



Tranching in the syndicated loan market around the world

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Electronic supplementary mate-

rial The online version of this article
(<https://doi.org/10.1057/s41267-019-00249-1>)
contains supplementary material, which is
available to authorized users.

Received: 21 September 2017

Revised: 19 April 2019

Accepted: 12 May 2019

Online publication date: 4 July 2019

Abstract

Loan tranching allows banks to manage risk and facilitate firm financing, which may be essential for firms that cannot access investors from stock markets. We analyze the determinants and benefits of loan tranching by pooling the tranches of individual loans to create the largest cross-country sample of syndicated loans, covering more than 150,000 loans from multinational and domestic firms. We find that, in addition to market, deal, and borrower characteristics, legal and institutional differences impact loan tranching. Strong creditor protection and efficient debt collection increase the probability of tranching and reduce tranche spreads, ultimately promoting firms' access to debt. We also find evidence that tranching facilitates the financing of multinational firms abroad due to the transfer of legal and cultural institutions to foreign subsidiaries. Overall, our results suggest that tranching plays an important role in reducing a country's financial development gap and promotes firms' access to debt.

Journal of International Business Studies (2020) **51**, 95–120.

<https://doi.org/10.1057/s41267-019-00249-1>

Keywords: financial contracting; tranche; syndicate; loan enforcement; liability of foreignness; multiple regression analysis

INTRODUCTION

Debt financing is the main source of external capital for listed and unlisted firms worldwide. In most countries, debt takes the form of bank loans, since only a few nations have well-developed bond markets. For this reason, it is essential to understand the factors that allow banks to extend loans, thereby supporting credit growth. Loan tranching helps banks manage risk exposure to large syndicated loans. According to a recent Thomson Reuters' Global Syndicated Loans Review report, in 2017 alone, the amount of syndicated loans exceeded \$4.6 trillion worldwide. Existing research has focused mainly on syndication structure (Dennis & Mullineaux, 2000; Esty & Megginson, 2003; Maskara, 2010; Maskara & Mullineaux, 2006, 2011a) and has largely overlooked the analysis of loan tranching. In fact, little is known about loan tranching around the world and how it varies across countries. Moreover, although international businesses initiate an important fraction of syndicated loans, the extent to which international businesses are particularly exposed to this form of loan structuring is unclear.

Examining loan tranching offers a fuller and more accurate picture of the syndicated loan market for two main reasons. First, from the lenders' perspective, since tranching involves splitting a loan into several *tranches*, or *facilities*, the lead arranging bank can offer different terms to different investors. Tranching thereby increases the participation of other financial institutions; while some might participate in all tranches, others might only participate in a specific tranche. Active investors, or investors with private information, should be more willing to participate in riskier tranches, while passive investors or investors facing information asymmetry problems might prefer to participate in safer, less-information-sensitive tranches (Boot & Thakor, 1993). In this sense, lead arranger banks seek syndicate members not only for specific loans but also for different tranches. Second, from the borrowers' perspective, to the extent that borrower matching/clientele results from market incompleteness and imperfection (Senbet & Taggart, 1984; Hope et al., 2011), tranching should function as an important mechanism for matching borrower risk and return profiles. Loan tranching may be particularly important for riskier firms (Maskara, 2010) and unlisted borrowers with fewer sources of external finance (Maskara & Mullineaux, 2011b). Since private borrowers are likely to be more risky and more opaque, loan tranching has the potential to serve them as an important method of securing large loans.

In this paper, we analyze the structure of tranching in the international syndicated corporate loan market and determine the ways in which laws and institutions of different countries affect the extent and structure of tranching, beyond borrower, deal, and market characteristics. Maskara (2010) shows that tranching in the U.S. is partially driven by the borrower's risk and partly by information asymmetry. Our analysis of tranching complements the scarce body of existing literature, unveiling the additional impact of legal institutions in an international setting. Moreover, our paper is the first to analyze loan tranching for privately held and publicly traded firms together and to study the tranching of loans from the subsidiaries of multinational corporations.

Our main hypothesis is that legal protection of outside investors facilitates financial contracting by reducing agency costs and information asymmetries (La Porta, Lopez-de-Silanes, Shleifer & Vishny, 1998; John & Senbet, 1998; John, Saunders & Senbet, 2000; Miletkov, Poulsen, & Wintoki,

2017). The law and finance literature has shown that stronger creditor protection leads to larger credit markets in the economy, financial intermediary development, and loans with lower interest rates (La Porta, Lopez-de-Silanes, Shleifer & Vishny 1997a; Beck & Levine, 2005; Djankov, McLiesh, & Shleifer, 2007; Ellis, Moeller, Schlingemann & Stulz 2017; Renneboog, Szilagyi & Vansteenkiste 2017; Qi, Roth, & Wald, 2011, 2017; Giambona, Lopez-de-Silanes, & Matta, 2018). To date, there is still no analysis on the relationship between creditor rights and loan tranching. We predict that better creditor rights and more efficient judicial enforcement procedures should increase the prevalence of tranching and impact the structure of tranching loans.

Our second hypothesis is linked to the literature on liability of foreignness. We predict that since multinational subsidiaries have more pronounced risks, foreign subsidiaries should have strong incentives to tranche loans to match those risks with creditors willing to bear them. Finally, our third hypothesis is that the mobility of legal institutions should also affect the way in which multinational companies finance their operations abroad. We predict that the subsidiaries of multinational firms located in countries with weaker legal environments will partially overcome the poor legal setting by transferring institutions (Cumming, Filatotchev, Knill, Reeb, & Senbet, 2017). This would mean that in weak protection environments, banks would be more likely to tranche loans of subsidiaries of foreign multinational firms than of subsidiaries of domestic firms. Legal institutions have been shown to be internationally mobile as multinational firms transfer their governance practices and regulatory institutions to their acquisition targets abroad (Bris & Cabolis, 2008; Aguilera, Desender, Lopez-Puertas Lamy, & Lee, 2017; Ellis et al., 2017; Renneboog et al., 2017). In the context of the syndicated loan market, the transfer of institutions hypothesis should lead to more loan tranching when the parent company is located in a country with a stronger legal environment.

There are two alternative hypotheses. First, the regulation aimed at protecting creditors is irrelevant. In the spirit of Coase (1960), sophisticated investors involved in the tranching market can write themselves financial contracts to overcome any failings in the legal framework of a particular country (La Porta, Lopez-de-Silanes, & Shleifer, 2006; Bergman & Nicolaievsky, 2007). Loan issuers also have a large reputational incentive to disclose



as much information as possible to obtain better financing terms from creditors. Reporting accuracy can be backed by warranties, and even in a world of costly verification, firms can resort to mechanism to convince investors of their high quality (Ross, 1979). In this setting, differences in loan tranching need not be related to differences in legal protection from one jurisdiction to another, and the transfer of institutions by multinational firms should play no role in making banks indifferent to the tranching of foreign or domestic subsidiaries.

Second, financial contracting is a partial substitute for (i.e., it partly makes up for or mitigates the effect of) poor legal conditions or is a substitute for other types of investment choices (Johan, Knill, & Mauck, 2013) or pricing of those investments (Boulton, Smart, & Zutter, 2017). This alternative hypothesis would lead us to expect a negative relationship between tranching and creditor rights, since tranching could be used to insulate more-risk-averse investors that are inefficiently protected by a country's legal system. In theory, it is not obvious which explanation has the most real-world relevance.

Our analysis is based on a sample of over 150,000 syndicated loans of close to 65,000 different publicly traded and privately held firms worldwide over a 23-year period spanning from 1995 to 2017. To our knowledge, our sample is the largest ever studied. The few previous articles in the tranching literature have taken each tranche as the only unit of analysis (see Esty & Megginson, 2003; Bae & Goyal, 2009; Maskara, 2010). Our paper takes a different approach. Specifically, we consolidate all tranches of the same loan in order to analyze tranching and to identify the differences among the tranches of each loan.

This comprehensive sample allows us to provide the first in-depth account of the worldwide loan-tranching market. The data show that tranching loans represent about 30% of all syndicated loans, reaching almost 50% in countries such as Australia and Germany. There is a wide range of possible tranching purposes and arrangements. Finally, our data reveal interesting features in terms of borrowers: loans to subsidiaries represent over 32% of all loans, and close to one-third of all subsidiary loans are made to foreign subsidiaries of multinational companies. The probability that a subsidiary loan has been tranching is substantially higher than that of the average loan, and the probability of tranching is even higher for foreign subsidiaries of multinational companies.

Our econometric results show that, beyond the influence of borrower risk and market characteristics, legal institutions impact the extent of loan tranching; strong creditor rights and debt enforcement reduce agency costs and, consequently, promote tranching and facilitate firms' access to debt financing. We also find that riskier tranches of the loan benefit the most from creditors' protection as tranche spreads narrow. Furthermore, our results show that foreign subsidiaries of multinational firms are more likely to tranche loans. Finally, we also find evidence consistent with transferring institutions – both formal legal institutions and informal cultural institutions – from the stronger conditions in the parent country to the weaker conditions in multinational subsidiary countries. That is, the institutional conditions of the parent company country mitigate the negative impact of weaker conditions on the subsidiaries' countries facilitating loan tranching.

The remainder of the paper is organized as follows: The next section develops our hypotheses and presents the theories that link deal, borrower, and market characteristics to loan tranching. The following section presents an in-depth account of the syndicated loan market based on the analysis of our sample. Thereafter, we present our econometric analysis of the legal determinants of the extent and structure of tranching. We also present results suggesting that loan tranching helps fill the financial development gap and that foreign subsidiaries of multinational firms are more likely to use tranching loans and benefit from the transfer of institutions when located in weaker institutional environments. The conclusion offers our final thoughts and outlines the potential uses of our findings.

Related Literature and Testable Hypotheses

In this section, we derive predictions about the role of legal institutions in tranching and the implications of the transfer of institutions for multinational subsidiaries. We also review the predictions of complementary theories of market conditions, borrower characteristics, and deal terms.

