How Law Affects Lending

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ABSTRACT

A voluminous literature seeks to explore the relation between law and finance, but offers little insights into dynamic relation between legal change and behavioral outcomes or about the distributive effects of law on different market participants. The current paper disentangles the law-finance relation by using disaggregate data on banks' lending patterns in 12 transition countries over a 8 year period. This allows us to control for country level heterogeneity and differentiate between different types of lenders. Employing a differences-in-differences methodology in an exclusive "laboratory" setting as well as unique hand collected datasets on legal change as well as changes in bank ownership, we find that lending volume responds positively to legal change. However, not all legal change is equally effective. The introduction of a legal regime that enhances each lender's individual prospects of enforcing her claims (collateral law) results in greater increases in lending volume than changes in bankruptcy law, the essence of which is to provide an orderly liquidation or reorganization process in the presence of multiple creditors. Finally, we find that banks that newly enter the market respond more strongly to legal change than do incumbents. In particular, foreign-owned banks extend their lending volume substantially more than domestic banks.

JEL Codes: F34, F37, G21, G28, G33, K39.

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1. Introduction

This paper furthers the scholarship on law and finance by examining the influence of law on credit market development. It addresses three major questions that are at the core of the interaction: Does law promote lending? If so, do some laws matter more for credit market development than other laws? Do all creditors benefit from legal change in the same way or does legal change play into the strengths of some as opposed to other lenders?

The paper by La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998, henceforth LLSV) titled "Law and Finance" establishes law as an important determinant of credit market development by documenting strong correlations between creditor rights and size of credit markets. The major function attributed to law is that it empowers creditors to enforce their contracts. Efficient legal institutions reduce the risk of lending by mitigating both moral hazard as well as adverse selection problems, thereby increasing lenders' willingness to lend. This has a benign effect of increasing capital mobility in the economy which in turn leads to financial development.

A series of papers (LLSV 1997, 1998; Levine 1998, 1999; Djankov, McLiesh, and Shleifer forthcoming) document the positive impact of legal institutions on broad economic outcomes.[1] There is an emergence of a general consensus amongst scholars that good legal

[1] Another important strand of this literature looks at the effect of legal codes on financial contracts (e.g., Acharya, John, and Sundaram 2005, Qian and Strahan 2005, Davydenko and Franks 2004).

institutions foster financial development. There is, however, scant attention paid to understanding the channel through which changes in legal institutions get transmitted to the economy. How do improvements of creditor rights get transmitted to the economy? Which laws matter more? Do laws affect all market participants in the same manner? A good and thorough understanding of these questions is essential if one has to incorporate creditor rights into broader discussions on policy. This paper addresses these important questions.

There are many hurdles that hinder any empirical research in this area. First, and most seriously, are endogeneity concerns regarding legal changes. Ideally, there should be an exogenous variation in the legal variable of interest. The general problem is that legal variables are very sticky. Institutions do not change that often. Most of the existing research, therefore, relies on cross-sectional studies that relate differences in legal institutions to various economic parameters. Clearly, though, countries that differ in their legal framework also differ in other observed, as well as unobserved, dimensions. Thus, comparing countries with good legal institutions to those with bad legal institutions may capture the effect of omitted variables or unobserved differences. This can create biases in the results. We overcome this problem by focusing our study on twelve Central Eastern European (CEE) transition economies. This provides us with an ideal laboratory for the following five reasons: 1) these countries have undergone major legal reforms in 1990s, 2) these countries form a fairly homogeneous group, 3) there is a considerable inter-temporal variation in the timing of these

reforms, 4) the reforms are motivated by pressures from outside governing bodies such as the European Union (EU)[2], European Bank for Reconstruction and Development (EBRD), and USAID, and 5) these are all bank-based economies, therefore creditor rights should play an important role in these countries.

Second, most of prior research uses macro level indicators, such as the size of credit markets as a share of GDP. These aggregated outcome measures make it impossible to disentangle the impact of legal change on different market participants. We deal with this problem by assembling a unique matched database comprising bank level information, ownership information, and information on law for these countries.

We find that law does in fact promote lending. The overall level of formal creditor rights protection is positively associated with the lending volume, and so is legal change with increases in lending volume over time. Differentiating between legal rules designed to protect individual creditors' claims outside bankruptcy ("Collateral") and the collective enforcement regime bankruptcy establishes ("Bankruptcy"), we find "Collateral" to be more important than "Bankruptcy". This is in contrast to previous papers that have used measures related to collective enforcement/reorganization (LLSV's index) as a proxy for creditor rights. The findings of our paper suggest the importance of collateral laws (laws that facilitate pledgeability of assets) as an important variable for the creditor's lending decision.

[2]Most CEE countries were seeking EU membership and there were strict guidelines which these countries had to adhere to.

Finally, our data suggest that new entrants to the market, and in particular foreign banks, respond more strongly to legal change than do incumbents by increasing their lending volume. The same is true when comparing greenfield banks with incumbents. An important implication of this finding is that financial development in these countries takes place by increasing the number of banks as well as the lending volume per bank.

2. Analytical Framework

If lenders had perfect information about their borrowers and effective substitutes to formal law at their disposal to prevent and/or punish strategic default, law and legal change would have no impact on lending behavior. Thus, in a market where players can effectively monitor each other and punish, default law should not be of great importance for banks' willingness to lend. By the same token, legal change should have little effect on changes in the lending volume. Even in the absence of such ideal conditions, law may not be the primary ordering mechanism for lending relations. An extensive literature has analyzed substitutes for formal legal creditor protection. They include multilateral governance devices such as networks of middlemen (Greif, Milgrom, and Weingast 1994; Rauch and Casella 1998), or company groups that internalize credit markets (Kali 1999). Lending in the market may still take place, but lenders are likely to require possession of a security. Alternatively, contracts

specifying in detail the terms of the contracts could be written as well. Finally, lenders can charge interest rates that reflect their full risks.

