

How Laws and Institutions Shape Financial Contracts: The Case of Bank Loans

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ABSTRACT

Legal and institutional differences shape the ownership and terms of bank loans across the world. We show that under strong creditor protection, loans have more concentrated ownership, longer maturities, and lower interest rates. Moreover, the impact of creditor rights on loans depends on borrower characteristics such as the size and tangibility of assets. Foreign banks appear especially sensitive to the legal and institutional environment, with their ownership declining relative to domestic banks as creditor protection falls. Our multidimensional empirical model paints a more complete picture of how financial contracts respond to the legal and institutional environment than existing studies.

BANKS ARE THE DOMINANT SUPPLIERS of external finance in most economies across the world, with foreign lenders playing an increasingly important role (Demirgüç-Kunt and Levine (2001)). When lending to a company in an emerging economy, a bank must assess not only the credit quality of the borrower but also the risks due to weak laws or institutions. This paper estimates how laws and institutions affect the price and nonprice terms, as well as the ownership, of bank loans around the globe. Our results support the logic underlying the law and finance literature, pioneered by La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997, 1998; LLSV hereafter), that some environments are more conducive to writing and enforcing financial contracts than others, and that better contracting leads to better outcomes.¹

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¹ LLSV, among others, document that stronger investor protection and more efficient institutions are correlated with better financial and economic outcomes. However, time-series evidence on financial development challenges some of the correlations documented by LLSV (e.g., Rajan and Zingales (2003)).

Specifically, we find that in countries with strong creditor protection, bank loans are associated with more concentrated ownership, longer maturities, and lower interest rates. In countries with weak creditor protection, our findings suggest that, maturity, a nonprice term, substitutes for interest rate (the pricing term) and controls borrower risk (Diamond (2004)). Thus, consistent with the law and finance view, strong creditor rights seem to enhance loan availability as lenders are more willing to provide credit on favorable terms.² Moreover, the impact of creditor rights on loans varies with borrower characteristics. For example, as creditor rights improve, loans are more likely to be secured by collateral, and this relation is stronger when firms have more tangible assets. Finally, we find that foreign banks appear to be especially sensitive to the legal and institutional environment, with their ownership declining relative to domestic banks as creditor protection falls.

Our research extends the emerging empirical literature on financial contracting by exploring in a multivariate setting how banks and borrowers set ownership and contract terms. Previous studies focus on a single dimension (e.g., the interest rate) of what is a very complex contract that depends not only on interest rates, maturity, collateral, and ownership, but also on a host of complex and heterogeneous covenants. While we cannot consider every aspect of such contracts, our multidimensional approach allows us to paint a more complete and nuanced picture of how the availability and terms of credit respond to the contracting environment.³

Using a sample of loans in 43 countries (excluding the United States), we estimate six reduced-form regressions, where the endogenous variables are loan contract terms and the exogenous variables represent country-level legal and institutional variables.⁴ Specifically, we examine how the basic pricing term (the interest rate), two nonprice terms not yet examined in the literature (loan maturity and an indicator for whether the loan is secured), and three ownership variables (the number of lenders, the share of each loan held by domestic banks, and the share held by government-owned banks) vary with creditor rights and other country-level variables such as the rating on a country's sovereign debt, legal enforcement costs (as measured by legal formalism), and a country's level of financial and economic development. In our tests, we also control for firm (and loan) characteristics that are likely to shape contract terms through variation in

² This normative conclusion is consistent with earlier research based on variation in creditor protection across U.S. states stemming from differences in the housing exemption (e.g., Berkowitz and White (2004)), and is also consistent with current reforms of U.S. personal bankruptcy law.

³ For example, Esty and Megginson (2003), Esty (2004), and Sufi (2007) consider only loan ownership in the U.S. and other countries, Claessens and Klapper (2005) examine frequencies of bankruptcies in 39 countries, and Giannetti (2003) links *private* firms' financing decisions (including bank loans) to institutional variables. Outside of lending, Kaplan, Martel, and Stromberg (2006) and Lerner and Schoar (2005) examine private equity contracts in developed and developing countries.

⁴ Since most of the legal and institutional variables have little time variation (Djankov, McLiesh, and Shleifer (2007; DMS hereafter)), we interpret the results as reduced forms.

credit risk or loan demand, but the main focus is on the effects of country-level factors, and in particular, on creditor rights.⁵

We draw three broad conclusions from our findings. First, consistent with LLSV, strong creditor rights expand loan availability because in the presence of better legal protection during bankruptcy and reorganization, lenders are more willing to extend credit on favorable terms *ex ante*. For instance, where creditor protection is strong, bank loans tend to have longer maturities and lower interest rates.⁶ In addition, where creditor rights are weak, loan ownership becomes more diffuse as lender risk falls with diffuse ownership both by increasing the extent of diversification and by increasing the *ex post* cost of restructuring, which reduces the incentive for borrowers to default strategically (Bolton and Scharfstein (1996)). We also find that creditor rights affect a loan's price, maturity, and collateral requirements more for firms with more hard assets (property, plant, and equipment), as an increased capacity to pledge assets makes collateral more effective, increasing creditor protection and in turn enhancing loan availability.

Second, creditor rights affect domestic banks (located in the same country as the borrower) and foreign banks differently. Foreign banks own a significantly smaller proportion of loans in countries in which creditor protection is weak. This relationship is most pronounced among larger firms, because foreign banks tend to be a more important supplier of credit for these types of firms; smaller firms, in contrast, tend to rely on domestic banks regardless of the legal regime. These results suggest that foreign banks rely more on formal legal mechanisms to restructure distressed debt, while domestic banks work out bad loans privately, consistent with other findings from emerging economies (e.g., Mian (2006)).

Third, loan ownership interacts with both the price and nonprice terms of loans. We find that decreased loan concentration (i.e., more banks participating in a loan) increases the likelihood that collateral is used. Diffuse loan ownership—which, again, may reduce strategic defaults—may therefore complement collateral as a mechanism to solve borrower control problems. Interest rates also tend to decline with the participation of domestic banks, suggesting their better ability to assess borrower risk and solve control problems than foreign banks. Esty (2004) finds similar results using a sample of project finance loans.

⁵ In earlier versions of the paper, we analyze a larger sample of loans from 57 countries without using firm characteristics. Adding firm characteristics (obtained from *Worldscope*) reduces sample size, but the links between creditor rights and maturity, ownership concentration, and the ownership of foreign banks become stronger; only the statistical relationship between creditor rights and the likelihood of collateral is weaker in the smaller sample.

⁶ Using a similar data set to ours, Bae and Ghoyal (2004) focus only on the relation between interest rates on loans and cross-country legal and institutional variables. They find no effect of creditor rights on loan rates. They also find a negative effect of property rights on the interest rates on loans, including loans made to Asian countries. We drop Asian loans in our interest rate regressions because rates on these loans are *not* based on a markup over LIBOR, as the loans from other regions are priced in *Dealscan*.

Our sample of bank loans comes from Dealscan, with information on the borrowing firm matched with and augmented by Worldscope. Given our sample of banks and firms, we acknowledge at the outset that the results in this paper reflect the effects of cross-country differences in laws and institutions on financial contracts between relatively large (and often foreign) banks and large borrowers.⁷ Also, our data only allow us to explore the terms of loans *actually made*; we note that borrowers' access to credit may be limited where legal rights, property rights, corruption, or asymmetric information are most problematic (e.g., Stiglitz and Weiss (1981), Djankov, McLiesh, and Shleifer (2007; DMS hereafter)).

The rest of the paper is organized as follows. In Section I, we describe our key legal and institutional variables and discuss why they may affect the terms of bank loans. Section II describes our sample and reports the empirical results. Section III concludes the paper. Explanations of all the variables that we use in the paper are presented in the Appendix.

I. Determinants of Bank Loan Contracts: Legal Protection, Institutions, and Other Factors

A. Theoretical Framework

Within the incomplete contracts framework, theories of debt based on the transfer of control rights upon default (e.g., Aghion and Bolton (1992), Hart and Moore (1994, 1998)) imply that if creditors have more bargaining power, that is, greater ability to force repayment or take control of the firm in the event of default, they will extend credit on more favorable terms (lower interest rates, longer maturities) *ex ante*. For example, lenders can better control borrower risk if they know they will be able to seize collateralized assets, or credibly threaten to take these assets, *ex post*, in default. Diamond (2004) argues that debt maturity is an effective contracting tool in environments with weak legal protection and costly contract enforcement.⁸ In addition, the optimal concentration of creditors reflects the trade-off of inefficient renegotiation following default against borrowers' incentive to default strategically (e.g., Bolton and Scharfstein (1996)).

⁷ Loans made to small, private borrowers are likely to be influenced significantly by a set of social, cultural, and relationship variables (Petersen and Rajan (1994)) that are difficult to observe and control for across a large number of countries. Hence, individual country-level studies would offer a more useful way to understand financial contracting for small firms. For example, Allen, Qian, and Qian (2005) show that in China, despite poor legal protection and inadequate financing through standard channels, the private sector has been growing fast, relying on alternative governance mechanisms and financing channels such as those based on reputation and relationships.

⁸ Using a sample of commercial property loans (that have similar loan ownership and contract terms as in our sample), Benmelech, Garmaise, and Moskowitz (2005) find evidence that tighter zoning restrictions, which lower the liquidity of collateral, reduce a property's debt capacity. Similarly, Benmelech (2006) finds evidence that debt maturity is reduced when collateral is less liquid using variation in track width from 19th century U.S. railroads.

In a cross-country setting, creditors' ability to force repayment and costs of enforcing contracts (through the legal system) can be measured with legal and institutional variables. In this regard, the law and finance literature has established links between legal and institutional variables and financial/economic outcomes. LLSV (1997, 1998) differentiate countries with legal systems derived from those in England, France, Germany, and Scandinavia. They find that countries with English common law and French civil law origins lie at the extremes: Countries with English origin (French origin) provide the strongest (weakest) legal protections to both shareholders and creditors (LLSV (1998, 2000)). Countries with English origin also appear to have better institutions, including less legal formalism and hence lower enforcement costs in the courts (Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2003; DLLS hereafter)), and less corrupt governments (LLSV (1999)). Better legal protection and institutions, in turn, seem to lead to better outcomes for the financial system.⁹ In addition to these four legal origins, LLSV also characterize another group of countries as having "socialist origin"—the countries in this category comprise those that have evolved from socialist, central planning economies to market-based economies. Not surprisingly, countries with socialist origin are much closer to French-origin countries than to English-origin countries in terms of their legal and financial systems.

