. The effect of a predictor is to alter the rate at which the syndication proceeds along time axis (i.e. to accelerate the time to event).

In this framework, the natural logarithm of the survival time $\ln(t)$ is expressed as a linear function of the covariates X :

$$\ln(t) = a + X'\beta + \epsilon, \quad (4)$$

where a is the intercept and ϵ is the error term with density $f(t)$. The distributional form of the error term determines the regression model²³. The hazard function in an AFT model can be written as

$$h(t) = h_0 \exp(a + X'\beta)(1 + \exp(a + X'\beta)t), \quad (5)$$

where h_0 is the baseline hazard rate. The hazard function is estimated using maximum likelihood methods.

²²Another possibility is to use the *proportional hazards* (PH) model, where $h(t) = h_0(t)\exp(X'\beta)$, given the predictors X and the baseline hazard rate $h_0(t)$. The latter can be left unspecified and estimated using the Cox's semiparametric partial likelihood (Cox, 1972, 1975) or take a specific parametric form such as Weibull or exponential distributions. Within this approach, the hazards are supposed to be proportional over time. This assumption is strongly rejected in our case (see section 4).

²³With normal, logistic, extreme-value and three-parameter gamma density functions, we obtain respectively log-normal, log-logistic, Weibull and generalized gamma regressions.

3.2 Data

The sample of syndicated loans comes from the Dealscan database, provided by the Loan Pricing Corporation (LPC, Reuters). Data concerning information disclosure and legal risk come from LaPorta et al. (1998), Barth et al. (2005), and Djankov et al. (2007).

The sample size is determined by information availability on the endogenous variable and exogenous variables used in the estimations. The timetable of the syndication process is measured in days since the launching date until the completion date, when the deal becomes active. We use only completed syndicated loans (no censoring) and we eliminate the outliers for the endogenous variable : deals with timetable greater than the 99-percentile, equal to 243 days (above 8 months). We therefore have a sample of 4,807 syndicated loans from 68 countries for the period between 1992 and 2006.

Mean duration of the syndication process equals 55.14 days (almost 8 weeks) with a standard deviation of 37.02 days. A histogram plot of the duration is shown in figure 2.

[Insert Figure 2 about here]

The plots of the survival, smoothed hazard and cumulative hazard functions are displayed in figure 3.

[Insert Figure 3 about here]

The survival and cumulative hazard functions are plotted using Kaplan-Meier (KM) product-limit estimator (Kaplan and Meier, 1958) and Nelson-Aalen (NA) estimator respectively. The survival function decreases quickly, with half of the timetables lasting less than 50 days (first and last quartiles are equal to 32 and 69 days respectively). The hazard function is not constant over time and exhibits two maximums. It is first increasing to reach a maximum shortly after the start of the syndication process (around 50 days), then is relatively flat, and finally increases again to reach a second maximum around 225 days and then decreases. We can remark that the instantaneous rates of syndication process completion for these two maximums are about

30% and 60%. Put it another way, a syndication process lasting 50 days has a probability of completing the next day of 30% while a syndication process lasting more than 200 days has a probability of completing above 60%.

Table 1 lists descriptive statistics for the variables, while tables 4, 5, and 6 in the appendix provide their correlation coefficients and their definitions respectively.

[Insert Table 1 about here]

From table 1, we observe that the average loan size is 375 million USD with an average maturity of almost 54 months (4,5 years). The average compensation of lenders is 110.7 bp in terms of spread over the benchmark rate, which is the Libor in 26% of the deals, and 52.7 bp in terms of up-front fee. The average number of arrangers is close to 4. The covenants are only included in 11.6% of loan contracts. The presence of guarantors and sponsors is low, being observed in only 9.6% and 8.7% of the sample respectively. More than a quarter of the loans are senior debt for the lenders. Term loans account for 58.9% of the sample with the primary purposes being debt repayment and LBO (19.5% and 19.4% respectively). Less than 10% of the borrowers have a Standard & Poor's senior debt rating. On average, information sharing through public credit registries is wide-spread. Regulatory public risk management techniques disclosure is quite common (43.4%) as well as formal NPL definition (49.1%). Credit rights are well protected according to the mean value of the score (3.8) while law enforcement is at a satisfactory level (6.9). More than 40% of the syndicated deals are governed by English origin law²⁴.

²⁴Syndicated loans come from six broad geographical areas: Africa, Asia and Pacific, Central and Eastern Europe, Latin America, Middle East, and Western Europe, which account respectively for 0.60%, 80.03%, 2.27%, 0.37%, 1.31%, and 15.42% of the sample. The most important industry sectors are respectively Finance and Insurance (32.51%), Manufacturing (29.91%) and Transport, Communication and Electricity (20.02%).