All of the above strategies entail costs and may reduce creditors' willingness to lend. Multilateral governance devices typically work well for networks or relations linked not only by commercial, but also by ethnic and/or religious ties, thus subjecting defectors to multiple punishments (Landa 1981). While this reduces the costs of monitoring for those participating in the network relation, outsiders are denied access to credit or face substantially higher costs. Similarly, the internalization of credit markets benefits members of a company group, but crowds out others and may change the quality of borrowers in the market, as most players will seek membership in a group, leaving the least viable firms outside (Kali 1999). Assets turned over as a security or hostage need to be stored and kept in good condition lest the lender's threat to destroy or sell them should be undermined. Moreover, the borrower loses valuable economic assets when transferring them to the lender to secure a loan, which otherwise might enhance his ability to generate the returns necessary to pay back the lender. Contracts can only be of limited help, as the borrower can repeatedly pledge the same assets to multiple lenders.[3] Finally, lenders can charge interest rates that reflect their full risks;

[3]The limitation of a simple contract regime is that the creditors' claims in secured assets cannot be easily verified against third parties. These parties may be either creditors wishing to secure the same asset at a later point in time, or buyers who acquire the asset from the debtor without knowing that the asset may have been secured already. The added value of the legal regime is to offer a system that allows creditors to document and verify their own as well as pre-existing claims against assets. Verification might be achieved by transferring the asset from the debtor to the creditor. A more effective way, however, is to record security interests in a registry that can be easily accessed.

however, adverse selection leads to credit rationing by banks (Stiglitz and Weiss 1981). Further, higher interest rates can also lead to moral hazard problems, resulting in suboptimal efforts exerted by borrowing firms.

2.1. Law and Debt Finance

The advantage of law over the informal mechanisms described above is that it can significantly reduce the costs of external finance by offering investor rights protection as a public good. In particular, Bebchuk (1994) and Grossman and Hart (1988) suggest that law enhances investors' willingness to part with their money in expectation of future returns on their investment. In a series of empirical studies LLSV (1997, 1998) have shown the relevance of legal investor rights protection for financial market development in a cross-country setting coding both shareholder and creditor rights. They measure the quality of creditor rights by coding key provisions typically found in bankruptcy codes. Their intuition is that the ability of creditors to enforce their claims against defaulting firms will enhance their willingness to lend to firms whose creditworthiness is difficult to establish ex ante. For the size of the credit market, they use total claims financial institutions hold against the private sector as a share of GDP. Previous results have been strengthened in a recent paper by Djankov et al. (forthcoming) by focusing on creditor rights in 129 countries. In a related strand of literature, Acharya et al. (2005), Qian and Strahan (2005) and Davydenko

and Franks (2004) find a relationship between creditor rights and the nature of financial contracts. Levine (1999) expands these findings by tracing the empirical linkages between the legal environment, financial development, and economic growth. He shows that high quality legal protection promotes economic growth. Using a similar framework for investigating the impact of legal change in transition economies between 1994 and 1998, Pistor, Raiser, and Gelfer (2000) show that the level of creditor rights protection is not significantly related to credit market development in 24 transition economies. However, they do find that improvements in creditor rights protection appear to have a positive impact.

The above studies establish a general pattern between formal legal protection and financial market development. However, they do not explain the transmission channels through which law affects finance. In this study we begin to explore these transmission channels by using micro data rather than aggregate data. This allows us to trace changes in the behavior of individual banks that supply external finance in the economies we study. Using bank lending data as well as refined legal indicators (to be further discussed below) we revisit the question of whether law affects debt finance in transition economies. Our first hypothesis therefore is:

Hypothesis 1 (H1): The introduction and/or strengthening of formal legal creditor rights is positively associated with increases in banks' lending volume.

2.2. Bankruptcy vs. Collateral Regimes

As stated above, the law and finance literature suggests that legal protection of creditor rights will reduce the costs of external finance. A critical issue that is mostly ignored is what kind of creditor protection lenders might reasonably be looking for. The existent empirical literature uses devices that protect creditors in bankruptcy, ignoring components that pertain to collateral laws. Thus, LLSV code four indicators: secured creditors first; management out; no automatic stay on assets; and creditor consent for re-organization. These indicators protect creditors not only, and perhaps not even primarily, against a defaulting debtor, but against competing claims by other creditors. This is most apparent with regards to "secured creditors first" and "no automatic stay on assets", where secured creditors first means that creditors with a valid security interest are satisfied before all other creditors; and "no automatic stay" implies that secured creditors can take out the secured assets, even if other creditors prefer reorganization. The two other indicators have a strong anti-debtor flavor, but are essentially also protections in a situation where multiple creditors enforce against a single debtor in default.

From a theoretical perspective, it is a priori not clear as to which law (Bankruptcy or Collateral) is more important. Aghion et al. (1992) recognize the collective enforcement problem as the key issue of bankruptcy and design a system particularly for transition

economies to facilitate the settlement of competing claims without extensive state intervention. However, recovery rates in bankruptcy tend to be low and the prospects of sustainable reorganization are dim even in developed market economies (Baird and Morrison 2005), and arguably even more so in transition economies. Further, it is often argued that collateral in real markets acts as a signaling device, in markets characterized by incomplete and asymmetric information (Bester 1985 and Besanko and Thakor 1987). This helps lenders sort firms into their respective risk classes. The effectiveness of this mechanism is dependent on the credibility of the liquidation threat. An effective collateral regime by providing a credible liquidation threat relaxes both credit rationing (Stiglitz and Weiss 1981) as well as deters strategic default thus disciplines management. It may therefore be critical for the overall growth of the lending market.

In order to assess the relative importance of collateral and bankruptcy, we code the quality of a country's collateral regime in addition to coding the four indicators suggested by LLSV. In particular, we ask whether or not land can be secured; whether a valid security interest can be established in personal property without transferring possession over the asset to the creditor; and whether a registration system for security interests in movable assets has been established.[4] It is clear that these indicators do not capture the range of security

[4]Such systems are common for security interests (mortgages) in real estate where land registries have long performed the relevant function in many countries and across legal systems, but are of more recent origin for personal property, or "movable assets". In the United States, registries for personal properties were introduced with Article 9 of the Uniform Commercial Code. The transition economies initially followed the continental European tradition, requiring the transfer of possession for the valid creation of a security interest in movable

interests many legal systems offer, which include security interests not only in tangible assets, but also in present and future rights. Further, they do not include important functional substitutes, such as the transfer of full ownership title as a security in lieu of legal rules that would allow the perfection of collateral without the creditor obtaining possession over the relevant asset. However, in emerging as well as transition economies an effective legal regime for security interests in tangible assets appears to be of primary importance (Pistor et al. 2000). This leads us to our next test, where we run a horserace between collateral laws and bankruptcy laws to gauge the relative importance of these laws.