Legal Institutions and Regulation

The law and finance view hypothesizes that legal protection of investors facilitates financing. Strong investor protection and transparent disclosure rules mitigate moral hazard and asymmetric information costs (La Porta et al., 1997a, 1998, 2006; Djankov et al., 2007; Huang T, Wu F, Yu J, & Zhang, 2019).

The specific country rules embedded in bankruptcy and reorganization laws are relevant to creditors participating in the syndicated loan market, because they determine the lenders' legal rights to claim payment and secure assets in the event of default. Similarly, legal systems that provide better contract enforcement with less legal formalism and greater judicial independence (Djankov et al., 2003; La Porta, Lopez-de-Silanes, Pop-Eleches, & Shleifer, 2004) may have greater flexibility to accommodate and facilitate more-complex financial transactions (La Porta et al., 1998).

Hypothesis 1 of our paper states that better legal protection of creditors facilitates financial contracting – leading to more loan tranching – and reduces the pricing among tranches of the same loan. Differences in legal risk affect the capacity of debtholders to recover their loans in the event of default. The easier it is for creditors to secure their rights, the greater the firm's liquidation value and, therefore, the lower the costs of tranching. Investors should also be more willing to buy loans with more tranches that originate in countries with a more impartial legal system and with higher levels of compliance with the law.

Stronger creditor rights and better legal enforcement may not only generally reduce loans' interest rate spreads (Djankov et al., 2007) but also boost the expected benefits to higher-risk lenders and, thus, facilitate the creation of riskier tranches. Lower expected costs associated with stronger creditor rights and legal enforcement should impact the pricing among tranches. Keeping everything else equal, the greater liquidation value, induced by better creditor rights, should lead to a narrower range of interest rate spreads, as creditors from the riskier tranches, who may typically be impaired, have a larger probability of recovery. The increased security provided by an orderly legal system should also entail less variable enforcement risk, leading to smaller differences among the tranches of the same loan.

Multinational Subsidiaries, Liability of Foreignness, and Transferring Institutions

The international business literature has identified two types of costs for multinational subsidiaries (Eden & Millar, 2004). First, there is the liability of foreignness (LOF), which refers to the social costs of doing business abroad, including the unfamiliarity, relational, and discriminatory costs associated with being a foreign entity (Mezias, 2002). Second, there is the cost of doing business abroad (CDBA), which

refers to both the economic and social cost associated with international business. All else being equal, both LOF and CDBA lead to pronounced risks for multinational subsidiaries; therefore, multinational subsidiaries reap greater economic benefits from tranching by matching those risks with tranche investors willing to bear and be compensated for the costs of those risks. Hypothesis 2 of our paper is that loans are more likely to be tranced if the borrower is a foreign subsidiary rather than a domestic subsidiary.

Institutional distance refers to the cognitive, normative, and regulatory distance between the subsidiary's country and the parent's country. The international business literature that has analyzed institutional distance has documented the transference of formal legal institutions and informal cultural conditions from one market to another (for a recent review, see Cumming, et al., 2017). The transfer of the parent subsidiary structure from a stronger legal environment to a weaker legal environment, as well as the choice of markets that enable them to make use of technical advantages, suggests that multinational subsidiaries are more likely to make use of loan tranching.

Subsidiaries of multinationals in countries with weaker legal environments will partially overcome their weaker legal setting by the transference of institutions. The costs of weak legal institutions as they pertain to tranching should be mitigated for subsidiaries with parent organizations in better legal environments. Further, we would expect, given the uncertainties of doing business in a culturally distant environment, that the transference of stronger, more informal cultural conditions between a parent and its subsidiary should lead to a similar result. Research by Giannetti and Yafeh (2012), for example, observes that cultural distance, including the geographic distance between lead banks and borrowers, influences foreign banks to offer borrowers smaller loans with higher spreads. Moreover, this effect also influences syndicated lending involving loans made through a distant foreign bank via a subsidiary in the borrower's country.

Hypothesis 3 of our paper states that the legal institutional setting of the parent organization will mitigate the negative impact of the subsidiary's weak legal environment on its tranching. Similarly, the country-level informal institutions of the parent company will also influence the subsidiary's loan tranching.

Market Conditions, Borrower Characteristics, and Contractual Terms

Loan tranching and the structure of tranching may also depend on market conditions, the characteristics of the borrowers, and the terms of the deals. The structure of local financial markets should influence loan tranching: market imperfections create incentives for firms and financial institutions to tailor securities, leading to borrower matching and clientele effects.

Borrower characteristics may also capture a degree of information asymmetries faced by firms and lenders and influence tranching and its structure. For example, loans to risky borrowers with heterogeneous assets on their balance sheets may enable the creation of tranches with varied degrees of risk. Some of these tranches could be over-collateralized and pay a higher rate to compensate for the extra risk (Maskara, 2010). Consequently, borrowers with less-pronounced risk, such as larger firms or those with a public listing or an investment-grade credit rating, may be less likely to have tranching. Similarly, if they do take out loans with multiple tranches, the interest rates in one tranche and those in another may not greatly differ.

Contract theory also has implications for analyzing the tranching of loans, as the contractual terms of the tranches and deal characteristics could affect the structure of tranching. Differences in terms, for example, may account for the potential *ex ante* priority of claims, which influences the order and speed at which debtholders are paid. Indeed, differences in maturities and collateral can help explain the number and structure of tranches in loans. The use of revolving facilities, for example, may indicate that the loan is more likely to be made up of a larger variety of facilities (Maskara, 2010). Revolving loans, which are more flexible than term loans and bonds, are generally awarded to low-risk borrowers. In this paper, we examine key loan contracting differences to explain the structure of tranching.

Finally, the theory of transaction costs also yields predictions for our empirical work. Tranching is costly, and many of these costs are fixed since they involve legal, regulatory, rating agency, and servicing costs (Brennan, Hein, & Poon, 2009). As a consequence, these costs can end up weighing rather heavily on smaller loans. Although some transaction costs are not fixed, the larger the size of the loan, the less important the effects, comparatively (Taylor & Sansone, 2007; Maskara &

Mullineaux, 2011a). To the extent that transaction costs matter, we predict that smaller loans would be less likely to be tranching, since the resulting tranches would be too small to be cost-effective. Although we hypothesize that a larger loan is more likely to be tranching, it is unclear whether spreads on tranches in loans of the same size will be more dissimilar. Hence, the transaction costs theory provides no clear prediction of the heterogeneity of tranches of any loan.

THE INTERNATIONAL MARKET FOR LOAN TRANCHING AND OUR DATA

The syndicated loan market is a truly globally integrated debt market. In 2017, it amounted to USD 4.3 trillion and involved a combination of well-established international players and large domestic players that syndicate deals. The main players are investment and commercial banks. At the global level, the top lead arrangers in 2017 were Bank of America, Merrill Lynch, JP Morgan, Citigroup, Wells Fargo, Barclays, and Goldman Sachs (Thomson Reuters, 2017). As McCahery and Schwenbacher (2010) show, since the rank of top leagues is rather constant over many years, this picture is representative of many years in our sample.

Our loan data source is the Loan Pricing Corporation (LPC) DealScan database, from which we extract the details on syndicated loans and borrower characteristics. Since we focus on tranching, our unit of observation is a loan, rather than a facility, so we create a loan-level dataset. To assemble the largest possible sample, we use data from the 125 countries available in DealScan, covering the years between 1995 and 2017. Our initial sample includes 193,726 loans made up of 287,591 tranches. Our data show that the syndicated loan market amounts to an average of close to 5% of GDP for the time period of our sample. Table 1 shows the detailed definitions and sources of all the variables in our dataset, while Figure 1, Table 2, and the Online Appendix Tables 1 to 3 present the construction of our sample and offer different perspectives on our data.

We match the LPC loan sample with information on market conditions from the International Country Risk Guide; several World Bank databases (including the dataset on the structure of domestic financial markets by Beck, Demirgüç-Kunt, & Levine, 2010); and legal institution data from Djankov et al. (2003, 2007) and La Porta et al.

Table 1 Variable definitions

Dependent variables

Loan is tranced	Dummy variable equal to one, if the loan is tranced into two or more facilities, and zero otherwise. Different types of facilities include term loans, revolving facilities, and bonds. We include all facilities recorded as belonging to the same loan. <i>Source: Own calculation based on LPC DealScan data</i>
Number of tranches	Integer variable recording the number of facilities (or tranches) of each loan. <i>Source: Own calculation based on LPC DealScan data</i>
Spread ratio	The ratio of the basis point in interest rate spreads over LIBOR (the all-in-drawn spread, which includes the base rate spread and facility fee) of the tranche with the highest spread and the tranche with the lowest spread of a single loan. <i>Source: Own calculation based on LPC DealScan data</i>
Spread range	The basis point difference in interest rate spreads over LIBOR (the all-in-drawn spread, which includes the base rate spread and facility fee) between the tranche with the highest spread and the tranche with the lowest spread of a single loan. <i>Source: Own calculation based on LPC DealScan data</i>