Despite the work of LLSV and others on the relations among legal origin, institutions, and financial/economic outcomes, much less is known about the sources of these relations.¹⁰ In particular, does legal origin, through its influence on a country's laws and institutions, *cause* observed differences in outcomes? The study of financial contracts offers a potentially powerful means to answer this question, but so far we know very little about how legal and institutional variables affect specific contract terms. Our aim is to fill this gap in the literature by testing directly how differences in the contracting environment affect the terms in bank loans to large corporate borrowers. In essence, LLSV and DMS (2007) study the *extensive* margin, asking, for example, how the contracting environment affects the total supply of credit, whereas we study the *intensive* margin, asking how loan terms vary with the environment for those firms with access to credit.

⁹ Relative to firms in French-origin countries, firms in English-origin countries have more dispersed shareholder ownership (La Porta, Lopez-de-Silanes, and Shleifer (1999)), rely more on external capital markets to raise funds (LLSV (1997)) and have higher values (LLSV (2002)). In addition to the law and finance literature, the finance and growth literature supports the view that financial system development stimulates economic growth (e.g., McKinnon (1973), King and Levine (1993), Jayaratne and Strahan (1996), Rajan and Zingales (1998)), while a third strand of literature attempts to establish the links among law, finance, and growth (e.g., Levine (1999), Demirgüç-Kunt and Maksimovic (1998)).

¹⁰ Related to the LLSV results, there is evidence that legal origin plays a role in explaining differences in both financial systems and economic growth. For example, the English common law system is superior to the French civil law system in its ability to adapt to evolving economic conditions (e.g., Posner (1973), Beck, Demirgüç-Kunt, and Levine (2003)). As a result, firms in French civil law countries face higher obstacles in accessing external finance than those in English common law countries (e.g., Beck, Demirgüç-Kunt, and Levine (2005)).

It is important to point out that problems stemming from asymmetric information between borrowers and lenders are also important (supply-side) factors for loan contracts. In particular, higher interest rates, while an effective tool to “price” risk under symmetric information, may have adverse effects under asymmetric information by worsening the moral hazard problem of borrowers choosing riskier projects (Stiglitz and Weiss (1981)). Accordingly, mechanisms aimed at alleviating or eliminating information asymmetry would increase the willingness of lenders to extend credit (e.g., Jappelli and Pagano (1993)). It therefore makes sense to focus not only on interest rates but also on the non-price terms and ownership of loans.

Based on these ideas, we consider two sets of explanatory variables in our tests. The first set accounts for demand-side factors and credit risk factors by incorporating firm characteristics (industry indicators, firm size, profitability, leverage, rating, total amount of fixed assets, and multinational status) and loan characteristics (loan purpose, loan type, currency, etc.) in the regressions. These measures have all been employed previously in the banking literature and, for our purposes, should be thought of as control variables. For example, larger borrowers and borrowers with highly rated debt pay lower interest rates and are more likely to be able to borrow on an unsecured basis relative to smaller and less well-rated borrowers (Strahan (1999)).

The second set of variables consists of the country-level factors. These variables represent the supply-side factors that may determine the total amount of credit and the terms of credit that lenders are willing to provide to borrowers. We view legal protection of creditors as the most important determinant of the contracting environment’s quality, and hence it is the main focus of the paper. We also include other country-level institutional variables such as a country’s sovereign debt rating, information sharing mechanisms, survey-based measures of legal enforcement costs (as measured by legal formalism), financial and economic development, and legal origins.¹¹ In the next section we provide a description of each of these country-level variables and explain how we incorporate them into our empirical models.

B. Country-Level Explanatory Variables

B.1. Creditor Rights

The strength of creditor rights is of paramount importance for lenders in determining the degree of their exposure to borrower expropriation. Following LLSV (1998), we use a single index to measure a borrower country’s overall level of creditor rights. The index begins at zero and adds one for each of the following conditions that holds: (1) Secured creditors gain possession of assets once the petition for reorganization receives approval (i.e., there is no automatic stay on creditors’ ability to seize collateral); (2) secured creditors are ranked

¹¹ Country-level factors also include measures of a country’s macroeconomic condition, including business cycles.

first in the distribution of proceeds; (3) there are restrictions such as creditors' consent for going into reorganization; and (4) (incumbent) management does not stay in control of the firm during the reorganization. A higher score indicates stronger creditor rights. It is important to point out that the creditor rights index is constructed based on whether the protection of creditors' rights (along one of the four dimensions) is provided by the borrower country's law, which is typically stable over time (DMS (2007)).

Most of our data are on syndicated loans, a market dominated by large multinational banks serving large borrowers. Many of these loans are arranged and negotiated in either London or New York, and the loan contracts often include a "choice of law" clause that allows the law of the United States or the U.K. to supersede the laws in the borrower's country. Thus, to the extent that attempts to export U.S. or U.K. law succeed in nondefault states, our results will tend to be attenuated. However, the choice of law clause governs the credit or loan contract; it does not extend to bankruptcy, and typically not to property. The law that governs property relations or bankruptcy is determined by the borrower country's legal codes (i.e., where the assets are located) or in the local bankruptcy codes or insolvency laws (i.e., where the case is filed).¹² Consistent with empirical evidence from Esty and Megginson (2003), we find strong evidence on the borrower countries' legal codes affecting the ownership and terms of loan contracts around the globe.

B.2. Other Institutional Variables

While we focus our analysis on the impact of creditor rights on loans, we also test how legal formalism and information sharing registries affect loan ownership and contract terms. As we have discussed before, these (country-level) institutional variables, along with creditor rights, are potentially important determinants of the contracting environment for lenders and borrowers.

Legal Formalism: Legal formalism measures how efficiently the courts of the borrower's country enforce contracts (DLS (2003)). Court efficiency matters because the ability of lenders to enforce or to threaten to enforce specific clauses of a loan contract (e.g., covenants), or to seize collateral, depends on the costs of using the legal system. Based on extensive surveys of lawyers and judges (see Appendix A.2 for more details), DLS construct measures on how courts handle two types of cases: collection of a bounced check and eviction of a (nonpaying) tenant. A higher score in either category implies that the court system is slower (more bureaucracy) and less efficient. Although these measures are highly positively correlated across countries, we use the check-based

¹² See, for example, Norton (1996) for more descriptions on the legal environment of international syndicated markets, and Westbrook (2000) for descriptions on the legal complexities involving cross-border bankruptcies. Siegel (2005) and Bergman and Nicolaievsky (2007) show how Mexican firms (through cross-listing in the U.S. and adjusting corporate charters) voluntarily follow U.S. securities laws and protect investors beyond what is required in Mexico.

formalism index because the process of collecting a check boils down to enforcement of a financial contract.¹³

Information Sharing: There are two types of information sharing mechanisms (Jappelli and Pagano (2002)). First, a *public* registry is owned by public authorities (usually the central bank or banking supervisory authority), which collect information on the standing of borrowers in the financial system and make the database available to financial institutions. Second, a *private* bureau is a private commercial firm or nonprofit organization that maintains a database on the standing of borrowers in the financial system and facilitates exchange of information among banks and financial institutions. In our empirical models, the information sharing variable is equal to one if either a public registry or a private bureau operates in a borrower country, and zero otherwise.

B.3. Legal Origin

As we have discussed above, there are other aspects of legal protection and institutional efficiency that we do not consider directly, but that can affect the design of loans. Since LLSV demonstrate that almost all of these variables are highly correlated with indicators of legal origin, we can also interpret these legal origin indicators as proxies for possible omitted variables.¹⁴ Hence, we include indicator variables in all of our specifications to control for legal origin.

B.4. Country-Level "Outcomes" Variables

Our aim is to isolate whether variation in laws and institutions changes the contracting environment and in turn the supply of credit. Thus, we need to control for demand variation in our regressions, as well as the variation in the risks of lending to borrowers across different economies. To ensure that effects of our institutional variables really reflect supply-side factors, we run some specifications that control for economic and financial development (to absorb unmeasured variation in credit demand) and a country's sovereign debt rating (to absorb unmeasured variation in risk). However, Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2004) argue that country-level variables such as financial and economic development (as well as survey-based variables such as property rights protection) may be "outcomes" of legal origin and creditor protection. Controlling for such outcomes might therefore attenuate the total impact of

¹³ DLLS also show that greater legal formalism (a higher score in either index) is highly *negatively* correlated with other measures of judicial quality, including enforceability of contracts, law and order, duration of trial and enforcement, and the extent to which a legal system is fair, uncorrupt, consistent, and affordable. These results imply that the check-based formalism index proxies for the costs of enforcing contracts as well as the effectiveness of a country's judicial system.

¹⁴ For example, Stulz and Williamson (2003) find that culture (proxied by religion) is an important determinant of creditor protection, while DMS (2007) show that the impact of religion on creditor rights is absorbed by legal origins.

laws and institutions on loan contract terms, so we run all of our regressions with and without these variables.

Sovereign Debt Ratings: Because rating agencies assess the risk of sovereign (government) bond default, these ratings serve as a broad proxy for overall country risk. We therefore construct an index on country risk using Moody's ratings on the long-term sovereign bonds for the borrower's country (denominated in dollars). Specifically, we assign an Aaa rating a value of one, an Aa rating a value of two, ..., and a B or worse rating a value of six; thus a higher number indicates a *lower* rating. We also assign a value of zero for countries without a sovereign debt rating (ratings are missing for about 15% of our observations), and we include an additional indicator for those firms for which the rating is missing.