Hypothesis 2a (H2a): A collateral regime is of greater relevance to lenders than a bankruptcy regime.

Hypothesis 2b (H2b): A bankruptcy regime is of greater relevance to lenders than a collateral regime.

2.3. Winners and Losers of Legal Change

So far our analysis has focused on the first two questions we posed: Does law affect lending behavior? And if so, what law? We now turn to the third question, namely whether all lenders benefit from legal change in the same way. If all lenders started with an equal

assets. In order to boost credit market development in these countries, the EBRD developed a model law on security interests for transition economies in 1994.

information set, they all should benefit equally from legal change that reduces the cost of lending. Yet, not all lenders necessarily start from the same position. Incumbent lenders with well-established relation-based network of borrowers may be less dependent on formal legal protection than new entrants that lack similar networks of relations.

In the transition economies in our sample, many new entrants were foreign banks. Buch (2003) suggests that foreign banks entering a new market are disadvantaged vis-à-vis incumbents as they may find it difficult to break into existing relational networks. Moreover they lack the information and cultural know-how to effectively compete with domestic players. The strengthening of formal creditor rights protection may benefit foreign players by reducing the cultural and informational barriers to entry. Moreover, if, as suggested in some of the literature, (Claessens, Demirgüc-Kunt, and Huizinga 2001, Khanna and Palepu 2000 and Mian forthcoming) foreign banks are indeed more efficient lenders than domestic banks in emerging markets, strengthening creditor rights should help foreign banks take full advantage of their greater expertise, as legal protections may offer a substitute for cultural and local knowledge. Sengupta (forthcoming) develops a formal model that captures the intuition of these findings. Finally, new entrants may develop new markets (i.e., consumer lending vs. lending to enterprises) and might require additional protection to mitigate risks in these markets. Our third hypothesis therefore is:

Hypothesis 3 (H3): Improvements in creditor rights are associated with higher lending volume of new entrants (foreign banks) as compared to incumbents (domestic banks).

3. Data

Our study analyzes changes in legal regimes and lending markets in the context of CEE transition economies. These countries were chosen for three reasons. Firstly, in all countries under consideration bank-based financing is of crucial importance for financial market development, as equity-based financing plays only a marginal role (Berglöf and Bolton 2002). Second, virtually all countries have experienced major revisions of their creditor rights regimes, including collateral and bankruptcy regimes, since the inception of economic reforms in the early 1990s and throughout the period we investigate. Third, the composition of the banking market has changed considerably in these countries, allowing us to investigate the impact of legal change on different types of lenders.

3.1. Bank Data

In order to gain detailed information about the behavior of banks in transition economies, we created an extensive database on bank-specific balance sheet items. The Bureau van Dyck

Bankscope database, which covers banks controlling at least 85 percent of the banking assets in each nation, served as the main source of information. We decided to eliminate all unconsolidated statements whenever both consolidated and unconsolidated statements were reported by Bankscope. Furthermore, we only report commercial banks, since the behavior of non-commercial banks might not reflect profit-maximizing banking behavior. In particular, we exclude national banks, trade banks, agricultural banks, cooperative banks, development banks, automotive banks, and investment banks. We collect annual data for twelve CEE transition countries (Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, Slovenia, and Ukraine) from 1995 throughout 2002. Overall we have 1874 bank year observations from 323 banks available.[5]

A central issue of this study is the ownership of banks, specifically whether a bank is foreign or domestically owned. Bankscope offers incomplete shareholder information for 2002. A classification into foreign and domestically owned banks based on shareholder information of the year 2002 is likely to be misleading, since a considerable number of banks were privatized during the sample period. A time series information was gathered by consulting central banks reports, annual reports of the banks and the banks' Internet presence. A bank is defined as foreign owned if foreigners or foreign entities own 50 percent or more of its assets. In addition, a bank is considered foreign if it is a subsidiary of a

[5]In a previous version of this paper our sample period was from 1994 until 2002. We decided to exclude 1994 since for this year there were considerably fewer observations available compared to the other years.

domestic bank that is itself owned by foreigners.[6] Furthermore, details about the merger and acquisition activities of all banks were hand-collected.

Based on this database, we also analyze bank-specific information. Loans are defined as total customer loans. The solvency of a bank is defined as the ratio of total equity to total assets. A bank's liquidity is determined by the ratio of liquid to total assets, where liquid assets are the sum of trading and marketable securities, cash, dues from the central bank, and treasury bills. Table I presents descriptive statistics of these indicators divided into ownership categories. These ownership categories encompass foreign and domestic banks; foreign banks are further divided into those that enter the market by taking a over a domestic bank (take-over) and those that found a new bank (greenfield). On average, foreign banks are slightly bigger in terms of assets and average total loans. The foreign take-over banks are more than three times larger than the greenfield banks. Domestic banks are divided into government and privately owned banks. Domestic government owned banks are clearly bigger than domestic private banks. These differences are less pronounced in the equity to asset, loan to asset, profit to asset and liquidity ratios. Domestic private banks have the highest solvency ratio.

The Bankscope database does not provide information on the extent to which collateral and bankruptcy mechanisms are used in practice by banks. In order to verify our findings

[6] In the relevant literature, this aspect is generally left aside when defining foreign bank ownership.

with further empirical evidence, we present statistics from a new EBRD Banking Environment and Performance Survey (BEPS). This survey was conducted on a random sampling of 423 banks in 20 transition countries in summer 2005. From this sample, 219 banks agreed to a face-to-face interview with a senior bank officer, providing detailed information on the use of collateral and bankruptcy proceedings.[7] Finally, data on stock market performance is obtained from the World Federation of Exchanges and our macro indicators are taken from the World Bank World Development Indicators (GDP overall and per capita) and the IMF International Financial Statistics 2005 (lending and deposit rates).