4 Results and discussion

In this section, we present and discuss our estimations results and provide some robustness checks in a second subsection.

4.1 Estimations results

As the proportional hazard assumption is strongly rejected with Schoenfeld residuals tests, we estimate an AFT model assuming a generalized gamma distribution, as the latter provides the lowest log likelihood, as well as Akayke and Schwarz information criterions²⁵. We first provide estimate results for a baseline model (*specification 1*) using a reduced number of covariates in the regressions in the first column of table 2. The respective plots of survival, hazard and cumulative hazard functions for the baseline model are shown in figure 4.

[Insert Table 2 about here]

[Insert Figure 4 about here]

As expected, the size of the loan, the spread and the maturity have a positive influence on the timetable, while the number of arrangers has a negative influence. Larger loans imply a greater bulk of complexity, risk and agency problems, and therefore more time consuming arrangement. The result regarding the maturity of the loan confirms the positive relationship between the latter and risk. Concerned about the speed of loan activation and their own reputation as efficient arrangers, the latter have a negative impact on the timetable. We remark that the gamma distribution AFT model provides a reasonable fit to the data as we compare the plots in figures 4 and 3.

We now turn to the discussion of the results including additional loan characteristics and information disclosure variables in table 2. We perform

²⁵For all the estimations obtained with a gamma model that will follow, the magnitude and the significance of the covariates are very similar to those obtained with Weibull, log-logistic and log-normal models. In order to not overload the article, we do not provide these results, but they are available from the author upon request.

3 additional regressions (*Specifications 2-4*), with varying combinations of tested covariates. All regressions include the loan characteristics from the baseline model. *Specification 2* includes additional loan characteristics, while *specifications 3 - 4* include also country-level variables, respectively information disclosure which influences borrower-syndicate information asymmetry, information disclosure which affects between lenders information asymmetry and legal risk.

Starting with the results provided in table 2, we first remark that all the results from the baseline hold and are therefore robust to the inclusion of additional variables. Additional loan characteristics have a significant influence on the timetable and the statistical properties of this regression are better than the baseline model (*specification 1*). Larger fees effectively function as an incentive device for the arrangers, with a negative and significant influence on the timetable. Debt seniority and presence of guarantors are the only variables from the set of lenders protection mechanisms proxies which have significant coefficients²⁶. The former suggests that seniority applies equivalently to all lenders and thus provide them with a protection scheme which reduces the timetable, whereas the latter reduces adverse selections problems thanks to the better information about the borrower. Hard information availability through an external agency rating (*S&P Rating*) has no significant influence on the timetable, suggesting that most of the information is produced privately by the arrangers and thus publicly available information does not contribute to reduce agency problems. Finally, term loans positively affect the duration because of higher management costs and agency problems that they involve²⁷, while debt repayment and project finance are the only loan purposes which are significant, with respectively negative and

²⁶We have also performed four additional regressions of *specification 2*, including each time only one out of the four proxy variables of the various loan agreement characteristics which aim at protecting the lenders (*Guarantors*, *Sponsors*, *Covenants* and *Senior Debt*). The signs of other other coefficients are not affected, while only *Senior Debt* and *Guarantors* keep significant coefficients, the other lenders protection proxy variables being not significant.

²⁷We have estimated the *specification 2* with a different proxy for the loan type, using a dummy variable equal to one if the loan is a revolving facility (18% of the sample). The existing results are not affected while the new proxy exhibits consistent significant and positive coefficient.

positive influence on the timetable. Project finance being more uncertain and therefore more risky and plagued with more agency problems, timetable of syndication related to such purpose is larger. The negative coefficient for *Debt Repayment* suggest that such purpose involves less risk as it might affect borrower’s capital structure in a proper way.

Regarding information disclosure variables, we observe that the presence of public credit registries reduces timetable, according to its positive impact on the reduction of informational asymmetries between the borrower and the syndicate (*Specification 3*). Similarly, public risk management process disclosure has a negative influence on the timetable as it reduces information asymmetry between the lenders. On the contrary, a formal definition of NPL increases timetable (*Specification 4*). This result can be explained in several ways. First, financial institutions may not adhere to the regulatory standards, making the existence of a formal definition uninformative. Second, if binding, this formal definition can be counterproductive for syndications as it might appear that a high fraction of participant banks actually carry an important burden of NPL²⁸.

We now turn to the discussion of the estimates of the coefficients in table 3 where we investigate the influence of legal risk on the timetable as well as the major country-level variables which drive the timetable³⁰.