Financial and Economic Development: To measure financial development, we include the ratio of total private domestic bank credit to GDP, averaged over the 1994–1997 period. For economic development, we use the log of GDP per capita, averaged over the 1994–2002 period.¹⁵

II. Data and Results

A. Data

A.1. Sample

We build a sample of bank loans made to large borrowers located in 43 countries (excluding the United States). Loan information comes from the Loan Pricing Corporation's Dealscan database, which provides detailed coverage of bank lending to large corporations. The data set goes back to the late 1980s, but coverage of lending to companies outside the United States is quite sparse until the middle of the 1990s. Hence, we begin our sample with loans originated in 1994 and include loans originated through the middle of 2003.

Dealscan allows us to identify which banks are lending to which firms in each year, and to observe various terms of the loans at origination, including the interest rate (measured as a basis point spread over LIBOR, inclusive of all fees), whether or not the loan is secured, the maturity of the loan, the number of lenders involved (many of the loans are syndicated), as well as the names

¹⁵ Motivated by prior work (e.g., Acemoglu and Johnson (2005)), we include additional survey-based institutional variables measuring property rights protection and government corruption in an earlier draft of the paper. These variables are problematic for two reasons. First, like the sovereign debt rating or GDP per capita, they measure outcomes, so their effects combine both loan demand and supply factors. Second, including too many country-level variables induces multicollinearity and model instability because the country effects do not vary across loans to borrowers in the same country. Hence, it is difficult to sort out statistically the effects of all of the institutions on loan contracts. The effects of legal formalism, for example, are particularly sensitive to including these outcome variables. The impact of creditor rights on loan ownership and maturity, however, is robust to the inclusion of these variables and including these variables increases the significance of creditor rights in the secured lending regressions and decreases its significance in the interest rate regressions.

of the borrower and lender(s). From these last two pieces of information, we construct the share of the loan held (at origination) by domestic banks (located in the same country as the borrower), and the share held by banks controlled by governments (although not necessarily the borrower's government).¹⁶ These ownership and contract features serve as the basis for the dependent variables in our models. To capture secured lending, we include an indicator equal to one if the loan is secured and zero if it is not.¹⁷ For this qualitative variable, we estimate a probit and report *marginal* effects (rather than probit coefficients) in the tables. Thus, the reported coefficients represent the change in the probability per unit change in the relevant explanatory variables. (For indicator variables, the coefficient represents the change in the probability associated with moving the indicator from zero to one.) The other models are estimated with ordinary least squares (OLS), where the dependent variable equals the log of the number of lenders, the percentage of the loan held by government banks (ranging from zero to 100), the percentage held by domestic banks (zero to 100), the log of the loan maturity (in months), and the log of the basis point spread of the loan interest rate over LIBOR.

Beyond these loan contract terms, Dealscan also includes information on the type of loan (e.g., line of credit versus term loan), the purpose of the loan (e.g., debt repayment, commercial paper backup line of credit, general corporate purpose, etc.), and the size of the loan.¹⁸ We control for loan type and loan purpose with indicator variables. We also include an indicator variable equal to one for loans denominated in one of the following major currencies: U.S. dollars, euros, German DM, British pounds, or Japanese yen. In addition, we include a regional indicator for firms located in Africa.

With respect to borrower characteristics, Dealscan contains information on Moody's and S&P senior debt ratings at the close of the loan, which we use to control for borrower risk. We focus on Moody's rating unless it is missing, in which case we rely on the S&P rating. Similar to sovereign ratings, we index firm ratings from one to six, with one indicating an Aaa rating, two indicating an Aa rating, . . . , and six indicating a B or worse rating; thus, again, a higher number indicates a lower rating. We assign a zero for borrowers without a rating, and we include a separate indicator for unrated firms. We include an indicator for multinational firms (a company is classified as a multinational if

¹⁶ Information is based on the Bankscope database. Banks are considered government controlled if more than 25% of the shares are owned by governments. The home country of a bank is based on the location of the bank holding company. For example, Citibank's affiliate operating in India is classified as a U.S. bank.

¹⁷ Due to data limitations, we do not have sufficient information on the characteristics of the collateral. Davydenko and Franks (2005) find that French banks respond to a creditor-unfriendly bankruptcy code by requiring more collateral (in value) than lenders in the U.K. and Germany, and by relying on particular collateral forms that minimize the statutory dilution of their claims in bankruptcy. Despite more collateral for small firms, however, recovery rates per dollar of debt were lowest among French defaults.

¹⁸ The Dealscan data allow us to observe the commitment amount at loan origination, but not the amount of funds actually taken down by the borrower.

its parent and the company in question operate in different countries), a set of two-digit SIC indicator variables, and a set of year indicator variables. We drop loans to firms in SIC 6 (financials) and 9 (public sector) because firms in these sectors are more apt to be government-owned or government-protected monopolies, and the risks of these firms may be very different from those of manufacturing and trade firms.

Given the banks and firms covered in the Dealscan database, we acknowledge that our results will reflect the effects of cross-country differences in law and institutions on financial contracting between large banks and large borrowers. To some extent, focusing on these data limits the generality of our findings, but loans to smaller and privately owned firms are likely to be influenced by social, cultural, and relationship variables that are difficult or impossible to observe and control for across a large number of countries (Petersen and Rajan (1994)). In our view, individual country-level studies, rather than cross-country comparisons, would offer a more fruitful way to understand financial contracting for small and private firms.

To augment the Dealscan data on borrower risk, we hand-match our loan-level data to firm-level data from Worldscope based on the name of the borrowing firm. Worldscope includes balance sheet and income statement information for large, publicly traded firms across a wide range of countries. We use these financial data to construct measures of firm size (the log of the market value of equity in dollars), profitability (net income divided by assets), leverage (total debt divided by assets), and asset tangibility (property, plant, and equipment, or PP&E, divided by assets). We are able to match about half of the Dealscan firms to Worldscope. The borrower financials are measured at the end of the year in which the loan was originated, although this timing choice has little impact on the results (see the robustness tests below).

A.2. Summary Statistics

Table I reports median values for the loan terms for each of the 43 borrower countries in our sample as well as the key country-level variable (creditor rights). We group the medians by legal origin. The median loan size varies significantly across borrower countries, from \$25 million to \$40 million in developing countries such as China, India, and Pakistan, to \$355 million in Denmark. Much of the difference in loan size reflects difference in borrower size, as can be seen by comparing the median loan size with the median market value of equity (the simple correlation equals 0.64). Loan pricing also varies considerably across countries, ranging from a median spread of around 50 basis points in Hong Kong and Israel (both of English legal origin) to over 225 basis points in Brazil, Colombia, and Peru (all of French legal origin). These large pricing differences likely reflect, at least in part, the differences in average borrower risk for this latter group (the correlation between median spreads and borrower size equals -0.38.)

For median nonprice terms, the share of loans that are secured ranges from lows of 0% in Pakistan and 2.5% in Japan, to highs of 100% in a number of

Table I
Summary Statistics for Loan-Level and Country-Level Variables

This table reports country-level medians on loan terms by borrower country, grouped by legal origin (English, French, German, Scandinavian, and Socialist). The data sources are LPC's Dealscan and Worldscope. The sample includes loans originated between 1994 and the middle of 2003. We drop loans to financial firms, as well as public sector loans. The scores on creditor rights indexes are presented in the last column. Detailed descriptions and sources for the variables are presented in Appendix A.1.

Country	Number of Loans	Number of Lenders	Government Ownership	Domestic Ownership	Loan Secured	Loan Maturity (Months)	Loan All-in Spread (Bps)	Loan Size (Millions of Dollars)	Market Capitalization	Creditor Rights
ENGLISH										
Australia	334	4	0.0	25.0	11.5	60	—	\$135	\$1,572	3.0
Hong Kong	157	1	0.0	0.0	14.5	48	50	64	423	4.0
India	98	3	0.0	4.9	35.5	60	—	40	541	2.0
Ireland	12	12	0.0	9.1	—	48	143	203	396	1.0
Israel	6	6	29.6	17.7	50.0	60	55	75	1,334	3.0
Malaysia	254	2	0.0	33.3	22.5	60	—	72	579	3.0
New Zealand	75	3	0.0	0.0	7.9	48	—	77	674	4.0
Pakistan	17	2	0.0	0.0	0.0	24	—	25	82	1.0
Singapore	117	1	0.0	11.1	20.8	54	—	46	313	3.0
South Africa	31	11	0.0	12.9	100.0	48	115	115	1,973	3.0
Thailand	201	3	0.0	0.0	16.1	60	—	46	286	3.0
U.K.	662	6	0.0	21.1	37.9	60	65	201	1,093	4.0
Group Mean*	164	4	2.5	11.3	28.8	53	86	92	772	2.8
FRENCH										
Argentina	46	6	0.0	0.0	20.0	36	150	100	3,490	1.0
Belgium	11	8	1.7	22.2	100.0	59	90	152	2,039	2.0
Brazil	83	5	0.0	0.0	83.3	24	225	100	755	1.0
Chile	64	4	0.0	0.0	0.0	60	59	158	2,948	2.0
Colombia	17	6	0.0	0.0	33.3	60	275	88	1,109	0.0
France	146	8	0.0	50.0	41.2	59	80	185	4,044	0.0
Greece	22	8	0.0	41.5	100.0	54	140	80	253	1.0