3.2. Legal Data

To capture formal legal change, we code statutory legal change for the twelve countries in our sample for the period from 1993 through 2003. Earlier data were drawn from (Pistor et al. 2000). Information on additional indicators and the period after 1998 was hand collected from statutory law in the twelve countries. We distinguish between the individual creditor rights regime ("Collateral") from the collective creditor rights regime ("Bankruptcy").

[7] For details on the BEPS survey see Haselmann and Wachtel (2006).

For "Collateral" we first code the possibility to secure land by way of establishing a mortgage that would be recorded in local land or court registries.[8] Introducing an effective collateral regime for security interests in movable assets (personal property) expands the scope of assets a creditor may secure in return for a loan. The critical issue is not whether a country allows that movable assets may be secured - all countries did this early on in the transition process. Instead it is, whether they recognize non-possessory security interests (collateral) in movable assets. To capture this, we code two additional indicators. First, whether a country's law recognizes that a legally valid security interest can be established without transferring possession over this asset to the lender. And second, whether a country has a system in place for the registration of such security interests. The first of the two variables notes the existence of a non-possessory charge, the second checks for the verifiability of a charge. This is crucial, because an asset may be secured more than once. Registering security interests allows creditors to establish their priority vis-à-vis each other. The cumulative index "Collateral" is the sum of the three sub-indicators.

For the collective creditor rights regime ("Bankruptcy"), we use the three indicators included in the LLSV (1998) coding discussed above, namely "Secured Creditors First", "Management Out" and "No Stay on Assets". In addition, we include indicators for the initiation reorganization procedures and for creditor initiated triggers. LLSV also code re-

[8]Since all countries in question formally recognized by 1993 the possibility to secure land, there is no variation in this aspect in our sample. By contrast, the legal regime for securing movable assets has changed considerably over time.

organization asking whether there can be reorganization without creditors' consent. By contrast, we deem the timing of creditor consent crucial. We therefore require that creditor consent must be given at the initiation stage. Only where this is not the case do we code that reorganization does not require creditor consent. Finally, many transition economies have experimented with a so-called "automatic trigger". The most widely discussed case has been the debtor-trigger Hungary introduced in 1992 (Bonin and Schaffer 2002). The law required each debtor who was unable to pay her debts after they became due for 90 days to file for reorganization. The trigger was, however, soon removed, because it caused an excessive number of debtor-filed bankruptcies. However, Hungary, as well as many other countries, also introduced creditor-triggers allowing creditors to file for bankruptcy when the debtor had failed to pay her dues for a minimum amount for 90 days (or other time frame depending on the legal system) after they had become due. Creditor triggers lower the verification costs of bankruptcy and creditors suffer from information problems particularly in the context of transition economies. Allowing them to file for bankruptcy when events they can easily verify occur, addresses this problem. Table II below summarizes the definitions of indicators. The sum of the two indicators is the main legal variable of this study referred to as "Creditor Rights". The codings of these indicators are reported in Table III.

4. Empirical Analysis

We use a differences-in-differences (henceforth DID) approach. Using bank-level data we test the following specification.

$$y_{it} = \alpha_t + \alpha_i + \gamma \cdot X_{it} + \delta \cdot CreditorRights_{jt-1} + \varepsilon_{it} \quad (1)$$

where i indexes banks,[9] j indexes countries and t indexes year. The log of loans is denoted as y_{it}.[10] The year fixed effects and the bank fixed effects are given respectively by α_t and α_i. The set of control variables is referred to as X_{it}. Bank specific control variables are the log of assets as well as the solvency and liquidity ratio. In order to control for the macroeconomic environment a bank operates in, we include the lending and deposit rate,[11] GDP, inflation rate, measures for the size and concentration of the credit markets, as well as the market share of each bank. $CreditorRights_{jt-1}$ is our legal variable as described in the previous section. Our variable of interest in the regressions is δ. The coefficient δ measures the sensitivity of the dependent variable to the legal change. Table IV provides definitions and sources of all variables included in the subsequent regressions.

A similar research design has been used in several studies, particularly in labor economics, of which Card and Krueger (1994) and Bertrand and Mullainathan (2003) are some

[9] This refers to an entity owning a separate commercial banking license.
[10] Our results do not change if we scale the dependent variable by GDP.
[11] The results are unaffected if we use the LIBOR rate instead.

notable examples. The multiple pre-intervention and post-intervention time periods take care of many threats concerning validity. This methodology is best illustrated by the following example.[12] Suppose we have two countries, A and B, undergoing legal changes at times t=1 and t=2, respectively. Consider t=0 to be the starting period in our sample. From t=1 to t=2, country B initially serves as a control group for legal change and after that serves as a treated group for subsequent years. Therefore most countries belong to both treated and control groups at different points of time. This specification is robust to the fact that some groups might not be treated at all, or other groups that were treated prior to 1995, which is our sample's beginning date.

For the DID approach to be meaningful, two aspects need to be accounted for. First, a similarity between comparison groups is desirable. Meyer (1995) has emphasized the importance of group similarity in research while suggesting that "for a given degree of similarity within the treatment group, however, greater differences across comparison groups are desirable if they are likely to lead to different biases." Second, the change in creditor rights should be exogenous.

The first issue surrounding similar comparison groups has little effect on our analysis since our sample consists of CEE economies, which are similar along several critical dimensions. All countries in our sample share the legacy of socialism and introduced substantial

[12]Here we assume that the legal variable is a 0-1 binary variable. However, this intuition extends when the legal variable (*CreditorRights*) is an index. Basically, the DID strategy identifies out of differences.

economic reforms in the early 1990s. Moreover, all countries share a proximity to Western Europe and most were slated for membership in the EU, which served as an important anchor for economic and legal reforms. Furthermore, the pooling of data from different countries is helpful if each country has a different bias.