Deal variables

Deal amount	The total amount of the loan (in millions of U.S. dollars). This value corresponds to the aggregate amount of the different tranches of the same loan. <i>Source: Own calculation based on LPC DealScan data</i>
Ln(Deal amount)	The natural logarithm of the variable "Deal amount." <i>Source: Own calculation based on LPC DealScan data</i>
Average tranche amount	The average tranche size of a loan (in millions of U.S. dollars). This value is computed by dividing the deal amount by the number of tranches. <i>Source: Own calculation based on LPC DealScan data</i>
Average maturity	The average maturity of each loan in months. This value is computed by averaging the maturities of all different tranches of each tranced loan. <i>Source: Own calculation based on LPC DealScan data</i>
Range of maturities	The difference, in months, between the longest and the shortest maturity in tranches of a single loan. By construction, this variable equals zero, if the loan is not tranced. The longest (shortest) maturity tranche is that with the longest (shortest) maturity in tranches of a single loan. <i>Source: Own calculation based on LPC DealScan data</i>
Range of maturities = 0	Dummy variable equal to one, if the variable "Range of maturities" equals zero, and zero otherwise. <i>Source: Own calculation based on LPC DealScan data</i>
Revolving facility	Dummy variable equal to one, if the loan contains at least one revolving facility/tranche, and zero otherwise. To calculate this variable, we use the definition of a revolving facility provided in Maskara (2010); i.e., the following facility types: 364-day facility, Revolver/Line < 1 year, Revolver/Line ≥ 1 year, Revolver/Term Loan, Bridge Loan, Demand Loan, Guidance Line (Uncommitted), Limited Line, Multi-Option Facility, or Standby Letter of Credit. <i>Source: Own calculation based on LPC DealScan data</i>
Loan purpose	Set of dummy variables for all major specific loan purposes, based on the classification of LPC's DealScan. We identify nine different main purposes: corporate purposes, debt repayment/refinancing, working capital, merger and acquisition, leverage buyout (LBO), real estate, project financing, capital expenditures, and other purposes (which include, for instance, trade finance, debtor in possession, ship finance, spinoff, stock buybacks, and aircraft finance). <i>Source: Own calculation based on LPC DealScan data</i>
Industry group	Set of dummy variables identifying the major industry groups of the borrower, based on the industry classification provided by LPC's DealScan. In total, there are 40 industry groups. <i>Source: Own calculation based on LPC DealScan data</i>

Borrower variables

Borrower is a private company	Dummy variable equal to one, if the borrower is not listed on any public stock exchange, and zero otherwise. <i>Source: Own calculation based on LPC DealScan data</i>
Borrower is a subsidiary	Dummy variable equal to one, if the borrower is a subsidiary (i.e., the ultimate parent company is different from the borrower), as indicated in LPC's DealScan, and zero, if the borrower is the ultimate parent company. <i>Source: Own calculation based on LPC DealScan data</i>

Table 1 (Continued)

Borrower is a foreign subsidiary	Dummy variable equal to one, if the borrower is a subsidiary and that subsidiary is located in a different country than the ultimate parent company, as indicated in LPC's DealScan, and zero, if the borrower is either a domestic subsidiary (i.e., located in the same country as the ultimate parent company) or the ultimate parent company. <i>Source: Own calculation based on LPC DealScan data</i>
Borrower is a corporation	Dummy variable equal to one, if the borrower is a non-financial corporation, as indicated in LPC's DealScan, and zero, if the borrower is a finance company, an institutional investor, an insurance company, a law firm, a leasing company, a mutual fund, a bank, a pension fund, a trust company, or another form of borrower. <i>Source: Own calculation based on LPC DealScan data</i>
Investment grade	Dummy variable equal to one, if the borrower's senior debt is rated investment-grade by Standard & Poor's (i.e., rating equal to BBB or higher), and zero otherwise. <i>Source: Own calculation based on LPC DealScan data</i>
Borrower in not rated	Dummy variable equal to one, if the borrower has no senior debt rating, and zero otherwise. <i>Source: Own calculation based on LPC DealScan data</i>
<i>Market variables</i>	
Life insurance premium volume	Life insurance premium volume as a share of GDP. When the data are not available, we use the most recent value in the dataset. For years that are not available, we take the value of the closest year. <i>Source: World Bank database (http://databank.worldbank.org/data/reports.aspx?source=1250&series=GFDD.DI.09)</i>
Bank concentration	Assets of the three largest banks as a share of assets of all commercial banks. For years that are not available, we take the value of the closest year. <i>Source: World Bank database (http://databank.worldbank.org/data/reports.aspx?source=1250&series=GFDD.OI.01)</i>
Ln(Real GDP per capita)	The natural logarithm of the real GDP per capita of the borrower's country at the deal close date. Real GDP per capita is adjusted for price changes (i.e., inflation). <i>Source: World Bank Indicators</i>
<i>Legal variables</i>	
Common-law origin	Dummy variable equal to one, if the borrower is located in a common-law country, and zero, if the borrower is located in a civil-law country. <i>Source: La Porta et al. (1999, 2008)</i>
Creditor rights	Index aggregating creditor rights in bankruptcy and reorganization laws of the country. The index ranges from zero to four and is time-varying. For recent years, when the data are not available, we use the most recent value in the dataset. <i>Source: Djankov et al. (2007)</i>
Court formalism index	This measure is taken from Djankov et al. (2003, p. 469), which defines this index measuring "substantive and procedural statutory intervention in judicial cases at lower-level civil trial courts and is formed by adding up the following indices: (i) professionals versus laymen, (ii) written versus oral elements, (iii) legal justification, (iv) statutory regulation of evidence, (v) control of superior review, (vi) engagement formalities, and (vii) independent procedural actions. The index ranges from zero to seven, where seven means a higher level of control or intervention in the judicial process." <i>Source: Djankov et al. (2003)</i>
Law and order	Index ranging from 0 to 6, composed of two sub-indices (being scored from 0 to 3): one is the "Law" element (strength and impartiality of the legal system); the other is the "Order" element (assessment of popular observance of the law). See www.prsgroup.com for more details. <i>Source: International Country Risk Guide (ICRG)</i>
Initial financial gap in 1990 (credit)	Difference between Japan's and the country's domestic credit to private sector in 1990 (% of GDP), available in the World Bank database (time series: FS.AST.PRVT.GD.ZS). <i>Source: World Bank Indicators</i>
Initial financial gap in 1990 (credit and stock)	Difference between Japan's and the country's total financial development, measured as the sum of the domestic credit to private sector in 1990 (% of GDP) and the market capitalization of listed domestic companies in 1990 (% of GDP), both available in the World Bank database (Time series: FS.AST.PRVT.GD.ZS and CM.MKT.LCAP.GD.ZS). <i>Source: World Bank Indicators</i>

Table 1 (Continued)

<i>Cultural variables</i>	
Power distance, individualism, masculinity, uncertainty avoidance	The four main dimensions of the Hofstede Cultural Index. In the analysis, we calculate, for each dimension, the difference between the borrower’s parent company and the borrower’s country (relevant when the borrower is a foreign subsidiary). <i>Source:</i> https://www.hofstede-insights.com/product/compare-countries/
Hierarchy	The percentage of the population of each country that belongs to Roman Catholic, Eastern Orthodox or Muslim religions. <i>Source:</i> La Porta et al., (1997b, 1999)
Delegation	An index of the willingness to delegate authority. This index is constructed from the answers to the question: “[I]n your country, how do you assess the willingness to delegate authority to subordinates?” The values go from 1, in situations where top management controls important decisions, to 7, where authority is delegated mainly to business unit heads and other lower-level management. <i>Source:</i> Chong et al. (2014)

This table provides detailed definitions of all the variables used in the paper. The source for each variable is also provided. The source of the dependent variables, deal measures, and company variables is the LPC DealScan database. Our sample covers the years between 1995 and 2017.

(1998, 1999, 2008). We include variables that control for the economic development of the country of origin, stock market conditions, and the relative presence of different participants in the syndicated loan market (which are generally commercial banks, investment banks, and institutional investors). While previous studies restrict the sample to publicly traded borrowers, we retain private firms as part of our sample. After we match these different data sources, our final sample for the baseline econometric specification is made up of 156,051 loans with a total of 222,257 tranches from 66,644 distinct borrowers.

Figure 1 displays the extent of tranching and the facilities most widely used in the market. The figure shows that 30% of the deals are multiple-tranche loans. Among loans that are not tranching, the two largest facility types are revolving credit (48%) and term loans (45%). Loans with two tranches account for approximately two-thirds of tranching loans. The most common two-tranche loan in our sample consists of a revolving facility and a term loan, similar to that in Maskara (2010). However, our data reveal large variations in facilities from deal to deal; nearly half of the two-tranche loans have other combinations of facilities. Figure 1 also shows that 33% of all tranching loans are loans with more than two tranches. This figure highlights two key points that guide the econometric analysis that follows. First, it points to a need for understanding the factors that affect the decision to tranche. Second, it shows that, while some loan structures are more frequently used than others, a broad spectrum of structures is observed. Indeed, nearly two-thirds of the loans with multiple tranches are different from the most common two-tranche loan.

Table 2 presents the main summary statistics of the full sample of loans and introduces the main variables proxying for the different theories outlined. The table shows that 30% of the loans are tranching, with an average of 2.42 tranches. However, there is substantial variation, with a maximum of four tranches for one deal. The mean loan size in our sample is nearly \$300 million, but tranching deals are somewhat smaller – \$240 million, on average. Facilities of tranching loans are quite large, though, with an average amount of \$107.4 million. The average size of the loan and the tranche in our sample suggests that large corporations, which are likely to be multinational firms, use this market frequently.