Indonesia	35	11	0.0	0.0	40.0	36	–	50	134	3.0
Italy	39	4	0.0	14.6	60.0	36	40	173	2,836	2.0
Mexico	124	7	0.0	0.0	47.1	60	200	100	1,195	0.0
Netherlands	154	8	0.0	20.0	60.9	60	93	229	1,416	3.0
Peru	10	9	0.0	5.1	100.0	48	250	118	409	0.0
Philippines	140	3	0.0	0.0	20.0	60	–	38	1,273	1.0
Portugal	11	17	5.4	14.3	100.0	60	30	311	6,505	1.0
Spain	102	2	0.0	37.2	50.0	60	78	145	965	2.0
Turkey	13	7	0.0	0.0	–	60	150	75	832	2.0
Venezuela	5	10	10.0	10.0	100.0	51	238	113	784	3.0
Group Mean*	60	7	1.0	12.6	59.7	52	140	130	1,823	1.4
GERMAN										
Austria	5	2	0.0	0.0	–	54	225	160	928	3.0
Germany	106	14	8.4	44.1	57.1	60	60	271	1,255	3.0
Japan	710	5	0.0	100.0	2.5	12	–	82	1,055	1.0
Korea (South)	301	2	0.0	26.7	7.9	36	–	50	772	3.0
Switzerland	40	14	8.3	11.7	20.0	24	54	245	1,849	1.0
Taiwan	10	3	1.6	100.0	44.4	60	–	103	1,798	2.0
Group Mean*	195	7	3.1	47.1	26.4	41	113	152	1,276	2.2
SCANDANAVIAN										
Denmark	9	15	0.0	13.3	–	12	40	355	2,663	3.0
Finland	36	6	7.4	0.0	0.0	24	38	179	1,109	1.0
Norway	40	3	0.0	0.0	25.0	60	75	123	805	2.0
Sweden	40	5	0.0	13.5	100.0	12	40	304	3,040	1.0
Group Mean*	31	7	1.9	6.7	41.7	27	48	240	1,904	1.8
SOCIALIST										
China	12	1	2.9	44.6	25.0	24	–	23	238	2.0
Czech Republic	1	2	0.0	0.0	–	84	125	25	300	3.0
Hungary	5	14	7.1	0.0	–	84	50	105	297	1.0
Poland	20	6	2.4	0.0	80.0	36	75	110	740	1.0
Group Mean*	10	6	3.1	11.2	52.5	57	83	66	394	1.8

*The group mean equals the simple average of the country-level medians.

countries (this variable is missing for about one-half of our loan sample). Average maturity ranges from 12 months to 60 months. Ownership also varies considerably across borrower countries. For example, the median percentage of loans held by domestic banks is much lower in developing countries, presumably because of the relatively low level of financial development in these countries. In contrast, in the German legal origin countries, domestic bank ownership of loans predominates (e.g., 100% in Japan and 44% in Germany).

Table I also reports the creditor rights index score for each borrower country. Consistent with LLSV, countries with French or socialist legal origins tend to be associated with weak protection of creditor rights. Note that in our regressions (every table except for Table IV), we do not include either country-level or firm-level fixed effects because (i) there is (almost) no time variation in the key legal and institutional variables, (ii) for all firms located in the same country, they share the same country-level attributes, and (iii) we have one loan per firm in most cases. Thus, inclusion of either firm-level or country-level fixed effects would render it impossible to identify the country-level effects on loan terms. However, in order to examine how the interaction of creditor rights and borrower characteristics (size and tangibility) affect loan ownership and contract terms, we do perform firm fixed-effects regressions (Table IV) while dropping all country-level variables including creditor rights. Because we have many loans for each country but no variation in our key explanatory variables *within* countries, we cluster the error across all loans made in a single country to account for possible dependence in the error in *all* regressions.

B. Results

In our regression models, we begin by testing in reduced form how country-level variables affect ownership and both the price and nonprice terms of loans. We then examine how the impact of creditor rights on loans varies with borrower characteristics. Next, we consider how ownership variables interact with the loan contract terms. Note that these regressions cannot be viewed as pure reduced forms because the ownership and contract terms may be determined jointly. Thus, we are careful not to draw causal links between the two. Nevertheless, we think these results help illustrate the extent to which ownership may affect the ability of banks to enforce loan contracts. In robustness tests, we include additional institutional variables (legal formalism and information sharing registries) as explanatory variables. We also split the sample by whether a borrower country is developed or not, with additional tests performed on different subsamples and specifications.

Tables II through V report the main results. Table II contains the reduced-form models of ownership, and Table III the reduced-form models of loans' price and nonprice terms. In Table IV we interact creditor rights indexes with firm size and tangibility of assets, and in Table V we include loan ownership as explanatory variables.

Table II
Regressions Relating Loan Ownership to Firm, Loan,
and Country Characteristics

We include but do not report coefficients on year indicators, percent change in GDP, industry indicators (two-digit SIC), indicators on loan type, purpose, and currency, and an indicator for firms located in Africa. Sovereign and firm ratings are converted to an index from zero to six as follows: 0 = unrated; 1 = Aaa; 2 = Aa; etc. In computing standard errors, we cluster by borrower country. The data for loan characteristics come from LPC's Dealscan. The sample includes loans originated between 1994 and the middle of 2003. Firm characteristics come from Worldscope at the end of the year of loan origination. We drop loans to firms in financial industries, as well as public sector loans (SICs 6 and 9). The table reports coefficients, with *t*-statistics in parentheses.

Explanatory Variables	Log Number of Lenders		Share Held by Government Banks		Share Held by Domestic Banks	
	(1)	(2)	(3)	(4)	(5)	(6)
Creditors' rights	-0.067 (1.87)*	-0.081 (2.40)**	0.164 (0.20)	0.887 (1.22)	-5.143 (1.89)*	-7.502 (3.78)**
One if French legal origin	0.071 (0.63)	0.132 (1.22)	0.694 (0.27)	0.374 (0.21)	-9.517 (1.52)	-3.079 (0.76)
One if German legal origin	0.031 (0.30)	0.136 (1.20)	1.160 (0.38)	4.603 (1.36)	28.271 (4.24)**	25.233 (5.07)**
One if Scandinavian legal origin	-0.256 (2.32)**	-0.247 (2.31)**	7.481 (1.79)*	9.768 (2.41)**	-10.739 (1.34)	-13.027 (1.56)
One if socialist legal origin	0.122 (0.84)	0.093 (0.53)	7.238 (3.24)**	4.194 (2.75)**	-10.853 (1.08)	-2.902 (0.52)
Log of market value of equity	0.056 (2.59)**	0.053 (2.34)**	-0.141 (0.65)	0.051 (0.25)	-3.272 (4.10)**	-3.896 (5.04)**
Net income/assets	0.018 (0.06)	0.101 (0.37)	-2.137 (0.65)	-3.790 (1.13)	-12.456 (1.46)	-4.019 (0.49)
Total debt/assets	0.173 (1.60)	0.125 (1.38)	4.433 (1.53)	3.655 (1.56)	-4.112 (1.15)	-6.246 (1.43)
PP&E / assets	-0.070 (0.53)	-0.009 (0.07)	1.629 (0.61)	0.484 (0.20)	-13.659 (2.87)**	-5.994 (1.59)
Firm rating	-0.091 (2.08)**	-0.059 (1.50)	-1.195 (1.65)*	-1.048 (1.67)*	-2.634 (1.94)*	-1.208 (1.13)
One if rating is missing	-0.653 (3.65)**	-0.520 (3.30)**	-5.267 (1.85)*	-4.948 (2.13)**	-4.667 (0.74)	1.132 (0.26)
One if multinational	0.134 (2.01)**	0.145 (2.34)**	0.824 (0.78)	0.847 (0.86)	-8.407 (2.36)**	-7.492 (1.80)*
Sovereign rating	-	-0.126 (3.53)**	-	-0.073 (0.10)	-	-7.286 (3.81)**
One if sovereign rating is missing	-	-0.467 (2.30)**	-	-1.637 (0.48)	-	-30.971 (3.17)**
Log of GDP/capita	-	-0.110 (1.86)*	-	-2.483 (2.59)**	-	-1.952 (0.74)
Private credit/GDP	-	0.002 (0.03)	-	-1.430 (0.58)	-	9.144 (1.94)*
Estimation technique	OLS					
No. of observations	4,322	4,322	4,322	4,322	4,322	4,322
R-squared	0.24	0.25	0.08	0.10	0.38	0.41

*Significant at 10%; **significant at 5%.

B.1. Ownership

Consistent with the findings of Ongena and Smith (2000), we find that the concentration of loan ownership is higher, that is, the number of lenders is lower, in countries with better protection of creditor rights (Table II, columns 1 and 2). This suggests that diffuse ownership provides banks a tool to mitigate risk when their legal rights are weak. In contrast, loan ownership becomes less diffuse as the risk of the country, as measured by the sovereign debt rating, worsens (column 2).¹⁹ With respect to firm characteristics, loan ownership becomes more concentrated when borrowers are small (the coefficient on the log of market capitalization is positive in columns 1 and 2) and opaque (the coefficient on the missing firm rating indicator is negative), consistent with earlier research on lending relationships (e.g., Petersen and Rajan (1994) for small firms).

Our empirical model has limited ability to explain variation in the share of loans held by government banks, although we do find government ownership to be higher in the formerly socialist countries and in the Scandinavian countries relative to the omitted category of countries with English legal origin (columns 3 and 4). Conversely, columns 5 and 6 of Table II indicate that the share of loans held by domestic banks is lower in the socialist and Scandinavian countries (statistically insignificant).

Legal protection of creditors is strongly associated with foreign banks' ownership of loans (columns 5 and 6). The effects are large economically as well as statistically. For example, a one standard deviation increase in creditor rights (an increase of about one of the index value) increases the share of foreign ownership (decreases share of domestic ownership) by five to seven percentage points. In addition, the share of loans held by domestic banks increases with total private credit to GDP (financial development), although this finding is true almost by definition. As noted earlier, we include financial development for consistency with the other results, and to demonstrate the robustness of the effects of creditor protection. With regard to firm characteristics, foreign banks hold a larger fraction of loans to large firms, to firms with more tangible assets (PP&E divided by assets), and to multinational firms.

B.2. Contract Terms

Table III reports the results for loan contract terms. We find first that the firm-level variables enter as expected: Large or profitable firms (net income divided by assets) borrow with less collateral, at longer maturities and with lower interest rates. High leverage is associated with higher interest rates, which could reflect both greater credit risk (lowering supply) and/or a higher level of loan demand. Firms with high levels of fixed/tangible assets (PP&E divided by assets) also borrow at longer maturities, all else being equal, presumably because the maturity of their assets is relatively long (e.g., real estate

¹⁹ The negative coefficient on the indicator for a missing sovereign rating suggests that these countries have about the same loan concentration as loans made to firms in countries with a sovereign debt rating of Baa (coded as four).