The second issue, i.e., whether changes in creditor rights are exogenous or endogenous, is an important concern. However, legal change in these countries was largely induced by external pressures from multilateral and bilateral development agencies such as the EBRD, the World Bank and USAID as well as the quest to join the EU (Pistor et al. 2000). These agencies identified the need to adapt the legal framework for commercial socialist countries (see Ajani 1995 for details about the supply of new legal models through international organizations in the CEE countries). Special emphasis was placed on introducing creditor protection devices. Dahan (2000) explains that already in 1992 the EBRD established the secured transactions project within the office of the General Counsel, leading in 1994 to the production of the so-called model law on secured transaction. This model law as well as the relevant provisions of the American Uniform Commercial Code (UCC) were used in a number of reform projects throughout the region to induce and shape reform.[13] In Poland,

[13] A description of the transplant of creditor laws in each CEE country would go beyond the scope of this paper. However, two examples are provided in short. In Poland, the creation of a registered pledge regime was realized with extensive outside help. The Ministry of Justice created a Civil Law Reform Commission in 1990, which received technical assistance from the US-based think tank IRIS (Institutional Reform and the Informal Sector) with financial support from the US government (Dahan 2000; Summers 1997). In Bulgaria, IRIS was also deeply involved in drafting the Bulgarian "Law on Registered Pledges". According to Summers (1997), "IRIS coordinated the drafting of the law and provided foreign expert commentary."

for example, the first proposal on the creation of a registered pledge regime was as early as 1990. Nevertheless, this draft was rejected by the Polish parliament, so that a final adaptation of this law lasted until 1996, becoming effective only on January 1998. This example illustrates both the exogenous nature as well as the randomness in adoption of these reforms, brought about by political process, that characterized the passage of these laws. It is important to note that our analysis is at the bank level as opposed to the country level, which eliminates most endogeneity concerns. Finally, in the subsequent analysis we use block bootstrapped robust clustered standard errors as suggested by Bertrand, Duflo, and Mullainathan (2004).[14]

5. Results

In this section we present the results of our empirical analysis. In the first subsection we report the influence of legislation on the loan supply of banks. In the second subsection we analyze what law affects banks' lending behavior. Finally, in the third subsection we test whether law has separate effects on different players, in particular on incumbents vs. new entrants. We conclude by discussing some robustness tests.

[14]We cluster our standard errors by country. In some of the following specifications, bootstrapping of standard errors is not possible (e.g. when including interacted country and year dummies too, few observations are available for each dummy to bootstrap). Table descriptions indicate these cases.

5.1. Loan Supply

We begin by running specification 1. Table V reports the relevance of the "Creditor Rights" variable. As can be seen, the coefficients on the legal variable are positive and highly significant (column 1). In column 2 we use bank level controls that have been shown to be important in previous research. The advantage of doing this is that it reduces the residual variance, thereby increasing the efficiency of the results. Including these variables does not change our results and in many cases strengthens them. However, because of the possibility of these variables endogenously affecting the dependent variable we consistently present regressions with and without these controls. The economic impact of a legal change on bank lending is considerable. Even after controlling for bank and macro control variables, an improvement of our legal indicator by 1 implies an increase of loan supply by 13.66 percent.[15]

The above specification does not control for country specific time-varying shocks. In order to fully account for such shocks, the inclusion of interacted year and country dummies ($\alpha_t * \alpha_j$) would be required. These dummies, however, would fully absorb the variation of our legal indicator. In order to address this issue we follow the methodology of Bertrand and Mullainathan (2003). Instead of including a whole set of $\alpha_t * \alpha_j$ dummies, we include

[15] According to Halvorsen and Palmquist (1980) the effect of dummy variables in semilogarithmic equations is $(exp(\delta) - 1)$, with δ being the coefficient of interest. Kennedy (1981) proposes a variance correction for this interpretation, which has a negligible impact here.

the mean value of the dependent variable of each country and each year excluding each respective bank i itself, denoted as $Loans_{jt(-i)}$. As presented in Table V, columns 3 and 4, this leaves our results unchanged.

A special feature of our dataset allows us to strengthen our previous findings. The sample includes 27 multinational banks that operate in at least two different countries at the same point of time. We exploit this feature to test whether banks' allocation of credit responds to legal change. This constitutes a test for the effect of law on banks' lending behavior by focusing on within multinational bank variation in the data. An example illustrates the intuition behind this test. A bank supplies a certain amount of loans via different subsidiaries in country A and country B at $t = 0$. Further, country A has a legal change between $t = 0$ and $t = 1$, while country B has none. Comparing the difference in loan supply at $t = 1$ and $t = 0$ between both subsidiaries allows us to measure the impact of the legislative change within the same banking institution. The specification for this test is as follows:

$$y_{st} = \alpha_t + \alpha_k + \alpha_j + \gamma \cdot X_{it} + \delta \cdot CreditorRights_{jt-1} + \varepsilon_{st} \tag{2}$$

where s indexes subsidiaries, k indexes multinational banks, j indexes countries, and t indexes year. The level of loans for each subsidiary at each point in time is denoted as y_{st}. We control for bank fixed effects, country of operation fixed effects, and year fixed effects. $Creditor\ Rights_{jt-1}$ is the legal variable defined above. Our variable of interest is δ which

measures the sensitivity to the legal change. As presented in Table VI, columns 1 and 2, $Creditor\ Rights_{jt-1}$ is significant. One possible concern of the previous specification is that multinational banks channel their funds in countries with better investment opportunities. In order to address this issue we include the mean value of the loans of each country and each year (excluding each respective bank i itself) in specification 2. Our results remain unchanged (see Table VI, columns 3 and 4).

5.2. Collateral vs. Bankruptcy

We now disaggregate the general measure for creditor rights protection into its two components, "Collateral" and "Bankruptcy. "Collateral" measures whether creditors can use security interests in assets to protect their loans. Collateral protects an individual creditor against default even before a debtor enters bankruptcy. By contrast, "Bankruptcy" creates a collective enforcement regime once a debtor has become insolvent and specifies which creditors have priority over others. In Table V, columns 5 and 6, we run a horserace between "Bankruptcy" and "Collateral" by including both legal variables together in specification 1. Results show that collateral law seem to have a statistically significant effect on bank lending, while improvements in bankruptcy legislation have not. Thus we find evidence for H2a and can reject H2b. These results demonstrate the importance of laws relating to pledge-

ability of assets as a driver of credit supply. Thus it is important to look at collateral laws.[16] Our results show that it is the collateral laws that turn out to be stronger, at least for emerging/transition economies. Once again, we use block bootstrapped robust clustered standard errors where the clustering is at the country level. Furthermore, we also test for H2a and H2b by only analyzing the loans supply of multinational banks via their subsidiaries. Table VI, columns 5 and 6, reports very similar results compared to specification 1. We conclude from this that creditors' ability to protect and enforce their individual claims against a defaulting debtor by using a collateral regime is of greater importance for banks' lending behavior than bankruptcy's collective enforcement regime.