As we mentioned before, different tranches of the same loan can have different contractual terms. Table 2 helps us assess some of these differences. We present two measures of the differences between interest rates among tranches of a single loan. The first measure, the “spread ratio,” is computed as the ratio of the basis point difference in the interest rate spread over the London Bank Offered Rate (LIBOR) (the all-in-drawn spread, which includes the base rate spread and the facility fee) of the tranche with the highest spread and the tranche with the lowest spread of each single loan. The second measure, the “spread range,” is the basis point difference in interest rate spread over LIBOR (the all-in-drawn spread, which includes the base rate spread and the facility fee) between the tranche with the highest spread and the tranche with the lowest spread. The average spread ratio is nearly 1.1, with a standard deviation of 0.18 (calculated for the full sample, including non-tranching deals where that ratio is 1). Meanwhile,

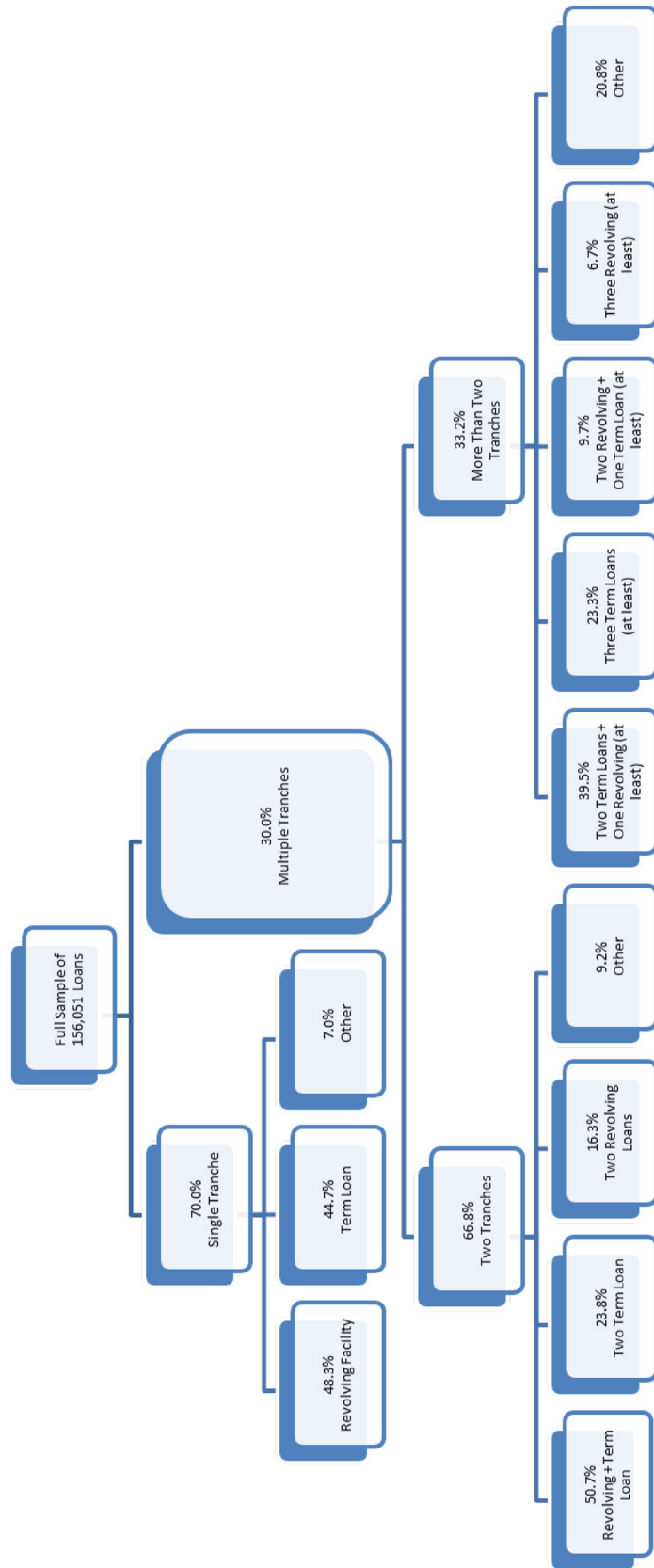


Figure 1 Combinations of tranches (or facilities) in the syndicated loan market. The figure presents the distribution of the total number of loans in our sample according to the number of tranches and the type of facility. The numbers in *percentage* in each node show the proportion of loans in each node above.

Table 2 Summary statistics.

Variables	Full sample		Deals that are not tranching		Deals that are tranching		Tranching vs. non-tranching	Initial financial gap in 1990 (credit and stock) > sample median		Initial financial gap in 1990 (credit and stock) ≤ sample median		High vs. low initial financial gap	P value
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.		P value	Mean	Std. Dev.	Mean		
Loan is tranching	0.300	0.458	0	0	1	0	-	0.324	0.468	0.292	0.455	0.000	
Number of tranches	1.426	0.741	1	0	2.419	0.646	-	1.494	0.824	1.401	0.706	0.000	
Deal amount	300.055	807.247	325.713	856.077	240.255	676.198	0.000	327.094	899.186	290.095	770.385	0.000	
Average tranche amount	260.168	742.957	325.713	856.077	107.402	311.534	0.000	283.304	834.714	251.646	705.972	0.000	
Spread ratio	1.033	0.116	1.000	0.000	1.098	0.184	-	1.046	0.143	1.029	0.108	0.000	
Spread range	6.423	23.175	0.000	0.000	19.104	36.812	-	7.179	23.438	6.213	23.096	0.000	
Average maturity	54.089	44.462	50.525	45.578	62.397	40.549	0.000	68.439	55.295	48.803	38.406	0.000	
Range of maturities	5.355	21.910	0.000	0.000	17.837	37.098	-	8.116	31.127	4.338	17.208	0.000	
Range of maturities = 0	0.847	0.360	1.000	0.000	0.490	0.500	-	0.833	0.373	0.852	0.355	0.000	
Revolving facility	0.554	0.497	0.483	0.500	0.719	0.450	0.000	0.300	0.458	0.647	0.478	0.000	
Borrower is a private company	0.636	0.481	0.610	0.488	0.697	0.459	0.000	0.717	0.450	0.607	0.488	0.000	
Borrower is a corporation	0.762	0.426	0.733	0.442	0.829	0.377	0.000	0.725	0.447	0.775	0.417	0.000	
Borrower is a subsidiary	0.321	0.467	0.289	0.453	0.395	0.489	0.000	0.421	0.494	0.284	0.451	0.000	
Borrower is a foreign subsidiary	0.089	0.285	0.080	0.271	0.112	0.315	0.000	0.176	0.381	0.057	0.233	0.000	
Investment grade	0.083	0.276	0.094	0.292	0.057	0.232	0.000	0.055	0.228	0.093	0.291	0.000	
Borrower is not rated	0.802	0.399	0.810	0.393	0.783	0.412	0.000	0.887	0.317	0.770	0.421	0.000	
Common-law origin	0.599	0.490	0.555	0.497	0.702	0.457	0.000	0.233	0.423	0.734	0.442	0.000	
Creditor rights	1.619	0.897	1.641	0.860	1.569	0.977	0.000	1.959	0.988	1.496	0.828	0.000	
Court formalism index	2.872	0.663	2.892	0.642	2.825	0.708	0.000	3.483	0.906	2.651	0.346	0.000	
Law and order	0.832	0.119	0.828	0.120	0.842	0.118	0.000	0.752	0.187	0.859	0.066	0.000	
Initial financial gap in 1990 (Credit)	75.855	46.461	72.095	49.626	84.616	36.610	0.000	128.106	31.433	56.831	35.056	0.000	
Initial financial gap in 1990 (credit and stock)	111.376	66.199	105.382	70.546	125.345	52.139	0.000	188.183	33.572	83.413	51.359	0.000	

This table presents statistics on the main variables used in the paper. Statistics for each measure are shown for the full sample, the subsample of deals that are not tranching, the subsample of deals that are tranching, the subsample of deals by borrowers located in a country with a high level of financial development (above or equal to the median sample value of the variable "Initial Financial Development in 1990 (Credit and Stock)"), and the subsample of deals by borrowers located in a country with a low level of financial development. All the variables are defined in Table 1. The table also reports p-values of tests of differences in means tests for different subsamples. The full sample has 156,051 loans.



the average spread range is close to 20 basis points, with a standard deviation of 37 basis points.

Interest rate differences may be driven by differences in loan maturity stemming from an increasing or decreasing yield curve and its impact on the speed at which debtholders are paid. Table 2 presents data for various measures of maturity from one tranche to another. The average loan in our sample has a maturity of 54 months. Loans that are not tranced have a maturity of 50 months, whereas tranced deals have a substantially longer-than-average maturity, reaching over 62 months. The range of maturities in the tranches of any one loan (i.e., the difference in months between the tranche with longest and that with the shortest maturity) is more than 17 months. Meanwhile, the standard deviation of maturities for all tranches in a single loan is nearly 11 months. However, it is unlikely that contractual differences account for all the variations in interest rates, since almost half of tranced loans have tranches of exactly the same maturity.

The last measure of contractual differences presented in Table 2 shows the proportion of loans with at least one revolving facility. Revolving facilities are usually awarded to large and publicly traded companies as well as to those firms considered consolidated or safer (Maskara, 2010). These facilities differ significantly in terms – such as term loans and bond – from other facilities, since they offer greater flexibility. Our data show that 50% of non-tranced loans are revolving facilities, whereas nearly 72% of tranced loans include at least one of these facilities.

The next five variables shown in Table 2 provide borrowers' characteristics. Close to 64% of the loans are from private companies, suggesting that the syndicated loan market is an essential source of financing for private firms. Seventy-five percent of the borrowers in our sample are corporations, while the remaining 25% are financial institutions. Although slightly more than 8% of the firms in the full sample are investment-grade (i.e., BBB or higher), close to 80% of borrowers are not rated. There are a few statistically significant differences between companies with tranced loans and those with non-tranced loans. Close to 70% of tranced deals, but only 61% of non-tranced loans, are from private companies. We also observe that in terms of borrowers' risk, non-investment-grade firms and those without an available rating represent a significantly larger proportion of tranced than non-tranced deals. Some of the differences point to the relevance of asymmetric information

and transaction costs in trancing. It will, therefore, be important to incorporate these differences into the econometric analysis in the next section.

The final block of variables in Table 2 shows the main legal institutions. We look at four of the standard measures developed in the law and finance literature: legal origins, creditor rights, the formalism of court procedures, and law and order. As in the rest of the literature, the legal institutions that we use are those of the country in which the capital is being raised because they provide the main framework used in case of creditor disputes, irrespective of the origin of the financiers. Table 2 shows that 60% of our loans come from common-law countries, while the remaining 40% come from borrowers in civil-law legal families. About 70% of tranced loans, but only 55.5% of non-tranced loans, are from borrowers located in common-law countries. Overall, these results support our prediction that firms domiciled in common-law countries are more likely to resort to trancing.