Table III
Regressions Relating Loan Contract Terms to Firm, Loan,
and Country Characteristics

We include but do not report coefficients on year indicators, percent change in GDP, industry indicators (two-digit SIC), indicators on loan type, purpose, and currency, and an indicator for firms located in Africa. Sovereign and firm ratings are converted to an index from zero to six as follows: 0 = unrated; 1 = Aaa; 2 = Aa; etc. In computing standard errors, we cluster by borrower country. The data for loan characteristics come from LPC's Dealscan. The sample includes loans originated between 1994 and the middle of 2003. Firm characteristics come from Worldscope at the end of the year of loan origination. We drop loans to firms in financial industries, as well as public sector loans (SICs 6 and 9). The table reports coefficients (marginal probabilities in columns 1 and 2) with *t*-statistics in parentheses.

Explanatory Variables	Secured Indicator		Log of Maturity (Months)		Log of Drawn All-in Spread	
	(1)	(2)	(3)	(4)	(5)	(6)
Creditors' rights	0.006 (0.43)	0.014 (1.10)	0.119 (4.47)**	0.093 (4.34)**	-0.145 (2.04)**	-0.100 (3.41)**
One if French legal origin	0.174 (3.27)**	0.157 (2.97)**	0.050 (0.64)	0.076 (1.06)	-0.196 (1.76)*	-0.364 (5.00)**
One if German legal origin	-0.136 (4.34)**	-0.089 (2.23)**	-0.242 (2.88)**	-0.112 (1.07)	-0.317 (2.91)**	-0.335 (4.87)**
One if Scandinavian legal origin	0.248 (0.98)	0.298 (1.15)	-0.161 (1.56)	-0.273 (3.08)**	-0.768 (4.47)**	-0.559 (4.32)**
One if socialist legal origin	0.270 (2.48)*	0.211 (1.95)*	-0.124 (0.65)	-0.151 (0.69)	-0.883 (5.43)**	-1.086 (5.55)**
Log of market value of equity	-0.035 (4.34)**	-0.034 (4.07)**	0.006 (0.38)	-0.002 (0.17)	-0.173 (5.59)**	-0.153 (5.09)**
Net income/assets	-0.227 (1.85)*	-0.212 (1.70)*	0.330 (2.21)**	0.451 (2.54)**	-0.642 (1.23)	-0.825 (1.60)
Total debt/assets	-0.069 (0.92)	-0.078 (1.02)	0.008 (0.11)	0.020 (0.31)	0.177 (1.18)	0.257 (1.79)*
PP&E/assets	0.059 (1.15)	0.052 (0.99)	0.296 (3.20)**	0.346 (3.85)**	-0.028 (0.14)	-0.225 (1.21)
Firm rating	0.025 (0.67)	0.028 (0.75)	0.062 (1.30)	0.088 (1.80)*	0.194 (4.36)**	0.155 (3.31)**
One if rating is missing	0.064 (0.52)	0.065 (0.54)	0.323 (1.63)	0.455 (2.29)**	0.779 (3.37)**	0.639 (2.88)**
One if multinational	0.050 (2.20)**	0.051 (2.21)**	-0.026 (0.56)	-0.021 (0.54)	-0.048 (0.46)	-0.008 (0.10)
Sovereign rating	-	-0.016 (0.83)	-	-0.130 (4.59)**	-	0.191 (2.94)**
One if sovereign rating missing	-	-0.064 (0.87)	-	-0.496 (2.82)**	-	0.505 (1.82)
Log of GDP/capita	-	-0.025 (1.36)	-	-0.042 (1.07)	-	-0.214 (1.35)
Private credit/GDP	-	-0.040 (1.48)	-	-0.130 (1.99)	-	0.427 (5.49)**
Estimation technique	Probit		OLS		OLS	
No. of observations	1,643	1,632	3,792	3,792	1,255	1,255
R-squared	0.29	0.30	0.38	0.40	0.56	0.61

*Significant at 10%; **significant at 5%.

and equipment). However, we do not find that firms with more fixed assets are more likely to borrow on a secured basis, as one might expect if such assets represent “good” collateral. Safer borrowers (firms with a higher rating or a lower index value) obtain loans at lower interest rates, while opaque borrowers (firms without a rating) face higher costs. Indeed, the coefficients suggest that unrated borrowers pay interest rates similar to borrowers rated between Baa and Ba (coded as five).

Turning to legal protection, the focus of the paper, in columns 1 and 2 of Table III we find a positive association between creditor rights and collateral, although the coefficient is not statistically significant. Consistent with Davydenko and Franks (2005), collateral is used more frequently in the French legal origin countries and less frequently in the German legal origin countries relative to those with English legal origin. (Note that Davydenko and Franks compare loans made in France, Germany, and the U.K. only.)

Bank loan maturity appears to be especially sensitive to the legal environment (columns 3 and 4). Creditor rights are positively associated with maturity, and the coefficient is large both statistically and economically. A one standard deviation increase in creditor protection, for instance, comes with an increase in maturity of about 10%. Comparing extreme cases, a loan to a Mexican firm (where the index on creditors’ rights equals zero) would have a maturity that is 40% shorter than a loan to a firm in the U.K. (where the index equals four). We also find that increased country risk (a lower sovereign rating, or a higher index value) is associated with shorter-term lending (column 4). These results suggest that maturity acts as a useful contracting tool when collateral is relatively ineffective (due to weak creditor rights protection) or when banks operate in environments in which the risk of government expropriation (a factor in a country’s sovereign rating) is high. Maturity can be particularly useful in such environments because shortening the loan mitigates risk even absent well-functioning legal regimes and/or well-developed institutions (Diamond (2004)).

In the last two columns of Table III, we test how loan pricing reflects country-level legal and institutional variables.²⁰ Consistent with Davydenko and Franks (2005), we find that interest rates are higher in the English legal-origin countries than in those with French or German legal origin. We also find that greater financial development (as measured by a country’s total private credit divided by GDP) is associated with higher interest rates (column 6). This seemingly surprising result is likely driven by loan *demand*, as a higher ratio of total private credit extended implies higher demand for loans and thus higher prices.

Most importantly, we find a negative and statistically significant relation between creditor rights and loan interest rates in both specifications (columns 5 and 6). The effect of creditor protection is economically large as well—a one

²⁰ Since most of the loans in the sample are float-rate loans and the interest rates are measured by the markup over LIBOR, term structure factors should not affect our results. As mentioned before, since interest rates on loans made to Asian countries are structured differently, we drop Asian loans in our interest rate regressions.

standard deviation increase in creditor rights is associated with a 10% to 15% decline in interest rates. Note that a country's sovereign debt rating has strong power to explain interest rates on loans, even more so than the firm's *own* credit rating. As expected, however, the impact of creditor rights falls by almost one-third when we control for the sovereign debt rating and the other outcome variables.

Taken together, the results from Tables II and III demonstrate that creditor rights have a significant impact on loan ownership as well as on the price and nonprice terms of loan contracts. In the presence of strong legal protection, creditors are more likely to concentrate their holdings, use collateral (weakly), lend on a longer-term basis, and charge lower rates. These results are consistent with theories of debt based on incomplete contracts and the transfer of control rights during bankruptcy (e.g., Aghion and Bolton (1992), Hart and Moore (1994, 1998)). How do loan contracts adjust to weaker legal protection? Loan ownership concentration falls (reducing the strategic default problem and facilitating diversification of risk across lenders), maturities shorten (effectively putting borrowers on a shorter leash), and interest rates rise (pricing the increased expected losses in default).

B.3. Interaction of Creditor Rights and Borrower Characteristics

Table IV reports firm fixed-effects regressions relating our ownership and contract variables to firm-level controls and the interactions of creditor rights with firm size (log of market capitalization) and asset tangibility (PP&E divided by assets). As discussed above, country-level variables are not identified in the models with firm fixed effects. The direct effects of firm-level characteristics, however, are weakly identified because we have some cases of multiple loans to the same borrower. Note that the effects of firm characteristics are estimated imprecisely because the fixed effects absorb most of the cross-firm variation.

We first find that the impact of creditor rights on loan ownership varies significantly with firm size. Together with the overall negative effect of creditor rights on the number of lenders (Table II), the positive interaction in Table IV (column 1, row 1) suggests that creditor rights affect ownership concentration most when borrowers are small. We find the opposite for ownership by foreign banks (column 3). Here, the interaction between firm size and creditor rights is negative, which is the *same* sign as the overall effect of creditor rights reported in Table II. Thus, creditor rights affect foreign ownership more for large borrowers than for small ones. This result is not surprising because foreign banks tend to lend mainly to large borrowers.

We also find that asset tangibility complements the effects of creditor rights on loan availability. Borrowers with high levels of tangible assets located in countries with strong creditor protection receive the lowest interest rates and the longest maturities on loans (columns 5 and 6). The reason for these better terms appears to be that collateral is more effective for such cases, as we find a positive and significant interaction between property, plant, and equipment and creditor rights. Thus, while the overall relation between creditor rights and

Table IV
Firm Fixed-Effects Regressions Relating Loan Contract and Ownership Terms to Firm-Country Interactions

We include but do not report coefficients on year indicators, percent change in GDP, industry indicators (two-digit SIC), indicators on loan type, purpose, and currency and an indicator for firms located in Africa. Firm ratings are converted to an index from zero to six as follows: 0 = unrated; 1 = Aaa; 2 = Aa; etc. Country-level variables such as creditor rights are not identified in the model due to the inclusion of the firm fixed effects. For the model of secured lending, the dependent variable equals one if the loan is secured (estimated using a linear probability model). The data for loan characteristics come from LPC's Dealscan. The sample includes loans originated between 1994 and the middle of 2003. Firm characteristics come from Worldscope at the end of the year of loan origination. We drop loans to firms in financial industries, as well as public sector loans (SICs 6 and 9). The table reports coefficients (marginal probabilities in column 4), with *t*-statistics in parentheses.