5.3. Incumbents versus new entrants

The third question we try to answer in this paper is whether formal legal change affects different types of lenders in different ways. One would expect that foreign players are more receptive than domestic players to legal change since as new entrants to the domestic markets they benefit from the creation of a level playing field. This is consistent with the claim by Buch (2003), who suggests that foreign players might be disadvantaged due to cultural constraints. Taking advantage of formal legal protection may allow foreign banks to fully optimize their comparative lending advantage (Khanna and Palepu 2000).

[16]The creditor rights variable (LLSV index) used in most of the empirical literature is primarily a bankruptcy variable.

The specification for this test is the following:

$$y_{it} = \alpha_t + \alpha_i + \gamma \cdot X_{it} + \beta \cdot OWN_{it} + \theta \cdot Legal_{jt} + \delta \cdot OWN_{it} \cdot CreditorRights_{jt} + \varepsilon_{it} \qquad (3)$$

where all variables and subscripts are defined as in specification 1. OWN_{it} is a dummy variable that takes the value of 1 if a bank is majority foreign owned and 0 otherwise. Our variable of interest in the regressions is δ, which measures the sensitivity to the interaction of the legal change and foreign ownership dummy. Our results as presented in Table VII, columns 1 through 3, suggest that foreign banks indeed increase their lending volume in response to legal change more than do domestic banks. This is illustrated by the positive interaction coefficient of our legal variable with the foreign ownership dummy (*Foreign*). Since bank ownership varies over the sample period specification 3 also allows for the inclusion of interacted country and year dummies ($\alpha_j * \alpha_t$), eliminating all shocks specific to each country in a given year. Results are robust to this test (columns 2 and 3).

So far we have treated foreign banks as new entrants and domestic banks as incumbents. In fact, many banks that became foreign owned banks were domestic private or state owned banks prior to the ownership change. To further investigate our proposition that law benefits primarily new entrants over incumbents, we reclassify new entrants and incumbents. We compare greenfield foreign owned banks with all other banks (see Table VII, columns

4 to 6). The results are similar to that of foreign vs. domestic banks but the significance is somewhat lower.

5.4. Robustness tests

A number of caveats have not been fully dealt with in our analysis. In this section we consider alternative specifications and definitions of our legal variable. Furthermore, we investigate other events in our sample period that could potentially confound our results.

5.4.1. Nature of the legal indicator

Throughout the previous analysis, all legal indicators applied have entered our specifications with a time lag of one period. However, it is a priori not clear that legal changes affect bank lending in such a manner. It can be argued that there is a possibility that legal change is anticipated before the actual introduction of a law. In order to test for the possible exogeneity of our legal variable, we include the "Creditor Rights" indicator in the period of change (t), one period before the change took place (t+1), one period lagged (t-1) and two period lagged (t-2). Only the coefficients of the legal indicator in the actual period of legal change and lagged by one period are statistically significant (see Table VIII, columns 1 and 2).[17]

[17] When "Collateral" is used as a legal variable results are similar. The coefficients of "Bankruptcy" remain insignificant independently of the timing.

Consequently, the legal changes in this sample have not been anticipated. This excludes the possibility of reverse causation.

Our analysis focuses on changes in the law of the books and so far leaves out possible differences in law enforcement aside. LLSV (1998) have pointed out the importance of good law enforcement for the implementation of legislation. To account for effectiveness of legal institutions we introduce the "Rule of Law" index provided by Kaufmann, Kraay, and Mastruzzi (2003), which combines various surveys to construct a comprehensive enforcement variable. As can be seen from Table VIII, columns 3 and 4, the "Rule of Law" index does not enter significantly in our regressions, while our "Creditor Rights" index is unaffected.[18] This could partly be due to the lack of time series variation of the "Rule of Law" index in the sample.

A general critique of applying indicators in an empirical framework is that a linear relationship between the indicators and the dependent variable is assumed. For example, an increase in the indicator from 0 to 1 is assumed to have the same impact on loan supply as an increase between 4 and 5. Since most countries in our sample had at most only one collateral and/or bankruptcy change we can address this concern by constructing a 1/0 dummy variable. Thus, we construct two additional legal indicators, one ("Colldum") that takes a

[18] As an additional test we included the interaction of "Creditor Rights" and "Rule of Law" in our regression yielding a not significant coefficient of the interaction term.

value of 1 after a country had an improvement in its collateral law[19] (and zero otherwise) and a second indicator ("Bankdum") that takes the value of 1 if a country had an improvement in its bankruptcy law (and zero otherwise).[20] Applying these dummy indicators as our legal variables supports previous findings. Improvements in collateral law have a positive significant effect on bank lending (Table VIII, columns 5 and 6), while the coefficient of "Bankdum" is statistically insignificant.[21] Finally, alternative specifications of our legal indicator were applied. E.g. instead of summing up the two components "Collateral" and "Bankruptcy" the product of these two was included in our main specification. Results also hold for such modifications.

5.4.2. Sample-related issues

Having established exogeneity as well as the robustness of our legal variable we now address some sample-related concerns. The sample used is unbalanced, as it includes banks that have entered the market during the sample period and banks that ceased to exist, due to take-over or bankruptcy.[22] In order to examine whether these issues are responsible for our findings, we reestimate our results excluding all banks that do not provide data over the entire sample

[19] Hungary and Romania are the only two countries that had two changes in collateral law during our sample period. Results are not sensitive to either defining "Colldum" being 1 after the first or second change in each country.