Table 2 also displays the characteristics of our sample in terms of the three other legal and enforcement institutions directly linked to the loan market. To measure the strength of creditor rights in each country, La Porta et al. (1998) develop an index consisting of four dummy variables measuring key features of bankruptcy and reorganization codes that limit potential expropriation from creditors. Our measure of the efficiency of debt collection procedures comes from Djankov et al. (2003). This court formalism index measures how debt enforcement takes place for a bounced check. The final measure of legal institutions shown in the table covers the general enforcement characteristics of a country through the degree of impartiality of its legal system and popular observance of the law, as measured by the time-varying "law and order" index of the International Country Risk Guide (ICRG). Table 2 suggests that, *ceteris paribus*, deals are more likely to be tranced in countries with less-formalistic court procedures and greater impartiality and observance of the law (i.e., a higher "law and order" index). In contrast, countries with higher creditor rights seem to have less trancing. As we will discuss in the next section, this last difference is reversed in the multivariate setting, which is necessary to obtain the final estimation.

The last five columns of Table 2 show differences between loans by borrowers from financially developed and underdeveloped countries, based on the country's financial gap in 1990, before the take-off of loan trancing and the start of our data. We

measure the size of financial markets in two ways: (1) the value of domestic credit to the private sector; and (2) the sum of the values of domestic credit to the private sector and stock market capitalization. Since these two measures capture financial development and not a financial gap, we construct the initial financial gap as the difference between the value of credit (and stock markets) as a proportion of GDP between Japan (with the highest ratio in the sample) and each country in 1990. One important difference that emerges from the comparison between financially developed and underdeveloped nations is that borrowers located in countries with an initially larger financial gap use loan tranching more. We also observe that countries with large initial financial gaps tend to be civil law nations with more formalistic court systems and lower law and order scores.

MULTIVARIATE ANALYSIS

Our main hypotheses are that loan tranching is more frequent in common-law countries with high creditor protection (Hypothesis 1); that, in the context of multinational subsidiaries, foreign subsidiaries should tranche more frequently (Hypothesis 2); and that transferring institutions allows foreign subsidiaries to benefit from parent companies located in legal and cultural environments that are conducive to obtaining better terms (Hypothesis 3). The previous section presented univariate results that are suggestive of these patterns. In this section, we ascertain whether our main hypotheses are robust in a multivariate setting by presenting a series of cross-sectional results on the determinants of the extent and structure of loan tranching. This framework also allows us to evaluate the impact of market conditions, borrower risk, and contractual terms on loan tranching across countries.

All of the remaining tables have the same structure. The independent variables are divided into three categories: (1) legal institutions, (2) borrower characteristics and contractual terms, and (3) market conditions. For each category, we include a battery of proxies constructed from our data. Detailed definitions of these variables can be found in Table 1. All regressions include a set of year, industry, and loan-purpose dummies and present standard errors clustered by year.

The Extent of Tranching

Table 3 presents the cross-sectional results for the determinants of the probability of tranching and

the extent of tranching, as proxied by the number of tranches in each loan. The dependent variable in Models (1) to (4) is “Loan is tranching,” which is a dummy variable equal to one, if the loan is tranching, and zero otherwise. These models report marginal effects of probit specifications to show the economic significance of our estimates. Model (1) shows that, consistent with the law and finance theory, loans from borrowers located in common-law countries are 9.6% more likely to be tranching than loans made to borrowers in civil-law nations. This finding is also consistent with the greater adaptability of common-law systems, which could allow leading banks to monitor loans less closely and to sell larger parts of the loans through tranching.

The rest of the regressions in Table 3 test for the influence of more specific dimensions of legal institutions likely to affect loan tranching. Common-law countries have better creditor rights, less formalistic and more efficient court systems, and greater impartiality and observance of the law. Consistent with this view, Model (2) shows that countries with strong creditor rights are more likely to have loans tranching by banks. In terms of economic magnitude, a two-standard-deviation increase in creditor rights is associated with a 1.6% increase in the probability of tranching. The results of Model (3) imply that a one-standard-deviation increase in the court formalism index is associated with a 1.5% reduction in the probability of tranching. Finally, Model (4) indicates that a one-standard-deviation increase in the law and order index is associated with a 1% increase in the probability of tranching. Overall, the data are highly supportive of Hypothesis 1.

The analysis in Models (1) to (4) rests on the argument that the decision to tranche may be of prime importance and that choosing the number of tranches may be second. Alternatively, one could argue that the decision at hand for banks is to choose the number of tranches from the outset. As evidenced in Figure 1, there is significant variation in the number of tranches. A simple plot of the frequency of the number of tranches across loans resembles the shape of a Poisson distribution. For this reason, Models (5) to (8) of Table 3 reveal a series of Poisson regressions, in which the dependent variable is the number of tranches per loan. Just as in the case of the decision to tranche, the Poisson estimation results show that the four proxies for the legal environment significantly impact the structure of tranching loans. Indeed,

Table 3 The determinants of tranching.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Loan is tranching				Number of tranches		
<i>Institutional characteristics</i>								
Common-law origin	0.0957a	0.0175a	- 0.0225a	0.0827b	0.1194a	0.0334a	- 0.0170a	0.1723b
Creditor rights								
Court formalism index								
Law and order								
<i>Borrower and deal characteristics</i>								
Borrower is a subsidiary	0.0636a	0.0696a	0.0683a	0.0677a	0.1027a	0.1088a	0.1093a	0.1096a
Borrower is a private company	0.0115a	0.0153a	0.0157a	0.0157a	0.0332a	0.0388a	0.0389a	0.0400a
Borrower is not rated	- 0.1185a	- 0.1318a	- 0.1276a	- 0.1282a	- 0.1963a	- 0.2150a	- 0.2087a	- 0.2106a
Ln(deal amount)	- 0.0565a	- 0.0536a	- 0.0537a	- 0.0543a	- 0.0923a	- 0.0887a	- 0.0886a	- 0.0897a
Investment grade	- 0.1062a	- 0.1170a	- 0.1144a	- 0.1172a	- 0.2032a	- 0.2168a	- 0.2132a	- 0.2191a
Borrower is a corporation	0.0751	0.0662	0.0693	0.0580	0.0706	0.0601	0.0599	0.0411
Revolving facility	0.2193a	0.2417a	0.2371a	0.2376a	0.3615a	0.3901a	0.3849a	0.3847a
<i>Market characteristics</i>								
Life insurance premium volume	- 0.0063a	- 0.0106a	- 0.0085a	- 0.0112a	- 0.0060b	- 0.0134a	- 0.0080a	- 0.0111a
Bank concentration	0.0028a	0.0017a	0.0021a	0.0018a	0.0050a	0.0034a	0.0041a	0.0039a
Ln (Real GDP per capita)	- 0.0034	0.0074	- 0.0031	- 0.0006	- 0.0022	0.0141c	0.0004	- 0.0061
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry group dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	156051	155217	155161	149806	156051	155217	155161	149806
Pseudo R-squared	0.161	0.155	0.156	0.158	-	-	-	-
Deviance goodness-of-fit	-	-	-	-	38599.7	38548.6	38564.8	37349.2

The dependent variable in the first four specifications is "Loan is Tranching," which equals one if the loan is tranching, and zero otherwise. Since this variable is a binary variable, the method of estimation is the Probit regression. The dependent variable in the last four specifications is the "Number of Tranches," which gives the number of tranches that compose the loan. Since this variable is an integer variable, the method of estimation is the Poisson regression. Values of coefficients reported are marginal effects (with discrete change of dummy variable from 0 to 1). All the variables are defined in Table 1. Standard errors are clustered by year. Significance levels: a for 1%, b for 5%, and c for 10%.

loans of firms in common-law countries and in nations with higher creditor rights, court efficiency, and law and order have more tranches. The data on the structure of loans in terms of the number of tranches are also highly consistent with Hypothesis 1.

Apart from legal factors, borrower characteristics may influence information and transaction costs and, hence, affect the extent of tranching. We include four control variables that are likely to capture differences in borrowers' risk across deals. The first measure is a dummy variable equal to one, if the company is not listed on a stock exchange. This measure is used consistently in the literature on syndicated loans to proxy for the borrower's informational opacity (Maskara, 2010). Results across all Models of Table 3 suggest that asymmetric information has an impact on tranching; private companies are between 11.0% and 15% more likely to tranche. The second measure is a dummy variable that identifies all borrowers that are subsidiaries or of either domestic or foreign firms. Subsidiaries are likely to carry higher risk for creditors, as the shareholders of the mother company may engage in self-dealing policies that could affect the value of their assets (La Porta et al., 2006). To the extent that subsidiaries are separate legal entities, this creates a barrier to subsidiary creditors' ability to satisfy their claims from the assets of the parent firm. Results throughout the table support the claim that subsidiaries are riskier and, therefore, engage in more tranching. The third measure we include is a dummy variable equal to one, if the company's senior debt is investment-grade. Specifications in Table 3 show that investment-grade companies issue loans that are about 11% less likely to be trached. Our fourth measure is the log of the size of the loan, which can be thought to proxy for transaction costs, since most of these costs are expected to be fixed. The results indicate that an increase in loan size increases the likelihood that the loan will be trached. This effect is consistent with the transaction costs explanation that many of the tranching costs are, indeed, fixed.

Given the availability of data in the LPC dataset, we created two sets of proxies to capture the effect of differences in contractual terms across loans. Since, revolving facilities have several contractual differences with respect to term loans and bonds, we included a dummy variable for the presence of a revolving facility in the loan. Loans with a revolving facility are between 21% and 24% more likely to be trached, and the number of tranches is these

loans is significantly higher. Additionally, and based on the data we presented in Table 3, with respect to the purpose of the syndicated loans, we added in all models a set of dummy variables for each of the eight main transaction purposes in that table. The effect and significance of these individual dummies varies from one specification to the next, but they contribute to improving the overall R-squared and enable us to control for further effects that may be specific to each type of transaction.