[Insert Table 3 about here]

[Insert Table 3 about here]

We observe that a vast majority of the previous results hold. *Covenants* is significant in *specifications 5* and *6* only, with a sign consistent with the empirical evidence (Foster et al., 1998) in accordance with the “observed-risk hypothesis”³¹. Legal risk influences the timetable in a way suggesting that

²⁸We have also included an additional variable to estimate *specification 4*, equal to one if regulation stipulates that if one loan is non-performing, the other loans of a multiple-loan customer are classified as non-performing²⁹ This variable has a significant and negative coefficient, while all other coefficients remain unchanged.

³⁰Due to significant correlation between *Public Credit Registries* and *Public Risk Disclosure* (see table 5) we drop the latter variable in specification 8.

³¹LBO purpose is also significant at 1% level with a negative coefficient in *specifications 5, 6* and *8*.

problems related to borrower’s distress, reorganization and recontracting are less of an issue for the syndication processes in our sample. The coefficients of *Creditor Rights*, and *Rule of Law* are more consistent with our argumentation regarding the impact of legal risk on agency problems within the syndicate before the distress of the borrower, where better legal protection of banks mitigates the moral hazard problem induced by syndication and decreases the need to monitor the borrower. Alternatively, handling borrower distress might be less of an issue during the syndication arrangement, the latter being more driven by potential agency problems. However, the creditor rights index becomes positive in *specifications 7* and *8*. Also, when we take into account both type of information disclosure features, the information sharing variable is not more significant. These results suggest that asymmetry of information between the syndicate members is more important for the syndication arrangement and that better transparency regarding the lenders is associated with an impact of stronger creditor rights on timetable, consistent with reorganization and recontracting issues related to borrower’s distress. As the intrinsic moral hazard problem within the syndicate is reduced due to information disclosure imposed by regulation, the prospects of reaching a satisfactory collective agreement in case of borrower’s distress might be more difficult in an environment where creditor rights are well protected (e.g. because of hold-up problems). Alternatively, we can also explain this result stating that as better creditors protection reduce the attraction of joining a syndicate (and enhances the motivation for bilateral lending), it increases the timetable in order for the arrangers to find participants and form a syndicate.

4.2 Robustness checks

We have performed numerous robustness checks of our results. Additional variables come from the data already described in section 3. We have estimated *specification 3* with a dummy variable equal to one if private credit bureaus exist in the borrower country, instead of a public credit registries³².

³²Such private arrangement for information sharing between lenders represents 43% of our sample, but this variable is strongly missing and considerably reduces the sample size (2,487 observations).

Except for the *Up Front Fee* variable which becomes not significant, all other coefficients are unaffected. The private credit bureaus dummy is significant and has a positive influence on duration, which is the opposite sign compared to the public credit registries coefficient. The availability of private arrangements for information sharing appears to increase the timetable.

We must state here that private credit bureaus exhibit specific features compared to public credit registries. The private databases should be more precise³³, but on average, half of the countries investigated by Jappelli and Pagano (2002) have only information about borrowers' arrears, and their coverage is rather small. Furthermore, private credit bureaus are exposed to potential conflicts of interest when they are owned by the lenders themselves. On the opposite, public registries are managed by central banks and their content is supervised by authorized staff, and participation in the registry is compulsory and its rules are imposed by regulation. Their coverage is more universal although less precise. However, on average, the information concerns defaults, arrears and loan exposure (Jappelli and Pagano, 2002). Therefore, we can explain the obtained result for *Private Credit Registries* stating that due to drawbacks of private bureaus in terms of coverage, content details, potential conflict of interest and lack of surveillance by regulator, the existence of such information sharing device is counterproductive for the timetable.

We have then investigated in details the specifications 5 to 8 through the integration of the various dummies which account for the *Creditor Rights* variable³⁴ as well as alternative proxies for *Rule of Law*³⁵. We perform several

³³Private bureaus merge data provided by the lenders with other sources of information (courts, public registers, tax authorities, etc.) and contributors are granted access insofar as the data provided is timely and accurate.

³⁴Data come from LaPorta et al. (1998) and International Country Risk Guide. *Secured Creditor Paid First* (mean: 0.93): equals one if secured creditors are ranked first in the distribution of proceeds that result from the disposition of assets of a bankrupt firm. *Restriction on Reorganization* (mean: 0.55): equals one if the reorganization procedure imposes restrictions, such as creditors' consent, to file for reorganization. *Management Stays* (mean 0.73): equals one if the debtor keeps the administration of its property pending the resolution of the reorganization process.