[20] Romania is the only country that had two improvements in its bankruptcy legislation during the sample period. We have constructed our "Bankdum" variable either interpreting the first or the second legal change as a major improvement in bankruptcy legislation. Results are not sensitive to this choice.

[21] Results are not reported, but are available from the authors upon request.

[22] Certain banks also do not report data to BankScope for a given year for unknown reasons.

period (1995-2002). This leaves us with a balanced panel of 946 bank year observations. Results remain unchanged for the balanced sample as shown in Table IX, columns 1 and 2.

Another potential concern is the acquisition of banks during the sample period. When bank A acquires another bank B, we see an increase in lending by bank A. However, we do not document a similar decrease for bank B as it simply disappears from our sample. This survivorship issue might create a bias towards finding a positive effect of a legal change on bank lending. To address this problem we exclude all banks that were involved in merger and acquisitions of other banks (so we exclude both the bank taken over as well as the acquiring bank).[23] As shown in Table IX, columns 3 and 4, results are only slightly affected by this correction of survivorship bias.

By choosing twelve CEE transition economies for our analysis we aimed to find a relatively homogeneous sample. Nevertheless, economic development has differed between countries that are located close to the EU and the South Eastern transition countries (e.g., Ukraine). In order to illustrate that these development differences within our sample do not affect our findings, we estimate specification 1 again for only those CEE countries that had joined the EU by spring 2004. These countries have in common that they are considered the more advanced transition economies and had to pass certain development criteria

[23] Most bank take-overs and mergers during our sample period occurred in the Czech Republic and Poland. In most countries there were state-initiated merger waves of government banks before privatization in the beginning of the nineties (before our sample period).

for EU membership.[24] Considering this more homogeneous group of countries also yields significant results as presented in Table IX, columns 5 and 6. When including bank and macroeconomic controls, the significance of the coefficient of the legal variable decreases somewhat, which might be explained by the reduction in sample size.

A possible concern with our analysis is that results could be caused by factors other than changes in the law. Thus, it is important to examine for other events that took place during our sample period that might drive our results. In general, such events should be controlled for by the chosen methodology, unless they are correlated with our legal indicators. Several countries in our sample underwent a banking crisis or restructuring during transition from a command to a market economy. Bulgaria had a banking crisis from 1995 to 1997, experiencing a bank run in 1996.[25] But the banking sectors in Latvia (1995-1997), Slovakia (1996-2000), and Ukraine (1997-1998) also experienced considerable solvency problems that might be classified as banking crises. Croatia (1996), Czech Republic (1995-1997), Lithuania (1995-1996), and Romania (1998-1999) had bank restructuring in the periods given in parentheses. To control for these events, we remove all observations related to crisis and bank restructuring periods (we also exclude the year after each crisis/restructuring period). Our results are robust to this sample adjustment (Table IX, columns 7 and 8).

[24] These countries are: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, and Slovenia. Thus, the EU sample excludes: Bulgaria, Croatia, Romania, and Ukraine.

[25] See Caprio and Klingebiel (2003) and de Haas and van Lelyveld (2006) for a summary on banking crises and bank failures in transition periods.

Furthermore, we exclude countries with major banking crises completely from our sample, leaving previous results unaffected (Table IX, columns 9 and 10).

A considerable fraction of banking assets have been privatized during our sample period (Bonin, Hasan, and Wachtel 2005). A possible concern resulting from this observation is that the previously observed increases in bank lending are caused through efficiency gains from bank privatization instead of improvements in the legal system. Furthermore, a considerable fraction of government banks were privatized by being sold to foreign banks. An inflow of foreign capital as a consequence of foreign banking privatization might also explain increases in lending. In order to address these concerns we reestimate our main specifications, excluding banks that were privatized during our sample period. In Table IX, columns 11 and 12, all banks that gained a foreign owner during our sample period, both through privatization or take-overs, as well as banks that were domestically privatized are excluded from our sample. All prior stated results are robust to this sample adjustment. It is worth noting that banking privatization had a considerable effect on total banking assets since banks being privatized were generally large in size. However, the number of banks being privatized during our sample period is relatively small in comparison to our overall sample size. Finally, we analyze whether the dates of bank privatization are clustered around the dates of legal changes. We find that banking privatization seems to be a contin-

uous process with mostly only one or two banks being privatized at each given year in each country.

One possible concern for our third hypotheses is that our findings are driven by foreign banking penetration due to the abolition of entrance barriers for foreign banks. The countries in our sample started off as closed economies, but liberalized entry quickly for foreign institutions to their domestic markets. While it is difficult to exactly date when foreign banks were allowed to totally freely enter the national banking markets, we find in all CEE states foreign banks that entered before 1995. Hungary allowed entry of foreign banks already in the mid-eighties. Finally, as an additional check we exclude each year as well as each country at a time from our sample. No specific country or year is driving our findings.

5.5. Interpretations and further evidence

Hypothesis 1 of this paper is in line with previous findings of the law and finance literature. Our second hypothesis has received less attention in the literature so far. Therefore, we want to shed further light into the plausibility of these findings. Unfortunately, the Bankscope database does not provide information on the nature of collateral banks take or the bankruptcy proceeding banks are involved in. To gain these insights, we provide data from the EBRD BEPS survey. H2a suggests the importance of collateral law in explaining bank lending. The "Collateral" indicator applied focuses on the possibility to pledge

personal (movable) assets. Table X, panel I, offers insight about the relative acceptance of movable assets as collateral. In practice, only 11.7 percent of banks state that they never or only seldom accept movable assets as collateral to secure loans. About 88 percent of banks respond that they accept movable assets sometimes to always to the same answer. In the next two columns, responses are split according to foreign and domestic banks. Also, foreign banks mostly accept movable assets. This underlines the importance of allowing for pledges on movable assets. In a recent study, Liberti and Mian (2005) have shown that banks generally accept movable assets from low agency risk firms, while banks prefer non-movable assets for firms subject to agency risk. Furthermore, movable assets are especially important for consumer finance when the face value of credit contracts is relatively small. Our finding about the importance of collateral law in comparison to bankruptcy law becomes evident when observing the high proportion of defaulted secured debt that is settled outside formal bankruptcy. As shown in Table X, panel II, more than 50 percent of recovered loans are proceeded outside formal bankruptcy, while banks indicate that they only recover about 21 percent of defaulted loans under formal bankruptcy (reorganization under bankruptcy makes up for only 5 percent of recovered loans). These figures offer a rough idea about the economic relevance of collateral law improvements for banks.