The final set of variables included in our analysis covers the differences in financial market conditions, the types of investors participating in each market, and economic conditions as a whole. These measures proxy for the structure and degree of completeness of domestic financial markets. We include three measures: (1) life insurance premium volume over GDP; (2) bank concentration in the borrower's country; and (3) the log of real GDP per capita in the year the deal was closed, as the literature uses this measure as a good summary proxy for macroeconomic and political country conditions or asymmetric information in the economy (La Porta et al., 1997a, 1998, 2004). All of these variables are also good proxies for capital market imperfections. In the spirit of Senbet and Wang (2012), we predict that the value of tranching would be higher in places with more market imperfections. The results in Table 3 bolster most of the arguments justifying the inclusion of market characteristics. Countries with more concentrated banking sectors support more loan tranching. Finally, lending credence to the notion that asymmetric information is more pronounced in less wealthy economies, we find less tranching in countries with higher per-capita GDP.

Differences from Tranche to Tranche

In this section, we look at differences from tranche to tranche by examining the subsample of trached loans with data on interest spreads per tranche. Table 4 presents regression results with the interest rate ratio as the dependent variable. In Models (1) to (4), we use all trached loans, irrespective of the number of tranches, while in Models (5) to (8), we present the results for the subsample of loans with exactly two tranches, as an additional way to mitigate the influence of contractual differences in the ratio. The last set of models deals with the potential concern that the heterogeneity of spreads may increase mechanically with more tranches. The structure and set of independent variables is

practically the same as in Table 3, with a couple of additional variables we were able to create for this subset of the data.

Our Hypothesis 1, based on law and finance theory, predicts that the lower expected costs emerging from better creditor rights and debt enforcement should reduce the price of risk across loans. Additionally, one might expect that riskier tranches would benefit the most from this improved protection, as they are typically the ones that suffer most in the case of default. This logic predicts that we should expect a lower interest rate spread ratio among the tranches of a single loan.

The results in Table 4 corroborate the prediction of Hypothesis 1. In Models (1) to (4), which include all loans with multiple tranches, improvements in all of the four legal measures lead to statistically significant reductions in the spread ratio among tranches of the same loan (recall that in Model (3), higher levels of formalism mean lower-quality legal institutions). The economic significance of the results translates into loan spread ratios 0.05 lower in common-law countries (Model 1). A one-standard-deviation increase in creditor rights gives rise to a 0.5% reduction in the spread ratio (Model 2). Meanwhile, a one-standard-deviation reduction in the court formalism index gives rise to a 2.5% reduction in the spread ratio (Model 3), and a one-standard-deviation increase in the law and order index gives rise to a 0.57% reduction in the spread ratio (Model 4). The analysis is consistent for two-tranched loans in Models (5) to (8).

The impact of legal conditions on the structure of tranches is robust to the inclusion of borrowers' risk, contractual terms, and market characteristics, bolstering the theory that asymmetric information affects loan tranching. Table 4 also shows evidence that borrowers' risk characteristics affect spread ratios, as investment-grade loans have lower spread ratios, and subsidiaries have consistently higher spread ratios. Consistent with the transaction costs hypothesis, we observe that tranching costs are fixed, as larger loans have larger spread ratios.

Differences in contractual terms also account for some of the variation in spread ratios from tranche to tranche, as revolving facilities are granted more often to safer borrowers, or their existence reduces the risks for all the other tranches, since they provide a constant source of cash that can be used over the life of the loan. The existence of a revolving facility in the loan is associated with a smaller spread ratio across all models. In Table 4, we introduce an additional measure to capture

maturity differences across tranches of the same loan by computing the range of maturities among the tranches. Tranches with shorter maturity may be less risky, because they are paid out earlier. Tranches with different maturities are also likely to have different interest rates, depending on the shape of the yield curve. Not surprisingly, the results show that loans with a larger range of maturities exhibit larger interest rate ratios in all specifications of Table 4.

As an additional robustness check, we repeated the analysis of Table 4 using the interest rate spread range as a dependent variable. These robustness checks are available in Appendix Table 4. The results are largely similar when this alternative measure of in-loan heterogeneity is used. Finally, we carried out an additional robustness check motivated by the fact that a substantial portion of our sample is made up of U.S. borrowers. Indeed, around 44% of the deals originate in the United States, a common-law country. This preponderance can affect our results, notably on the impact of the legal environment and the structure of financial markets. Appendix Table 5 shows the main econometric results excluding the U.S. Results are virtually unchanged.

TRANCHING, THE FINANCIAL DEVELOPMENT GAP, THE LIABILITY OF FOREIGNNESS, AND THE TRANSFER OF INSTITUTIONS

The Financial Development Gap

Overall, the results in previous sections on the effects of legal institutions, borrower characteristics, contractual terms, and market conditions provide corroborating evidence for the theories outlined at the outset of the paper. In this section, we try to expand these findings to explain how loan tranching may affect the ability of domestic and multinational firms to raise debt in markets with reduced access to finance.

Countries differ to the extent that they provide domestic or foreign borrowers with access to financial resources. Many emerging countries have a significant "financial development gap," due to their poorly developed credit and stock markets (Gande, John, & Senbet, 2008; McDonald & Schumacher, 2007). In the spirit of Senbet and Wang (2012), the degree of market incompleteness in such countries may, therefore, be more pronounced, incentivizing borrowers to adopt different credit structuring practices, including relying

Table 5 Tranching and the initial financial gap.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Loan is tranching							
Creditor rights			0.0246a	0.0294a	0.0033a		0.0457a	0.0541a
Initial financial gap in 1990 (credit)	0.0021a	0.0015a	0.0021a				0.0034a	0.0026a
Initial financial gap in 1990 (credit and stock)						0.0024a		
<i>Borrower and deal characteristics</i>								
Borrower is a subsidiary	0.0578a	0.0610a	0.0566a	0.0593a	0.0912a	0.0957a	0.0885a	0.0922a
Borrower is a private company	0.0105a	0.0071b	0.0106a	0.0069b	0.0287a	0.0226a	0.0293a	0.0226a
Borrower is not rated	-0.1221a	-0.1208a	-0.1251a	-0.1244a	-0.2001a	-0.1979a	-0.2063a	-0.2053a
Ln(deal amount)	-0.0604a	-0.0600a	-0.0611a	-0.0610a	-0.0998a	-0.0996a	-0.1009a	-0.1013a
Investment grade	-0.1053a	-0.1062a	-0.1056a	-0.1066a	-0.2024a	-0.2038a	-0.2040a	-0.2058a
Borrower is a corporation	0.0428	0.0389	0.0443	0.0409	0.0194	0.0117	0.0232	0.0156
Revolving facility	0.2208a	0.2191a	0.2226a	0.2213a	0.3551a	0.3511a	0.3586a	0.3550a
<i>Market characteristics</i>								
Life insurance premium volume	0.0073a	0.0111a	0.0028b	0.0063a	0.0155a	0.0226a	0.0072a	0.0142a
Bank concentration	0.0008a	0.0009a	0.0004	0.0003	0.0021a	0.0021a	0.0013a	0.0010b
Ln(Real GDP per capita)	0.0456a	0.0357a	0.0546a	0.0460a	0.0752a	0.0615a	0.0915a	0.0802a
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry group dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	155562	155562	154728	154728	155562	155562	154728	154728
Pseudo R-squared	0.171	0.170	0.172	0.173	-	-	-	-
Deviance goodness-of-fit	-	-	-	-	37754.6	37697.0	37427.2	37325.3

The dependent variable in the first four specifications is "Loan is Tranching," which equals one, if the loan is tranching, and zero otherwise. Since this variable is a binary variable, the method of estimation is the Probit regression. The dependent variable in the last four specifications is "Number of Tranches," which gives the number of tranches that compose the loan. Since this variable is an integer variable, the method of estimation is the Poisson regression. Values of coefficients reported are marginal effects (with discrete change of dummy variable from 0 to 1). All the variables are defined in Table 1. Standard errors are clustered by year. Significance levels: a for 1%, b for 5%, and c for 10%.

on loan tranching. Following the logic in Senbet and Taggart (1984), borrowers located in countries with large financial development gaps may be particularly prone to rely on tranching as a way to overcome market incompleteness. Loan tranching allows banks to cater to the segmented markets (similar to catering to different clienteles through a dividend payout policy by publicly listed firms) and improves firms' access to financing via the issuance of different types of loans, according to their needs.

To further explore this point, we add measures of the initial financial development gap, based on the size of the financial markets as a percentage of GDP in 1990. Recall that we constructed one financial gap measure based on the size of credit markets and another one based on the size of debt and stock markets, both in reference to Japan. At the same time, using Japan as a reference point makes the interpretation of the tables easier. As argued above, we expect borrowers in countries with a larger initial financial gap to have a higher incentive to use loan tranching and to benefit from it. To the extent that our results suggest that this is, indeed, the case, we speculate that loan tranching might contribute to a country's financial development over time.

In Table 5, we provide the results for this hypothesis. Because financial development is known to be related to the development of legal institutions, we show regressions with and without controlling for legal variables as a way to ensure that the coefficient significance of our financial development gap measures are not driven by possible correlation with creditor protection. The different specifications in the table show robust results consistent with the prediction that borrowers located in countries with an initially larger financial development gap rely more on tranching, in terms of both whether to use tranching (Models 1 to 4) and the number of tranches (Models 5 to 8). In economic terms (based on Model 4), a one-standard-deviation reduction in the financial gap (which corresponds to a move from Morocco to Luxembourg or from Mexico to France) leads to a 10% reduction in the probability of tranching.

Since tranching facilitates financing, we interpret these results as suggesting that tranching may contribute to the reduction of the financial development gap that plagues many emerging countries. Given the importance of credit markets worldwide, and particularly the absence of well-functioning stock markets as an alternative source of financing in these countries, tranching appears to be

especially beneficial to firms in emerging countries with poorly developed financial markets. These findings complement the existing literature on the importance of well-functioning legal institutions – credit rights in particular (McDonald & Schumacher, 2007) – as mechanisms to foster financial development and, in turn, economic growth (Levine and Zervos, 1998).