³⁵Namely corruption (mean 6.49), judicial system efficiency (mean 7.10), expropriation risk (mean 8.32) and contract repudiation risk (mean 8.14) indexes. Data come from LaPorta et al. (1998) and International Country Risk Guide. *Corruption* is an index assessing the level of corruption in government, scaled from 0 to 10, with lower scores for

regressions with various proxies of the features accounting for creditor rights and with different proxies of the rule of law. In every specification (5, 6, 7, and 8), using one of the 4 proxies of the rule of law, all the coefficients remain unchanged while the three variables for creditor rights have consistent coefficients³⁶. All the alternative proxies for rule of law have significant and negative coefficients, as expected (lower legal risk reduces the duration). It appears that when controlling simultaneously for information disclosure and legal risk, the latter influences the timetable in a manner consistent with recontracting risk as moral hazard problems within the syndicate are mitigated through disclosure and the arrangers might anticipate borrower distress management already during the syndication arrangement.

5 Conclusion

We have investigated the determinants of the arrangement timetable of bank loan syndications by analyzing the role of loan and syndicate characteristics, informational disclosure and legal environment, inspired by recent literature on the role of institutions on bank loans behavior (Esty and Megginson, 2003; Qian and Strahan, 2007).

Overall, factors which mitigate agency problems related to syndicated loans reduce the timetable, while features which exacerbate moral hazard or adverse selection problems increase the timetable. These results are in line with previous research, although investigating other aspects of loan syndication, which shows that the specific agency problems related to syndica-

higher levels of corruption. *Judicial System Efficiency* is an index assessing the “efficiency and integrity of the legal environment as it affects business”, scaled from 0 to 10, with lower scores for lower efficiency levels. *Expropriation Risk* is an index assessing the risk of “outright confiscation” or “forced nationalization”, scaled from 0 to 10, with lower scores for higher risks. *Contract Repudiation Risk* is an index assessing the “risk of a modification in a contract taking the form of a repudiation, postponement, or scaling down”, scaled from 0 to 10 with lower scores for higher risks.

³⁶Negative for *Restriction on Reorganization*, and positive for *Management Stays* and *Secured Creditor Paid First*. Reorganization restriction gives additional power to creditors and firing of potentially inefficient managers in case of borrower’s distress enhances recontracting efficiency. Creditors securitization coefficient is consistent with recontracting risk issues.

tion and recontracting issues are the main drivers of the decision to syndicate a loan and the structure of the syndicate (Dennis and Mullineux, 2000; Esty and Megginson, 2003; Lee and Mullineux, 2004; Sufi, 2007).

Information disclosure through credit registries and regulatory features allows to reduce the timetable, while legal environment has an impact consistent with agency problems mitigation rather than recontracting issues. Furthermore, when including both sets of factors, we find that information disclosure which influences moral hazard problems within syndicates is the main driver of syndication arrangement timetable, while creditor rights affects the latter in a manner consistent with recontracting risk issues related to borrower distress.

Our empirical analysis can be extended in a number of ways. As the arrangement involves several stages (such as closing date for instance) which can collapse at an intermediary stage (deal canceled after launching), it would be interesting to employ split-population duration models as well as competing risks modelization to investigate more deeply the drivers of the arrangement timetable of loan syndication and its final success.

This research would add valuable insight into our understanding of successful syndications, which are already representing the major source of external funding for corporate sector, an important risk and information sharing device for financial institutions, and are also of primary concern for financial regulators.

6 Appendix

[Insert Table 4 about here]

[Insert Table 5 about here]

[Insert Table 6 about here]

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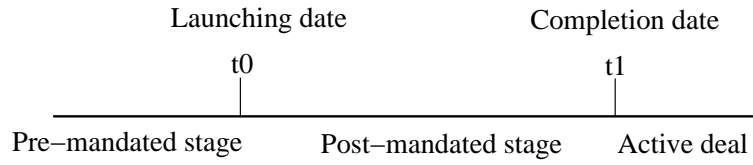


Figure 1: The sequence of events and stages of loan syndication arrangement. t_0 is the date of syndication launching (beginning of the post-mandate stage). t_1 is the date of syndication completion when the deal becomes active. $t_1 - t_0$ is the arrangement timetable of the syndication process (in days).