Explanatory Variables	Log Number of Lenders (1)	Share Held by Government Banks (2)	Share Held by Domestic Banks (3)	Secured Indicator (4)	Log of Maturity (5)	Log of All-in Spread (6)
Creditors' rights $\times$ log of market equity	0.020 (3.17)**	-0.016 (0.17)	-0.603 (3.44)**	-0.002 (0.90)	-0.001 (0.34)	-0.044 (1.54)
Creditors' rights $\times$ PP&E/assets	-0.008 (0.05)	-0.952 (0.38)	4.468 (0.92)	0.163 (1.91)*	0.308 (2.42)**	-0.772 (3.18)**
Log of market value of equity	0.077 (1.78)*	-0.163 (0.26)	2.197 (1.82)*	0.034 (1.52)	-0.035 (1.18)	-0.010 (0.11)
Net income/assets	0.331 (0.85)	4.776 (0.86)	-12.539 (1.16)	0.449 (2.30)**	-0.007 (0.03)	0.083 (0.22)
Total debt/assets	0.414 (1.67)*	0.772 (0.22)	7.058 (1.02)	0.308 (2.15)**	-0.168 (0.96)	1.036 (4.13)**
PP&E/assets	0.002 (0.00)	2.931 (0.37)	6.288 (0.40)	-0.170 (0.58)	-0.644 (1.53)	1.586 (2.18)**
Firm rating	-0.017 (0.23)	-0.683 (0.65)	0.391 (0.19)	0.008 (0.14)	-0.015 (0.31)	-0.050 (0.94)
One if rating is missing	-0.239 (0.79)	-2.911 (0.67)	-2.109 (0.25)	0.093 (0.46)	0.013 (0.06)	-0.334 (1.53)
Estimation technique			Borrower-Level Fixed Effects OLS			
No. of observations	4,322	4,322	4,322	1,749	3,792	1,255
R-squared (within)	0.09	0.04	0.08	0.12	0.22	0.37

* Significant at 10%; ** significant at 5%.

collateral is positive but not statistically significant (Table III), the impact of creditor rights on the use of collateral is significantly stronger for borrowers that have more tangible assets, because creditor rights can make collateral more effective, and enhance loan availability, by working with the pledgeability (tangibility) of assets. These results are consistent with Braun (2003), who finds that industries with less tangible assets perform disproportionately worse when located in countries with weak legal protection and underdeveloped financial markets. We find that such firms that *do* borrow (i.e., those that appear in our data) borrow at high interest rates and at relatively short maturities.

B.4. Adding Ownership to Loan Contract Term Regressions

Table V introduces the ownership variables as right-hand-side regressors in the loan contract regressions. Adding these variables has little effect on the links between creditor rights and contract terms. Interestingly, loan ownership itself is significantly correlated with collateral, that is, loans with a greater number of participating banks (and less concentration) are more likely to be secured (columns 1 and 2). In particular, a one standard deviation increase in the number of participating banks is associated with a seven-percentage point increase in the probability that a loan is secured. This result suggests a *complementarity* between collateral (which raises the direct cost associated with default to borrowers) and diffuse ownership (which raises the deadweight costs associated with default, thereby preventing strategic default).

The participation of domestic banks is positively related to maturity (column 3 only) and negatively related to pricing (column 5 only), but these associations are absorbed by the addition of country-level outcome variables (columns 4 and 6). Combining results from Tables II, IV, and V, we conclude that foreign banks are more sensitive to the legal environment than domestic banks, and further that domestic banks have an advantage relative to foreign banks in overcoming information and control problems. Our results are also consistent with Mian (2006), who shows that foreign lenders are more likely to resolve defaulted loans in a formal court procedure than domestic lenders. He argues that foreign lenders are less able to establish a long-term relationship capital with borrowers, and hence have less relationship capital to exploit during private workouts; thus they resort to formal legal procedures. Our results are also consistent with Haselmann, Pistor, and Vig (2005), who find that foreign banks increase their lending volume to transition economies (in Central and Eastern Europe) substantially more than domestic banks following legal reform.

C. Robustness Tests

In all the robustness tests, we run model specifications that exclude the outcomes variables at the country level. We first introduce additional institutional variables to our models. Table VI reports the coefficients on the new variable indicated and on creditor rights; we suppress the other coefficients but these models include the same set of regressors as those in Tables II and III. In

Table V
Regressions Relating Loan Contract Terms to Country Characteristics
(With Loan Ownership Variables Included as Regressors)

We include but do not report coefficients on year indicators, percent change in GDP, industry indicators (two-digit SIC), indicators on loan type, purpose, and currency, and an indicator for firms located in Africa. Sovereign and firm ratings are converted to an index from zero to six as follows: 0 = unrated; 1 = Aaa; 2 = Aa; etc. In computing standard errors, we cluster by borrower country. The data for loan characteristics come from LPC's Dealscan. The sample includes loans originated between 1994 and the middle of 2003. Firm characteristics come from Worldscope at the end of the year of loan origination. We drop loans to firms in financial industries, as well as public sector loans (SICs 6 and 9). The table reports coefficients (marginal probabilities in columns 1 and 2), with *t*-statistics in parentheses.

Explanatory Variables	Secured Indicator		Log of Maturity		Log of All-in Spread	
	(1)	(2)	(3)	(4)	(5)	(6)
Log of number of lenders	0.039 (3.78)**	0.039 (4.18)**	0.018 (0.90)	0.006 (0.33)	-0.028 (0.97)	0.004 (0.16)
Share held by government banks	0.001 (1.23)	0.001 (1.12)	0.001 (0.69)	0.002 (0.95)	0.004 (1.12)	0.002 (0.86)
Share held by domestic banks	0.001 (1.33)	0.001 (1.58)	0.001 (1.74)*	0.000 (0.72)	-0.004 (4.11)**	-0.001 (0.76)
Creditors' rights	0.012 (0.94)	0.022 (1.88)*	0.126 (4.57)**	0.096 (4.15)**	-0.131 (2.27)**	-0.095 (3.34)**
One if French legal origin	0.169 (3.17)**	0.138 (2.65)**	0.057 (0.72)	0.076 (1.06)	-0.168 (1.88)*	-0.341 (4.59)**
One if German legal origin	-0.145 (4.51)**	-0.100 (2.69)**	-0.272 (3.40)**	-0.131 (1.23)	-0.264 (2.96)**	-0.329 (4.34)**
One if Scandinavian legal origin	0.309 (1.14)	0.364 (1.33)	-0.153 (1.40)	-0.277 (2.99)**	-0.787 (4.99)**	-0.567 (4.66)**
One if socialist legal origin	0.288 (2.47)**	0.212 (2.01)**	-0.123 (0.61)	-0.158 (0.71)	-0.897 (6.22)**	-1.077 (5.46)**
Log of market value of equity	-0.035 (4.18)**	-0.034 (3.87)**	0.008 (0.52)	-0.001 (0.07)	-0.179 (5.46)**	-0.157 (4.83)**
Net income/assets	-0.221 (1.91)*	-0.218 (1.85)*	0.343 (2.21)**	0.454 (2.52)**	-0.566 (1.23)	-0.813 (1.71)*
Total debt/assets	-0.062 (0.90)	-0.067 (0.93)	0.002 (0.03)	0.015 (0.22)	0.196 (1.31)	0.253 (1.73)*
PP&E/assets	0.057 (1.05)	0.043 (0.77)	0.311 (3.54)**	0.350 (4.01)**	-0.103 (0.54)	-0.241 (1.25)
Firm rating	0.022 (0.64)	0.024 (0.68)	0.068 (1.43)	0.090 (1.85)*	0.191 (4.41)**	0.156 (3.45)**
One if rating missing	0.068 (0.63)	0.065 (0.58)	0.346 (1.79)	0.467 (2.37)*	0.773 (3.44)**	0.643 (2.98)**
One if multinational	0.041 (1.97)*	0.040 (1.93)*	-0.021 (0.47)	-0.021 (0.54)	-0.062 (0.63)	-0.014 (0.18)
Sovereign rating	-	-0.007 (0.39)	-	-0.126 (4.45)**	-	0.184 (2.81)**
One if sovereign rating is missing	-	-0.045 (0.59)	-	-0.478 (2.72)**	-	0.463 (1.66)
Log of GDP/capita	-	-0.020 (1.07)	-	-0.037 (0.94)	-	-0.207 (1.30)
Private credit/GDP	-	-0.049 (1.83)*	-	-0.132 (2.08)*	-	0.404 (4.85)**
Estimation technique	Probit		OLS		OLS	
No. of observations	1,643	1,632	3,792	3,792	1,255	1,255
R-squared	0.31	0.32	0.38	0.40	0.57	0.62

*Significant at 10%; **significant at 5%.

Table VI
Regressions Relating Loan Contract Terms to Firm, Loan,
and Country Characteristics
(With Other Institutions)

The regressions contain the same variables as those in columns (1), (3), and (5) of Tables II and III, although in this table we report only the coefficients on creditor rights and the additional institutional variable of interest. For the model of secured lending, the dependent variable equals one if the loan is secured, and it is estimated by Probit; marginal effects are reported. In computing standard errors, we cluster by borrower country. The data for loan characteristics come from LPC's Dealscan. The sample includes loans originated between 1994 and the middle of 2003. Firm characteristics come from Worldscope at the end of the year of loan origination. We drop loans to firms in financial industries, as well as public sector loans (SICs 6 and 9). The table reports coefficients, with *t*-statistics in parentheses.