The Liability of Foreignness and the Transfer of Institutions by Multinational Firms

Our second main hypothesis relates to another aspect of international businesses as they seek to finance their operations around the world. Multinational firms looking to raise funds have an option to raise debt through the syndicated loan market where their foreign subsidiary is located.

The previous section has already established that riskier borrowers seem to particularly benefit from loan tranching. Consistent with this view, Tables 3 and 4 show that loans to subsidiaries are more likely to be tranching and to have more tranches and higher spread ratios. But do subsidiaries of domestic and foreign firms show the same pattern in loan tranching? Our sample is well suited for answering this question, since we are able to separate loans to local parent companies from those made to subsidiaries of domestic and foreign multinational firms. In Table 6, we analyze tranching of domestic and foreign subsidiaries. This table has the same structure as the previous regression tables but introduces two dummy variables – one for domestic subsidiaries and another for subsidiaries of multinational corporations.

The results in Models (1) to (4) of Table 6 show that domestic and foreign subsidiaries are more likely to tranche loans and have more tranches per loan than local parent companies. We also find that foreign subsidiaries are even more likely than domestic subsidiaries to engage in tranching, as evidenced by the high level of significance in the difference test of coefficients across all four models. These findings suggest that multinational firms use the tranching market more often to raise debt for their foreign subsidiaries since it allows them to split risks across investors. Models (5) and (6) of Table 6 report that the higher spread ratios of subsidiaries documented in Table 4 are due mainly to the borrowing by foreign subsidiaries of multinational firms. In accordance with the predictions of the literature on the liability of foreignness, creditors perceive foreign subsidiaries of multinational firms as having pronounced risks, but they

Table 6 Tranching by domestic and foreign subsidiaries.

Variables	(1)	(2)	(3)	(4)	(5)	(6)
	Loan is tranching	Number of tranches	Spread ratio	Number of tranches	Spread ratio	Spread ratio
<i>Institutional characteristics</i>						
Creditor rights		0.0173a		0.0327a		- 0.0055c
<i>Borrower and deal characteristics</i>						
Borrower is a domestic subsidiary	0.0661a	0.0659a	0.0992a	0.0990a	0.0030	0.0031
Borrower is a foreign subsidiary	0.0819a	0.0795a	0.1416a	0.1355a	0.0195a	0.0190a
Borrower is a private company	0.0150a	0.0153a	0.0381a	0.0389a	0.0032	0.0033
Borrower is not rated	- 0.1293a	- 0.1321a	- 0.2102a	- 0.2157a	- 0.0294a	- 0.0293a
Ln(deal amount)	- 0.0532a	- 0.0536a	- 0.0882a	- 0.0888a	0.0032a	0.0034a
Investment grade	- 0.1164a	- 0.1171a	- 0.2150a	- 0.2171a	- 0.0546a	- 0.0548a
Borrower is a corporation	0.0628	0.0652	0.0526	0.0573	0.1884	0.1886
Spread of maturities					0.0013a	0.0013a
Revolving facility	0.2397a	0.2418a	0.3862a	0.3901a	- 0.0184a	- 0.0184a
<i>Market characteristics</i>						
Life insurance premium volume	- 0.0073a	- 0.0105a	- 0.0074b	- 0.0134a	0.0017c	0.0030b
Bank concentration	0.0020a	0.0017a	0.0039a	0.0033a	0.0006a	0.0008a
Ln(Real GDP per capita)	0.0026	0.0076	0.0058	0.0146b	- 0.0082a	- 0.0101a
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry group dummies	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose dummies	Yes	Yes	Yes	Yes	Yes	Yes
Diff. test domestic vs. foreign sub	215.64a	213.37a	203.35a	204.95a	11.18a	10.59a
Number of observations	156051	15217	156051	15217	27654	27538
Pseudo/adjusted R-squared	0.154	0.155	-	-	0.078	0.079
Deviance goodness-of-fit	-	-	38815.1	38538.98	-	-

The dependent variable in Models (1) and (2) is "Loan is Tranching," which equals one, if the loan is tranching, and zero otherwise. The dependent variable in Models (3) and (4) is "Number of Tranches," which gives the number of tranches that compose the loan. The dependent variable in Models (5) and (6) is "Spread Ratio," which is measured as the ratio of the basis point difference in interest rate spreads over LIBOR of the tranche with the highest spread and the tranche with the lowest spread of a single loan. This variable is calculated only for the subsample of tranching loans. Values of coefficients reported are marginal effects (with discrete change of dummy variable from 0 to 1). All the variables are defined in Table 1. Standard errors are clustered by year. Significance levels: a for 1%, b for 5%, and c for 10%.

seem to draw greater economic benefits from tranching, as it allows them to split the loans and cater to investors with different risk appetites.

Multinational corporations operate across boundaries and are, therefore, well positioned to raise capital across different legal and institutional regimes. The prior literature established the ability of multinationals to arbitrage across borders focused on tax regime differentials (Chowdhry & Coval, 1998; John, Senbet, & Sundaaran, 1991). A new complementary strand of this literature connects parent-subsidiary financing to differences in legal institutions across countries. Noe (1998) and Banerjee and Noe (2017) suggest that heterogeneity in legal systems can help explain the mix of parent and subsidiary financing in most multinationals, even in the absence of both tax differentials and private information. Desai, Foley, and Hines (2004) argue that legal institutions are important factors influencing the debt allocations of multinationals controlling for tax effects. Following similar reasoning, Aggarwal and Kyaw (2008) find a positive link between creditor rights and the local borrowing of foreign subsidiaries. To date, however, there is still an absence of empirical studies on the effect of formal and informal institutions on the borrowing structure of foreign subsidiaries. Our sample allows us to contribute in this area.

In Table 7, we restrict the sample to the subset of foreign subsidiaries of multinational corporations to test the transferring of institutions hypothesis. In Panels A, B, and C of the table, we present regressions of the impact of legal and informal institutions on tranching by foreign subsidiaries of multinational corporations. These panels analyze the extent and structure of tranching by foreign subsidiaries, presenting the same basic econometric specification and controls of previous tables. Model (1) of each panel actually shows the same regression as in Tables 3 and 4 but for the sample of foreign subsidiaries alone. Then, Models (2) to (11) of each panel add a series of regressors to capture the effect of transferring institutions. With the exception of the variable of common vs. civil law, the rest of these variables are calculated as the difference between the measure of institutions in the country in which the parent multinational company is located and the measure of institutions in the location of the foreign subsidiary.

The results in Panel A, Model (2) show that foreign subsidiaries are 1.75% more likely to tranche when the legal origin of the parent is common law and that of the subsidiary is civil law.

Model (2) in Panel B of Table 7 shows a similar effect for the number of tranches. The similar transference of institutions from higher parent to lower subsidiary country-level conditions is observed in Panels A and B of Table 7 for the other measures of legal institutions. Overall, the results from Table 7 should be interpreted as showing that legal institutions are transferred from the parent to subsidiary to mitigate the negative impact of weak legal institutions on tranching, consistent with our Hypothesis 3. These results indicate that in weaker legal environments, banks are more likely to tranche loans from subsidiaries of foreign multinational firms when the latter are located in a country with a better legal environment.

Hypothesis 3 states that legal and informal institutions are likely to be transferred across countries when the institutions in the host country are of lower quality (Cumming et al., 2017). Panels A and B of Table 7 show evidence of transferring cultural conditions from the parent to the subsidiary. Breuer, Riesener, and Salzmann (2012) explain that individualism is associated with risk taking and access to finance, while uncertainty avoidance has the opposite effect.

The data in Panels A and B of Table 7 are consistent: individualism transferred from the parent company country to the subsidiary country facilitates tranching, while uncertainty avoidance in the parent country mitigates tranching by the subsidiary for similar reasons, insofar as power distance – which informs us about dependence relationships and higher deference to authority (Mac an Bhaird and Lucey, 2014) – is lower in the parent country than in the location of the subsidiary, the transferred influence from the parent facilitates loan tranching by the subsidiary. The last two models in each panel use a measure of the difference in the preponderance of hierarchical religions (Porta, Lopez-de-Silanes, Shleifer, and Vishny 1997b) and the willingness to delegate (Chong, La Porta, Lopez-de-Silanes, & Shleifer, 2014) between the country of the parent and the subsidiary. The results in both panels show that more willingness to delegate and fewer hierarchical structures transferred from the parent multinational to the foreign subsidiary facilitate tranching by the subsidiary. This result is similar to the one found when looking at the differences in power distance, which is related to deference for authority.

Finally, the results in Panel C of Table 7 show that, for the most part, the benefits of transferring

Table 7 Tranching and transferring institutions to foreign subsidiaries.