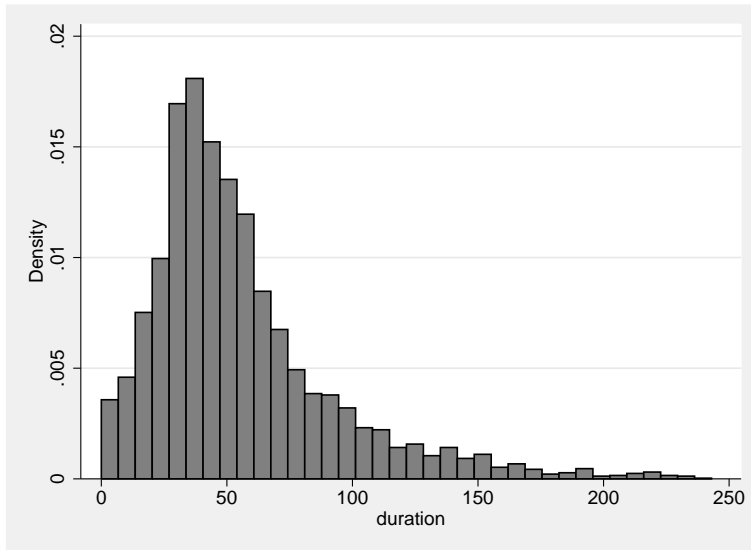


Figure 2: Frequency distribution of arrangement timetable (duration) of loan syndication (in days).

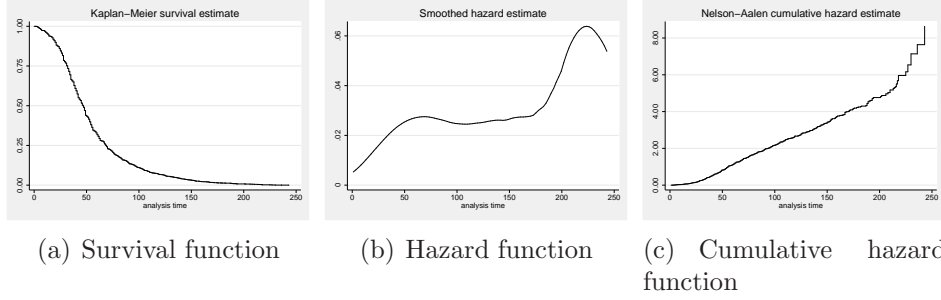


Figure 3: Plots of empirical distributions. The KM survival curve is a plot of the KM survival probability against time. The NA cumulative hazard curve is plotted using the NA estimator. The KM estimator is $\hat{S}(t) = \prod_{i:t_i < t} (1 - d_i/n_i)$ while the NA estimator is $\hat{\Lambda}(t) = \sum_{i:t_i < t} \frac{d_i}{n_i}$, where $\hat{S}(t)$ is the empirical survival function, d_i is the number of completions at time t_i , n_i the number of syndication arrangements at risk at time t_i , and $\hat{\Lambda}(t)$ is the estimated cumulative hazard.

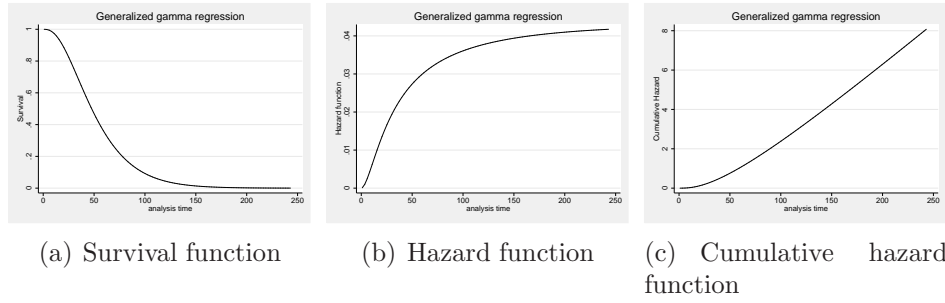


Figure 4: Plots of distributions. The plots represent survival, hazard and cumulative hazard functions estimated from the results of the AFT model estimation under the assumption of gamma (a, b, c) distribution.

Table 1: Descriptive statistics

The table provides descriptive statistics for endogenous and exogenous variables computed on the dataset of loan facilities, with a distinction of individual (loan and syndicate) and country level (information disclosure and legal risk) determinants of the duration. Definition of variables appear in table 6 in the appendix. Std. dev.: standard deviation, Min.: minimum, Max.: maximum.