	Log Number of Lenders (1)	Share Held by Government Banks (2)	Share Held by Domestic Banks (3)	Secured Indicator (4)	Log of Maturity (5)	Log of All-in Spread (6)
Panel A: Include Legal Formalism						
Legal formalism	-0.015 (0.29)	2.735 (2.20)*	-0.466 (0.14)	0.006 (0.29)	0.066 (1.28)	0.027 (0.26)
Creditor rights	-0.070 (1.87)*	0.572 (0.74)	-5.206 (1.85)*	0.008 (0.58)	0.129 (4.42)**	-0.143 (1.89)*
No. of observations	4,321	4,321	4,321	1,643	3,791	1,255
<i>R</i> -squared	0.24	0.10	0.38	0.29	0.38	0.56
Panel B: Include Indicator for Countries with Private or Public Information-Sharing Registries						
One if country has information sharing	-0.015 (0.16)	0.179 (0.09)	-5.232 (1.03)	-0.065 (1.38)	-0.040 (0.36)	-0.027 (0.19)
Creditor rights	-0.066 (1.75)*	0.148 (0.17)	-4.673 (1.73)*	0.010 (0.74)	0.122 (4.65)**	-0.142 (2.10)*
No. of observations	4,322	4,322	4,322	1,643	3,792	1,255
<i>R</i> -squared	0.24	0.08	0.38	0.30	0.38	0.56

*Significant at 10%; **significant at 5%.

Panel A, we add legal formalism, which measures the costs of enforcing contracts through the courts (DLLS (2003)); in Panel B we add an indicator variable that equals one if a borrower country has either public or private information sharing registries. As discussed above, we do not view these institutional variables as outcomes variables such as economic and financial development; instead, we view them as possible determinants of the contracting environment between banks and firms. Information sharing mechanisms have been previously shown to be an important determinant of credit market development (e.g., Jappelli and Pagano (2002), DMS (2007)), and legal formalism has been shown to increase the time and monetary costs of adjudicating disputes. Overall, neither of these institutional variables has a significant impact on

loan contracts, while their inclusion has only a very small effect on creditor rights.²¹

Next, we examine separately borrowers from developed versus developing countries (Tables VII and VIII). We use the World Bank definition of high-income economies to divide our sample. The developed country subsample includes Australia, Hong Kong, Ireland, Israel, New Zealand, Singapore, U.K., Belgium, France, Greece, Italy, Netherlands, Portugal, Spain, Austria, Germany, Japan, South Korea, Switzerland, Taiwan, Denmark, Finland, Norway, and Sweden. The rest of the countries are classified as developing countries.

The results of Tables VII and VIII suggest that most of our main results are not driven by either subsample. Standard errors tend to increase relative to the pooled results because we have only about 20 countries in each sample, and we cluster the residuals at the country level. We do find that the positive relationship between creditor rights and loan maturity seems strongest among the developed countries (Table VIII); in contrast, the coefficient is not statistically significant among the developing countries. Perhaps most striking, we find that the effect of creditor rights affects loan ownership differently across the two subsamples: Creditor protection affects government ownership positively for the developed countries but negatively for the developing countries, although the economic magnitude is fairly small in both sets of countries. In particular, a one standard deviation increase in creditor rights comes with an increase (decrease) of about three percentage points in government banks' share for developed (developing) countries. For foreign ownership, for which the coefficient magnitudes are larger, we find that foreign banks' participation in loans responds more to creditor rights in the developed countries.

Third, we report a series of additional robustness tests in which we vary both the sample and the specification. The result of greatest interest—the coefficients on creditor rights—is reported across each of these models in Table IX (Panels B–F). Panel A reproduces the coefficients from our baseline model (Tables II and III) to facilitate comparisons of the models' results. Note that in all of the models we include the same set of firm, loan, and country control variables as those included in the benchmark models, except where specifically indicated otherwise in the title to the panel.

Panels B through D report estimates for three industry subsamples, namely, manufacturing (SIC 2 or 3), transportation and utilities (SIC 4), and utilities (SIC 46, 48, or 49). We focus on the two industry groups (manufacturing and transportation and utilities) to examine whether the impact of creditor rights on loans is robust among firms with similar assets, profitability, and size. We also seek to further differentiate between transportation and utilities firms (we do not have enough observations to examine transportation firms alone). On the one hand, assets in transportation are potentially more pledgeable since they

²¹ We also try splitting the information sharing indicators into two indicators, one for private and one for public registries, but neither of these is individually significant, nor are they jointly significant.

Table VII
Regressions Relating Loan Ownership to Firm, Loan,
and Country Characteristics
(Developed versus Developing Countries)

We include but do not report coefficients on year indicators, percent change in GDP, industry indicators (two-digit SIC), indicators on loan type, purpose, and currency, and an indicator for firms located in Africa. Sovereign and firm ratings are converted to an index from zero to six as follows: 0 = unrated; 1 = Aaa; 2 = Aa; etc. In computing standard errors, we cluster by borrower country. The data for loan characteristics come from LPC's Dealscan. The sample includes loans originated between 1994 and the middle of 2003. Firm characteristics come from Worldscope at the end of the year of loan origination. We drop loans to firms in financial industries, as well as public sector loans (SICs 6 and 9). The developed county sample includes: Australia, Hong Kong, Ireland, Israel, New Zealand, Singapore, United Kingdom, Belgium, France, Greece, Italy, Netherlands, Portugal, Spain, Austria, Germany, Japan, South Korea, Switzerland, Taiwan, Denmark, Finland, Norway and Sweden. We define the other countries as developing (see Table I). The table reports coefficients, with *t*-statistics in parentheses.

Explanatory Variables	Log Number of Lenders		Share Held by Government Banks		Share Held by Domestic Banks	
	Developed (1)	Developing (2)	Developed (3)	Developing (4)	Developed (5)	Developing (6)
Creditors' rights	-0.067 (1.11)	0.067 (0.95)	2.871 (3.89)**	-3.085 (2.66)**	-10.736 (3.89)**	-5.290 (1.82)*
One if French legal origin	0.032 (0.23)	0.285 (1.65)*	4.168 (2.54)**	-4.999 (1.69)*	-7.145 (1.57)	-7.673 (1.49)
One if German legal origin	0.093 (0.77)	- -	7.774 (3.57)**	- -	17.624 (3.81)**	- -
One if Scandinavian legal origin	-0.225 (1.61)	- -	14.054 (3.37)**	- -	-22.862 (2.21)*	- -
One if socialist legal origin	- -	0.455 (2.18)**	- -	1.706 (0.48)	- -	-0.981 (0.15)
Log of market value of equity	0.046 (1.74)*	0.084 (5.69)**	-0.102 (0.37)	-0.509 (1.40)	-4.458 (7.81)**	0.620 (1.05)
Net income/assets	-0.141 (0.51)	0.513 (0.83)	-2.189 (0.57)	0.763 (0.11)	-3.021 (0.40)	-31.602 (2.16)*
Total debt/assets	0.156 (2.10)**	0.195 (0.76)	-0.982 (0.64)	12.393 (3.57)**	-5.020 (1.08)	-10.628 (1.39)
PP&E/assets	0.077 (0.66)	-0.313 (1.36)	4.735 (1.75)*	-1.454 (0.39)	-5.755 (1.34)	-21.241 (1.70)*
Firm rating	-0.077 (1.47)	-0.059 (0.72)	-0.704 (0.89)	-2.792 (1.83)*	-1.895 (1.42)	-1.674 (0.78)
One if rating is missing	-0.663 (3.23)**	-0.487 (1.36)	-3.682 (1.31)	-11.283 (1.55)	-3.116 (0.52)	-4.418 (0.45)
One if multinational	0.150 (1.81)*	0.146 (1.16)	2.130 (1.89)*	0.534 (0.35)	-11.043 (2.38)**	-4.979 (1.31)
Estimation technique	OLS					
No. of observations	2,999	1,323	2,999	1,323	2,999	1,323
R-squared	0.27	0.29	0.14	0.15	0.43	0.42

*Significant at 10%; **significant at 5%.

Table VIII
Regressions Relating Loan Contract Terms to Firm, Loan,
and Country Characteristics
(Developed versus Developing Countries)

We include but do not report coefficients on year indicators, percent change in GDP, industry indicators (two-digit SIC), indicators on loan type, purpose, and currency, and an indicator for firms located in Africa. Sovereign and firm ratings are converted to an index from zero to six as follows: 0 = unrated; 1 = Aaa; 2 = Aa; etc. In computing standard errors, we cluster by borrower country. The data for loan characteristics come from LPC's Dealscan. The sample includes loans originated between 1994 and the middle of 2003. Firm characteristics come from Worldscope at the end of the year of loan origination. We drop loans to firms in financial industries, as well as public sector loans (SICs 6 and 9). The developed country sample includes: Australia, Hong Kong, Ireland, Israel, New Zealand, Singapore, United Kingdom, Belgium, France, Greece, Italy, Netherlands, Portugal, Spain, Austria, Germany, Japan, South Korea, Switzerland, Taiwan, Denmark, Finland, Norway and Sweden. We define the other countries as developing (see The table I). The table reports coefficients (marginal probabilities in columns 1 and 2), with *t*-statistics in parentheses.