Institutional differences	Common to civil law	Creditor rights	Court formalism	Law and order	Power distance	Individualism	Masculinity	Uncertainty avoidance	Hierarchy	Delegation
<i>Panel A: Loan is tranching</i>										
Creditor rights	0.0173a	0.0184a	0.0171a	0.0176a	0.0198a	0.0174a	0.0171a	0.0195a	0.0191a	0.0198a
Institutional differences	0.0252a	0.0252a	0.0016	-0.0088a	0.0131	0.0004a	0.0003c	-0.0006a	-0.0002c	0.0272a
Controls and dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	13,671	13,671	12,734	13,191	10,887	12,362	12,362	12,362	13,444	13,242
Pseudo R-squared	0.170	0.170	0.172	0.172	0.172	0.174	0.174	0.175	0.170	0.172
<i>Panel B: Number of tranches</i>										
Creditor rights	0.0322a	0.0352a	0.0320a	0.0357a	0.0436a	0.0339a	0.0333a	0.0406a	0.0392a	0.0402a
Institutional differences	0.0662a	0.0662a	0.0010	-0.0288a	0.0528	0.0009a	0.0004	-0.0016a	-0.0007a	0.0640a
Controls and dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	13,671	13,671	12,734	13,191	10,887	12,362	12,362	12,362	13,444	13,242
Deviance goodness-of-fit	4022.76	4017.15	3736.08	3869.79	3371.65	3608.96	3612.28	3598.0	3956.08	3879.41
<i>Panel C: Spread ratio (for tranching loans only)</i>										
Creditor rights	-0.003	-0.003	-0.003	-0.002	0.002	-0.003	-0.003	-0.003	-0.001	-0.002
Institutional differences	0.013c	0.013c	-0.002	-0.008c	0.008	0.000	0.000	-0.000	-0.000	0.003
Controls and dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	2775	2775	2593	2692	2308	2521	2521	2521	2729	2698
Adjusted R-squared	0.077	0.078	0.069	0.074	0.078	0.068	0.068	0.069	0.073	0.072

The dependent variable in Panel A is "Loan is Tranching" (Probit regressions). The dependent variable in Panel B is the "Number of Tranches" (Poisson regressions). The dependent variable in Panel C is the "Spread Ratio" (OLS regressions), which is only calculated for the subsample of tranching loans. For comparability reasons, the sample is restricted to the loans issued to foreign subsidiaries only (Borrower is a Foreign Subsidiary = 1). Each regression includes the full set of control borrower, deal, and market characteristics as in previous tables, but we do not show the coefficients for space reasons. Each regression also includes year dummies, industry group dummies, and loan purpose dummies, as in previous tables. Each regression shows the coefficients of "Creditor Rights" and "Institutional Differences." The first row of the table identifies the difference in institutions that is measured in each column. These regressors capture the effect of transferring institutions. "Common to Civil Law" is a dummy variable when the legal origin of the parent is common law and the subsidiary is in civil law. The rest of the transferring institutions variables are calculated as the difference between the measure of institutions in the country in which the parent multinational company is located and the measure of institutions in the location of the foreign subsidiary. Values of coefficients reported are marginal effects (with a discrete change of dummy variable from 0 to 1). All the variables are defined in Table 1. Standard errors are clustered by year. Significance levels: a for 1%, b for 5%, and c for 10%.

institutions are limited to the increased ability of foreign subsidiaries to tranche, as there is virtually no effect on the interest rate spread ratio. Overall, the results in this section suggest that transferring institutions from multinational firms located in countries with good investor protection and strong informal institutions to their foreign subsidiaries located in places with weaker institutions helps borrowers overcome the initial liability of foreigners faced by these subsidiaries, providing them liquidity through more tranching.

CONCLUSION

Loan tranching is valuable because it enables banks to manage risk and facilitates firm financing. In this paper, we analyze the determinants and benefits of loan tranching, creating the largest cross-country loan-level sample. The evidence of the impact of creditor protection on loan tranching supports the law and finance view (La Porta et al., 1998, 2008) and uncovers an additional channel through which creditor protection furthers the development of financial markets and alleviates the financial development gap faced by domestic and multinational firms in many countries. Our data also show that foreign subsidiaries of multinational firms draw greater economic benefits from tranching, as it allows them to split the loans and cater to investors with different risk appetites. To this end, the data suggest that transferring institutions from multinational firms located in countries with good investor protection and strong informal institutions to their foreign subsidiaries in nations with weaker institutions helps these borrowers overcome the initial handicap they face.

The findings also have important policy implications. Beyond the varying nature of legal regimes across national boundaries, the results have potential implications for the ability of loan tranching to address the financial development gap (Allen, Carletti, Cull, Qian, Senbet, & Valenzuela, 2014; Beck, Senbet, & Simbanegavi, 2014). International financial institutions grapple with the issues of access to finance and the quest for inclusive finance (Allen, Otchere, & Senbet, 2011; Allen, Carletti, Cull, Qian, Senbet, & Valenzuela, 2012). Therefore, this paper's results are consistent with the view that loan tranching helps to complete markets matching borrowers and lenders of different risk profiles and risk tolerance. These findings suggest loan tranching can be encouraged in less developed

regions, thereby enabling improved access to finance.

Overall, our findings raise a number of questions and open potential new areas of research in a field that has received inadequate attention in the literature. First, since each loan facility is itself financed by a syndicate of banks, future research should explore these syndicates and the role of the lead arranger. Current studies of loan syndicates treat each facility in isolation, ignoring possible links between tranches of any one loan. An initial look at our data indicates that lead arrangers sometimes participate simultaneously in different tranches. How lead arrangers choose their degree of participation in the different tranches of a single loan remains unexplored. Second, an interesting area is to more closely examine the interplay of the ownership and governance characteristics of the borrower, the propensity to tranche, and the structure of tranches, which would also constitute an additional promising research avenue.

A third area involves the relation between tranching and other institutional determinants apart from legal differences across countries and time examined here, such as culture (Beugelsdijk, Kostova & Roth, 2017; Kirkman, Lowe & Gibson, 2006, 2017; Ronen & Shenkar, 2013). A fourth area of research would involve looking into specific transaction types in more detail. This study reveals that some loans, such as LBOs and mergers and acquisitions, involve more sophisticated transactions, are tranced more often, and show greater variation in tranching contracts than other loans, such as loans for capital expenditure. A closer look at specific transaction types may offer further insights and allow more-refined hypotheses to be tested. Finally, our findings suggest determining whether tranching complements or replaces other contractual mechanisms that deal with information asymmetry and agency problems in financial markets. We still lack an integrated view of the roles of mechanisms that lead to more successful development of financial markets and firm access to finance.

ACKNOWLEDGEMENTS

We are indebted to the Editor, Lemma Senbet, an anonymous member of the JIBS editorial board, two anonymous reviewers, Kee-Hong Bae, William Bratton, Sofia Johan, Jeffrey Gordon, Pankaj Maskara, and Luc Renneboog for their very helpful comments and



suggestions. We also wish to thank conference participants at the FMA meetings, and seminar participants in Amsterdam, ETZ, HSE-Moscow, Oxford, SKEMA Business School, Louvain, Tilburg, Yonsei, and York for their comments.

NOTES

¹As evidenced by the size of borrowing firms in this market (Bae & Goyal, 2009) and the average loan amount of US\$ 300 million in our sample.

²Maskara (2010) analyzes each loan tranche separately and focuses its analysis on rates. Esty and Megginson (2003) show that project finance loan syndicates of tranches are more concentrated in countries with better creditor protection. Finally, Bae and Goyal (2009) show that tranches are larger in stronger creditor-rights environments.

³Our loan-level analysis is more relevant for capturing the perspectives of borrowers and lenders participating in the loan market. From the firm's perspective, what matters most is the total amount that can be borrowed; larger facilities may simply mean fewer tranches, which, in turn, could mean that the overall loan amount remains the same. From the lender's point of view, looking at the total size of the loan offers a more accurate picture of the risk taken vis-à-vis a specific borrower, since lenders may participate in different tranches of the same loan.

⁴Our analysis of tranching complements the seminal work on capital structure equilibrium under market imperfections and incompleteness (Senbet & Taggart, 1984). As the authors argue, market incompleteness can be complementary to the agency or asymmetric, as described above. Loan tranching, like other corporate securities, can enhance market completeness by matching borrower risk and return profiles.

⁵However, the presence of many large US banks is due to the fact that the US is, by far, the largest market. In other parts of the world, some of the main arrangers are *regional* investment and commercial banks. In EMEA (Europe, the Middle-East, and Africa), the league table of lead arrangers is composed of BNP Paribas, HSBC, ING, Crédit Agricole CIB, JP Morgan, and Deutsche Bank. In Asia (ex-Japan), the top five arrangers in 2017 were the Bank of China, the State Bank of India, the Industrial and Commercial Bank of China, China Development Bank, and HSBC.

⁶Indeed, investor composition may be important, as each investor group has different incentives, investment horizons, risk appetites, and monitoring capacities (Boot and Thakor, 1993; Dennis & Mullineaux, 2000; Harjoto et al., 2006; Maskara & Mullineaux, 2006). Furthermore, recent evidence shows that different kinds of institutional investors may face different regulatory constraints that could influence the assets they purchase. Insurance companies, for example, must invest in less-risky assets. Similarly, the regulations affecting the structure of the banking sector may be important particularly in terms of the concentration of banks, their size, and their capacity and incentives to monitor risky borrowers.

⁷In unreported analysis, we find that the average of 30% of loans tranced is quite stable over the entire time period of our sample, with the exception of 2008 and 2009.

⁸Loans with more than four tranches were excluded while filtering out outliers.

⁹Another possible source of differences is the use of covenants. Unfortunately, the database offers very poor-quality information on covenants. Even good-quality data on covenants do not help us assess if the covenants are actually binding. This is particularly true in our paper because the information on different tranches needs to be aggregated at the loan level. Moreover, the use of covenants is likely to be correlated with facility type, something we control for.

¹⁰Some studies on syndicated loans use standard errors clustered at the borrower level. This is possible when treating each facility/tranche separately. When we aggregate facilities at the loan level, close to 60% of the borrowers are represented only once, and there are very few observations per borrower for the rest of the sample.

¹¹Additional standard checks confirm that the number of tranches follows a Poisson distribution.

¹²In unreported analyses, we use finer risk measures by constructing separate dummy variables for each rating level, instead of a single investment grade dummy. Our findings on the "law and finance" variables remain unaffected. Moreover, we observe a clear difference in coefficients between investment-grade ratings and others, which provides support for our decision to use only a single investment-grade dummy.

¹³In alternative specifications (not shown), we include controls for natural resource endowments and religion. To control for religion, we use the percentage of the population adhering to different

religious faiths and each country's capital city latitude (La Porta et al., 1999). We do not find an effect for religions, but we do find that latitude has an impact on loan tranching. Importantly, the inclusion of the endowment measures does not affect our legal institutions results. Since latitude is highly correlated with per-capita GDP, we present only the results using per-capita GDP.

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Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Supplementary information accompanies this article on the Journal of International Business Studies website (www.palgrave.com/journals).

Accepted by Lemma Senbet, AreaEditor, 12 May 2019. This article has been with the authors for three revisions.