Variable	N	Mean	Std. Dev.	Min.	Max.
Descriptive statistics for individual-level variables					
Duration	4,807	55.1367	37.0186	0	243
Loan Size	4,807	375	1,100	0,9404	1,780
Maturity	4,807	53.8417	36.0990	1	324
Spread	4,807	110.6984	79.8330	2.12	910
Upfront Fee	4,807	52.6986	43.6978	0	950
Number of Arrangers	4,807	3.6004	3.6992	1	36
Guarantors	4,807	0.0957	0.2942	0	1
Covenants	4,807	0.1157	0.3199	0	1
Senior Debt	4,807	0.2528	0.4346	0	1
Sponsors	4,807	0.0872	0.2821	0	1
S&P Rating	4,807	0.0616	0.2404	0	1
Descriptive statistics for individual-level control variables					
Term Loan	4,807	0.5891	0.4920	0	1
General Corporate	4,807	0.1059	0.3077	0	1
Debt Repayment	4,807	0.1949	0.3962	0	1
LBO	4,807	0.0393	0.1944	0	1
Project Finance	4,807	0.1009	0.3012	0	1
Working Capital	4,807	0.0786	0.2692	0	1
Libor	4,807	0.2592	0.4382	0	1
Euribor	4,807	0.0811	0.2731	0	1
Descriptive statistics for country-level variables					
Pubic Credit Registries	4,751	0.7116	0.4531	0	1
Public Risk Disclosure	3,814	0.4342	0.5175	0	1
NPL Definition	3,978	0.5938	0.4912	0	1
Creditor Rights	3,782	2.7343	0.9635	0	4
Rule of Law	4,245	6.9136	2.0854	1.9	10
English Legal Origin	4,751	0.4384	0.4962	0	1

Table 2: Estimations results 1/2

The table provides estimation results from the gamma model with different specifications (*Specifications 1-4*) in terms of covariates (individual and country level characteristics). Definition of variables appear in table 6 in the appendix. Coef.: coefficient estimate, Std. Err.: standard error. N: number of observations, log L: log-likelihood, LR: likelihood ratio, AIC: Akayke information criterion, SC: Schwarz information criterion. ***, **, * correspond to coefficients of covariates significantly different from 0 at 1%, 5% and 10% level. All syndications processes complete. Benchmark rate (Libor and Euribor), facility active year, industry and geographical areas dummies included but not reported.

Covariate	<i>Specification 1</i>		<i>Specification 2</i>		<i>Specification 3</i>		<i>Specification 4</i>	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Intercept	-29.8176***	7.652	-71.2721***	9.243	-75.4471***	9.306	-94.7173***	10.9519
log(Loan Size)	0.0404***	0.009	0.0429***	0.009	0.0506***	0.009	0.0414***	0.011
Spread	0.0012***	0.001	0.0012***	0.001	0.0011***	0.001	0.0009***	0.002
Up Front Fee			-0.0006***	0.002	-0.0007***	0.002	-0.0005*	0.003
Maturity	0.0026***	0.001	0.0016***	0.003	0.0016***	0.003	0.0014***	0.003
N. Arrangers	-0.0172***	0.003	-0.01535***	0.003	-0.0152***	0.003	-0.0160***	0.003
Guarantors	-0.0782***	0.029	-0.0422**	0.029	-0.0604**	0.030	-0.0607*	0.033
Sponsors			-0.0324	0.033	-0.0423	0.033	-0.0520	0.036
Covenants			0.0164	0.033	0.0280	0.033	-0.0153	0.038
Senior Debt			-0.2258***	0.045	-0.2313***	0.046	-0.2587***	0.050
S&P Rating	0.0090	0.035	-0.0055	0.037	-0.0031	0.037	0.0179	0.043
Term			0.1142***	0.019	0.1159***	0.019	0.1092***	0.021
Corporate			-0.0258	0.031	-0.0296	0.031	-0.0097	0.035
Debt Repayment			-0.0915***	0.025	-0.0976***	0.026	-0.1199***	0.029
LBO			-0.0612	0.058	-0.0676	0.058	-0.0431	0.065
Project Finance			0.2307***	0.032	0.2237***	0.033	0.2570***	0.036
Working Capital			0.0269	0.034	0.0224	0.034	0.0060	0.039
Pub. Credit Reg.					-0.0951***	0.021		
Pub. Risk Disc.							-0.1074***	0.021
NPL Definition							0.2140***	0.021
scale	1.7382***	0.019	0.5927***	0.007	0.5928***	0.0067	0.5888***	0.007
N	4,781		4,781		4,725		3,795	
Log L	-4,703.61		-4,525.67		-4,473.84		-3,567.72	
LR	629.91***		726.78***		729.11***		787.12***	
AIC	9,453.21		9,123.34		9,021.68		7,211.44	
BIC	9,602.08		9,356.34		9,260.73		7,448.61	

Table 3: Estimations results 2/2

The table provides estimation results from the gamma model with different specifications (*Specifications 5-8*) in terms of covariates (individual and country level characteristics). Definition of variables appear in table 6 in the appendix. Coef.: coefficient estimate, Std. Err.: standard error. N: number of observations, log L: log-likelihood, LR: likelihood ratio, AIC: Akayke information criterion, SC: Schwarz information criterion. ***, **, * correspond to coefficients of covariates significantly different from 0 at 1%, 5% and 10% level. All syndications processes complete. Benchmark rate (Libor and Euribor), facility active year, industry and geographical areas dummies included but not reported.