Explanatory Variables	Secured Indicator		Log of Maturity		Log of Drawn All-in Spread	
	Developed (1)	Developing (2)	Developed (3)	Developing (4)	Developed (5)	Developing (6)
Creditors' rights	0.001 (0.05)	0.026 (0.60)	0.116 (2.87)**	-0.050 (0.92)	0.002 (0.03)	-0.095 (0.95)
One if French legal origin	0.193 (2.69)**	0.225 (2.75)**	0.075 (0.79)	-0.159 (1.64)	-0.158 (1.16)	0.260 (1.03)
One if German legal origin	-0.074 (2.49)**	—	-0.258 (1.75)*	—	-0.205 (1.90)*	—
One if Scandinavian legal origin	0.190 (0.85)	—	-0.233 (1.85)*	—	-0.469 (3.36)**	—
One if socialist legal origin	—	0.412 (2.50)**	—	-0.166 (0.80)	—	-0.450 (1.86)*
Log of market value of equity	-0.029 (4.65)**	-0.040 (2.06)**	-0.004 (0.20)	0.007 (0.43)	-0.142 (5.49)**	-0.147 (2.53)**
Net income/assets	-0.128 (1.07)	-0.317 (1.30)	0.175 (1.09)	0.908 (1.95)*	-1.225 (5.44)**	-0.011 (0.02)
Total debt/assets	-0.028 (0.44)	-0.378 (6.17)**	-0.046 (0.62)	0.156 (1.01)	0.304 (1.91)*	0.317 (0.70)
PP&E/assets	0.090 (2.12)**	0.041 (0.44)	0.227 (2.76)**	0.603 (5.82)**	-0.086 (0.54)	-0.061 (0.30)
Firm rating	0.014 (0.62)	0.023 (0.34)	0.081 (1.49)	0.024 (0.55)	0.212 (7.05)**	0.294 (2.98)**
One if rating is missing	0.001 (0.01)	0.146 (0.60)	0.331 (1.48)	0.234 (1.11)	0.841 (4.75)**	1.601 (3.02)**
One if multinational	0.068 (3.53)**	0.124 (2.73)**	-0.006 (0.10)	-0.081 (1.08)	0.003 (0.03)	0.191 (1.94)*
Estimation technique	Probit		OLS		OLS	
R-squared	1,002	567	2,639	1,153	854	401
No. of observations	0.39	0.30	0.44	0.32	0.64	0.66

*Significant at 10%; **significant at 5%.

are easier to be redeployed than those of utilities (e.g., aircrafts or trains versus power generators), in which case creditor rights might be more important for transportation firms than for utilities firms. On the other hand, utilities firms are more likely to be government protected or owned but they are perhaps the

Table IX
Regressions Relating Loan Terms to Country Characteristics
(Robustness Tests)

This table reports the coefficients on the creditors' rights variable for various specifications and subsamples. Panel A reproduces the benchmark results from Tables II and III (Panel A). In the other panels, we vary either the sample or the specification. All regressions include the same set of explanatory variables as those reported in Tables II and III, columns (1), (3), and (5).

Explanatory Variables	Log Number of Lenders	Government Share	Domestic Share	Secured Indicator	Log of Maturity	Log of All-in Spread
Panel A: Full sample (Replication of Tables II and III)						
Creditors' rights	-0.067 (1.87)*	0.164 (0.20)	-5.143 (1.89)*	0.006 (0.43)	0.119 (4.47)**	-0.145 (2.04)**
Panel B: Manufacturing Only (SIC = 2 or 3)						
Creditors' rights	-0.068 (1.76)*	0.622 (0.73)	-5.009 (2.02)**	-0.007 (0.34)	0.147 (6.77)**	-0.172 (2.60)**
Panel C: Transportation and Utilities Only (SIC = 4)						
Creditors' rights	-0.132 (1.86)*	-0.951 (0.77)	-7.164 (2.04)**	0.020 (0.97)	0.142 (2.95)**	-0.217 (2.59)**
Panel D: Utilities Only (SIC = 46, 48, or 49)						
Creditors' rights	-0.114 (1.49)	-1.273 (1.01)	-5.827 (1.65)	-0.002 (0.21)	0.215 (3.66)**	-0.233 (2.49)**
Panel E: Drop Multinationals						
Creditors' rights	-0.022 (0.59)	-0.096 (0.13)	-6.190 (2.35)**	0.011 (0.72)	0.124 (4.10)**	-0.164 (2.08)**
Panel F: Replace Current with 1-year Lags of Firm Characteristics						
Creditors' rights	-0.067 (1.88)*	0.189 (0.23)	-4.783 (1.80)*	0.017 (1.32)	0.112 (4.28)**	-0.133 (1.89)*

*Significant at 10%; **significant at 5%.

only firms for which we know where exactly the assets are located and thus their governing laws.

The results are robust in each of these smaller samples. Specifically, we find a negative relationship between creditor rights and the number of lenders in each subsample (significant for two of three), a negative relationship between creditor rights and the share owned by domestic banks in each subsample (again, significant for two of three), and a significantly positive link from creditor rights to loan maturity and a significantly negative link from creditor rights to loan interest rates in all three samples. In fact, the impact of creditor rights on loan maturity and interest rate seems to be much greater for utilities firms than for the whole sample.

Approximately one-quarter of the firms in our sample have operations outside the borrower's home country. In such cases there may be a concern that

collateral located outside the borrower's country may be difficult for lenders to repossess under the laws of the borrower's country. As noted earlier, we control for these multinational companies with an indicator. However, we also estimate our models without these observations. As shown in Table IX, Panel E, our results are largely unchanged. All of the signs on the coefficient remain the same, and in most cases the magnitudes increase somewhat. In the last panel of Table IX (Panel F), we replace concurrent values of the firm characteristics with lagged values because some of these ratios, particularly the leverage ratio, change when firms borrow. Again, we find very similar results to those reported in our main regressions.

As a final robustness test (not reported), we estimate an instrumental variables model, where the legal origin indicators serve as an instrument for creditor protection (similar to DLLS (2006)). The impact of creditor rights on the ownership and loan maturity remains similar to those reported in Tables II and III (both statistically and economically). The effect of creditor rights on secured lending remains statistically insignificant, and the effect of creditor rights on the interest rate loses statistical significance.

III. Conclusions

In this paper we test how creditor rights affect the terms of bank loans across a cross section of countries. Strong protection of creditor rights is associated with greater concentration of loan ownership, increased participation by foreign banks, longer-term lending, and lower interest rates. These results paint a clearer picture of how creditor protection generates good financial outcomes. With better protection, lenders can control borrowers' risk because they know they will be able to take assets, or to credibly threaten to take assets, *ex post*, in the event of default. Firms benefit from the resulting expansion of credit supply by borrowing at longer maturities and at lower interest rates. Absent strong legal protection, lenders resort to diffuse ownership and shorter maturities—two contracting tools that do not rely on laws or institutions—to control borrower risk.

Two caveats are worth repeating. First, our results reflect how laws and institutions affect financial contracts for relatively large firms only, in particular, those appearing in both Dealscan and Worldscope. Second, we are only able to explore the terms of loans actually made. Earlier and concurrent research focuses on the extensive margin, with evidence that stronger investor protection increases the total supply of credit. We study the intensive margin, and find that the terms of loans actually made vary with the legal and institutional environment.

Appendix: Brief Descriptions of All the Variables and Their Sources**A.1. Legal Variables**

Variables	Description	Sources
Legal origin	Identifies the legal origin of the company law or commercial code of each country.	LLSV (1998)
Restrictions for going into reorganization	Equals one if the reorganization procedure imposes restrictions such as creditors consent; equals zero otherwise.	Bankruptcy and reorganization laws; LLSV (1998)
No automatic stay on secured assets	Equals one if the reorganization procedure does not impose an automatic stay on the assets of the firm on filing the reorganization petition. Automatic stay prevents secured creditors from gaining possession of their security. Equals zero if such a restriction does exist in the law.	Bankruptcy and reorganization laws; LLSV (1998)
Secured creditors first	Equals one if secured creditors are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm. Equals zero if nonsecured creditors, such as the government and workers, are given absolute priority.	Bankruptcy and reorganization laws; LLSV (1998)
Management does not stay	Equals one when an official appointed by the court, or by the creditors, is responsible for the operation of the business during reorganization. Equivalently, this variable equals one if the debtor does not retain the administration of the property pending the resolution of the reorganization process. Equals zero otherwise.	Bankruptcy and reorganization laws; LLSV (1998)
Creditor rights index	An index aggregating different creditor rights. The index is formed by adding one when: (1) The country imposes restrictions such as creditors' consent or minimum dividends to file for reorganization; (2) secured creditors are able to gain possession of their security once the reorganization petition has been approved (no automatic stay); (3) secured creditors are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm; and (4) the debtor does not retain the administration of the property pending the resolution of the reorganization. The index ranges from zero to four.	Bankruptcy and reorganization laws; LLSV (1998)

A.2. Institutional Variables

Variables	Definition	Sources
Check-based legal formalism	The index measures substantive and procedural statutory intervention in judicial cases at lower-level civil trial courts, and equals the sum of the following categories (each takes on the value of one or zero): (1) professionals vs. laymen; (2) written vs. oral elements; (3) legal justification; (4) statutory regulation of evidence; (5) control of superior review; (6) engagement formalities; and (7) independent procedural actions.	Survey of Lex Mundi/Lex Africa association of law firms; DLLS (2003); and details available at http://iicg.som.yale.edu/
(Moody's) Sovereign debt ratings	Rating agencies assess the risks of sovereign (government) bond default. These ratings therefore serve as a broad proxy for overall country risk. We create two indicators based on Moody's ratings on the long-term sovereign bonds for the borrower's country (denominated in dollars).	Moody's; information on the definitions of these ratings is available at https://www.bonddesk.com/moodys.html
Information sharing: Public registries	A public registry is defined as a database owned by public authorities (usually the central bank or banking supervisory authority), which collect information on the standing of borrowers in the financial system and make this information available to financial institutions. The variable is constructed in January of each year for every year from 1978 to 2003.	Survey of Banking Supervisors; Jappelli and Pagano (2002); World Bank (http://www.doingbusiness.org/ExploreTopics/GettingCredit/)
Information sharing: Private bureaus	A private bureau is a private commercial firm or nonprofit organization that maintains a database on the standing of borrowers in the financial system. Its primary role is to facilitate exchange of information among banks and financial institutions. The variable is constructed in January of each year for every year from 1978 to 2003.	Survey of Banking Supervisors; Jappelli and Pagano (2002); World Bank (http://www.doingbusiness.org/ExploreTopics/GettingCredit/)
Information sharing	Equals one if either a public registry or a private bureau operates in a borrower country, and zero otherwise. The variable is constructed in January of each year for every year from 1978 to 2003.	Survey of Banking Supervisors; Jappelli and Pagano (2002); World Bank (http://www.doingbusiness.org/ExploreTopics/GettingCredit/)

A.3. Miscellaneous Country-Level Variables

Variables	Definition	Sources
Economic development	Average of Log (per capita GDP) over the period 1994 to 2002; measures a country's overall economic status (developed vs. developing countries).	World Bank
Financial development	Claims on the private sector by banks as a share of GDP, averaged over the 1994 to 1997 period.	Demirgüç-Kunt and Levine (2001)
Percentage change in GDP	Percent change in GDP in two adjacent years, measuring the business cycle of a country.	World Bank

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