Covariate	<i>Specification 5</i>		<i>Specification 6</i>		<i>Specification 7</i>		<i>Specification 8</i>	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Intercept	-24.3739*	13.068	-34.2232**	13.207	-81.5325***	15.842	-81.5750***	15.408
log(Loan Size)	0.0324***	0.011	0.0309***	0.002	0.0210*	0.013	0.0209*	0.012
Spread	0.0014***	0.002	0.0013***	0.002	0.0008***	0.002	0.0008***	0.002
Up Front Fee	-0.0006**	0.003	-0.0006**	0.003	-0.0004	0.003	-0.0004	0.003
Maturity	0.0020***	0.003	0.0020***	0.003	0.0019***	0.004	0.0018***	0.003
Number of Arrangers	-0.0113***	0.003	-0.0109**	0.003	-0.0134***	0.004	-0.0123***	0.004
Guarantors	-0.052	0.033	-0.0486	0.033	-0.0543	0.037	-0.0431	0.036
Sponsors	-0.0575	0.037	-0.0583	0.037	-0.0761*	0.041	-0.0409	0.040
Covenants	0.0760**	0.038	0.0763**	0.038	-0.0029	0.043	0.0170	0.040
Senior Debt	-0.1969***	0.051	-0.2109***	0.051	-0.2204***	0.056	-0.2264***	0.055
S&P Rating	-0.0225	0.042	-0.0200	0.042	-0.0070	0.048	-0.0253	0.046
Term	0.0844***	0.022	0.0879***	0.021	0.0921***	0.024	0.0899***	0.024
Corporate	-0.0621*	0.035	-0.0732**	0.035	-0.0368	0.040	-0.0364	0.039
Debt Repayment	-0.1058***	0.028	-0.1213***	0.028	-0.1242***	0.032	-0.1156***	0.031
LBO	-0.1286**	0.065	-0.1305**	0.064	-0.0485	0.074	-0.0209	0.066
Project Finance	0.1807***	0.038	0.1780***	0.038	0.1685***	0.043	0.1860***	0.042
Working Capital	-0.0205	0.038	-0.0247	0.037	-0.0940**	0.044	-0.0918**	0.044
Public Credit Registries			-0.1322***	0.031			-0.0032	0.033
Public Risk Disclosure					-0.0731**	0.032		
NPL Definition					0.3826***	0.035	0.4103***	0.033
Creditor Rights	-0.0777***	0.014	-0.0689***	0.014	0.0423**	0.020	0.0699***	0.018
Rule of Law	0.0754***	0.025	0.0375***	0.007	0.0473***	0.008	0.0344***	0.008
English Legal Origin	0.0236***	0.007	0.0800***	0.025	-0.0515*	0.031	-0.0035	0.027
scale	0.5684***	0.007	0.5666***	0.007	0.5586***	0.008	0.5579***	0.008
N	3,418		3,418		2,648		2,786	
Log L	-3,055.99		-3,046.90		-2,344.26		-2,447.15	
LR	554.64***		572.81***		657.95***		659.69***	
AIC	6,187.97		6,171.80		4,768.52		4,979.66	
BIC	6,421.17		6,411.13		5,003.78		5,216.95	

Table 4: Correlation coefficients of individual-level variables

The table provides correlation coefficients for individual-level explanatory variables. log(Loan): log(Loan Size), Up Fr. Fee: Up Front Fee, Mat.: Maturity, Num. Ar.: Number of Arrangers, Guar.: Guarantors, Spons.: Sponsors, Cov.: Covenants, Corp.: Corporate, Debt Repay.: Debt Repayment, Proj. Fin.: Project Finance, Work. Cap.: Working Capital. Definition of variables appear in table 6 in the appendix. Due to lack of space, correlation coefficients which are significant at the 5% level are marked in bold.

	log(Loan)	Spread	Up Fr. Fee	Mat.	Num. Ar.	Guar.	Spons.	Cov.	Senior Debt	Term Loan	Corp.	Debt Repay.	LBO	Proj. Fin.	Work. Cap.	S&P Rating
log(Loan)	1.00															
Spread	-0.04	1.00														
Up Fr. Fee	0.02	0.44	1.00													
Mat.	0.19	0.13	0.22	1.00												
Num. Ar.	0.52	-0.13	0.04	0.12	1.00											
Guar.	-0.02	0.02	0.00	-0.01	-0.01	1.00										
Spons.	0.03	0.02	0.01	-0.01	0.01	-0.04	1.00									
Cov.	0.22	0.03	-0.01	0.01	0.11	0.00	0.06	1.00								
Senior Debt	0.50	0.09	0.03	0.05	0.30	0.00	0.02	0.46	1.00							
Term Loan	-0.20	0.17	0.12	0.09	-0.14	0.02	0.01	-0.01	-0.10	1.00						
Corp.	-0.02	-0.06	-0.06	-0.08	0.01	0.02	0.00	0.10	0.16	0.00	1.00					
Debt Repay.	0.24	-0.05	-0.06	-0.10	0.10	-0.02	0.00	0.17	0.23	-0.09	-0.17	1.00				
LBO	0.17	0.36	0.28	0.18	0.03	0.01	0.01	0.08	0.33	0.02	-0.07	-0.10	1.00			
Proj. Fin.	0.07	0.08	0.06	0.32	0.00	0.00	-0.01	-0.05	-0.12	0.17	-0.12	-0.17	-0.07	1.00		
Work. Cap.	-0.08	-0.04	-0.04	-0.10	-0.07	0.01	0.00	0.02	-0.07	-0.05	-0.10	-0.14	-0.06	-0.10	1.00	
S&P Rating	0.01	-0.01	0.00	0.01	0.02	-0.05	-0.03	-0.01	0.00	-0.01	0.02	0.00	-0.03	0.02	-0.02	1.00

Table 5: Correlation coefficients of country-level variables

The table provides correlation coefficients for country-level explanatory variables. Pub. Cred. Reg.: Public Credit Registries, Pub. Risk Disc.: Public Risk Disclosure, NPL Def.: NPL Definition, Eng. Leg. Origin: English Legal Origin. Definition of variables appear in table 6 in the appendix. Correlation coefficients which are significant at the 5% level are marked in bold.

	Pub. Cred. Reg.	Pub. Risk Disc.	NPL Def.	Creditor Rights	Rule of Law	Eng. Leg. Origin
Pub. Cred. Reg.	1.00					
Pub. Risk Disc.	0.60	1.00				
NPL Def.	-0.14	-0.25	1.00			
Creditor Rights	0.09	-0.32	0.03	1.00		
Rule of Law	0.46	0.26	-0.19	-0.25	1.00	
Eng. Leg. Origin	0.37	0.11	0.20	0.41	0.27	1.00

Table 6: Variables definition

The table provides a brief description and the sources of information for endogenous and exogenous variables, with a distinction of individual (loan and syndicate) and country level (information disclosure and legal risk) factors.

Variable	Description	Source
Individual-level variables		
Duration	Duration of the syndication arrangement timetable since the launching date until the completion date, measured in days.	Dealscan
Loan size	Logarithm of the size of the loan (in million USD).	Dealscan
Spread	Spread over the benchmark rate, measured in bps.	Dealscan
Fee	Up front fee measured in bps.	Dealscan
Maturity	Maturity of the loan in months.	Dealscan
Number of arrangers	Number of arrangers in the syndicate.	Dealscan
Guarantors	= 1 if there is at least one guarantor.	Dealscan
Sponsors	= 1 if there is at least one sponsor.	Dealscan
Covenants	= 1 if the loan agreement includes financial covenants.	Dealscan
Senior debt	= 1 if debt is senior.	Dealscan
S&P rating	= 1 if the borrower has a senior debt rating by Standard & Poor's.	Dealscan
Individual-level control variables		
Term loan	= 1 if the loan is a term loan.	Dealscan
Corporate purposes	= 1 if the loan purpose is general corporate purposes funding.	Dealscan
Debt repayment	= 1 if the loan purpose is debt repayment funding.	Dealscan
Working capital	= 1 if the loan purpose is working capital funding.	Dealscan
Project finance	= 1 if the loan purpose is project finance funding.	Dealscan
Libor	= 1 if the benchmark rate is the Libor.	Dealscan
Euribor	= 1 if the benchmark rate is the Euribor.	Dealscan

Table 6: (continued)

Variable	Description	Source
Country-level characteristics		
Public credit registries	= 1 if a public credit registry operates in the country	Djankov et al. (2007)
Public risk disclosure	= 1 if regulator impose to banks public disclosure of their risk management procedures	Barth et al. (2005)
NPL definition	= 1 if a formal definition of non-performing loans exists	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)	Djankov et al. (2007)
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)
English legal origin	= 1 if the legal origin of the company or commercial code of the country is English	Djankov et al. (2007)

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