6. Conclusion

This paper attempts to improve our understanding of how law affects lending by focusing on legal changes in twelve transition economies. This allows us to deal with endogeneity concerns that have plagued previous research. Using bank level data and a DID methodology, we find that formal legal change does indeed promote lending by banks. We also find that a collateral regime is of greater importance for lenders than a bankruptcy regime. The collateral regime, however, has been vastly ignored in empirical work. This paper suggests that it may play a very important role, especially for emerging and transition economies where information asymmetries tend to be a greater concern. Further, we find that new entrants, in particular foreign banks, benefit more from legal change by expanding their lending volume to a greater extent than do incumbent domestic banks. Finally, our findings offer some important insights into the dynamics of how law affects financial development. We find that law affects financial development through both an increase in the number of banks in an economy as well as increased lending volume per bank. This paper thus sheds new light on the causal nexus between banks, lending, and the law.

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Table I
Descriptive Statistics

Notes: This table reports mean values of the most important balance sheet items for 1874 bank year observations of 323 different banks for the years 1995 to 2002. The sample is split up between foreign and domestic owned banks. Foreign banks are further classified into banks that have entered the market by a greenfield operation and those that have entered the market by take-over. Domestic banks are further split up into domestic private and government owned banks. All values are in millions of US dollars.

Variables	Foreign			Domestic		
	total	green	take-over	total	gov	dompriv
Obs.	814	487	327	1060	297	763
Loans	493.08	232.60	875.87	420.41	848.89	263.98
Assets	1070.14	498.16	1906.97	916.45	1913.63	551.19
Equity	95.97	43.04	173.50	80.37	148.74	55.33
Equity/Assets	0.12	0.12	0.12	0.16	0.13	0.17
Loan/Assets	0.47	0.47	0.49	0.46	0.46	0.45
Profit/Assets	0.01	0.01	0.01	0.01	0.01	0.01
Solvency	0.12	0.12	0.12	0.16	0.13	0.17
Liquidity	0.23	0.23	0.23	0.23	0.17	0.25
Market share	0.04	0.02	0.07	0.06	0.09	0.05

Table II
Overview of legal indicators

Definition	Collateral	Bankruptcy	Cred. Rights
Land as Security	x		x
Law Recognizes Non-Possessory Security Interest	x		x
Law Establishes Registration System for Non-Possessory Security Interests	x		x
Secured Creditors First		x	x
No Automatic Stay on Assets		x	x
Debtor Requires Creditor Consent for Filing for Reorganization		x	x
Creditor Trigger		x	x
Management Out		x	x

Table III
Coding of legal indicators

	1994	1995	1996	1997	1998	1999	2000	2001	2002
I. Collateral									
Bulgaria	1	1	1	3	3	3	3	3	3
Croatia	1	1	1	1	1	1	1	1	1
Czech Rep	1	1	1	1	1	1	1	1	1
Estonia	1	1	3	3	3	3	3	3	3
Hungary	1	1	2	3	3	3	3	3	3
Latvia	1	1	1	1	3	3	3	3	3
Lithuania	1	1	1	3	3	3	3	3	3
Poland	1	1	1	1	3	3	3	3	3
Romania	1	1	1	1	1	2	3	3	3
Slovak Rep	1	1	1	1	1	1	1	1	2
Slovenia	1	1	1	1	1	1	1	1	1
Ukraine	2	2	2	2	2	2	2	2	2
II. Bankruptcy									
Bulgaria	2	2	2	2	2	2	2	2	2
Croatia	0	0	2	2	2	2	2	2	2
Czech Rep	2	2	2	2	2	2	2	2	2
Estonia	2	2	2	2	2	2	3	3	3
Hungary	2	2	2	2	2	2	2	2	2
Latvia	2	2	3	3	3	3	3	3	3
Lithuania	2	2	2	2	2	2	2	2	2
Poland	1	1	1	1	1	1	1	1	1
Romania	0	2	2	2	2	2	2	2	3
Slovak Rep	2	2	2	2	2	2	3	3	3
Slovenia	2	2	2	2	2	2	2	2	2
Ukraine	2	2	2	2	2	2	3	3	3
III. Creditor Rights									
Bulgaria	3	3	3	5	5	5	5	5	5
Croatia	1	1	3	3	3	3	3	3	3
Czech Rep	3	3	3	3	3	3	3	3	3
Estonia	3	3	5	5	5	5	6	6	6
Hungary	3	3	4	5	5	5	5	5	5
Latvia	3	3	4	4	6	6	6	6	6
Lithuania	3	3	3	5	5	5	5	5	5
Poland	2	2	2	2	4	4	4	4	4
Romania	1	3	3	3	3	4	5	5	6
Slovak Rep	3	3	3	3	3	3	4	4	5
Slovenia	3	3	3	3	3	3	3	3	3
Ukraine	4	4	4	4	4	4	5	5	5

Table IV
Definition of variables

Variable	Definition	Source
I. Bank variables/ controls		
Loans	total customer loans in millions of US dollar	Bankscope (2004)
Assets	total assets in millions of US dollar	Bankscope (2004)
Solvency	ratio of equity capital divided by assets of each bank	Bankscope (2004)
Liquidity	ratio of liquid assets to total assets	Bankscope (2004)
Dumliquid	value of 1 if bank does not report liquid assets (0 otherwise)	Bankscope (2004)
Foreign	value of 1 if bank is foreign owned (0 otherwise)	hand collected
Green	value of 1 if bank entered market by greenfield operation (0 otherwise)	hand collected
II. Macro controls		
Lending rate	average lending rate prevailing in a country	World Bank (2004)
Deposit rate	average deposit rate prevailing in a country	World Bank (2004)
GDP	real GDP per capita growth	World Bank (2004)
Inflation	consumer price index	World Bank (2004)
Concentration	Herfindahl index of banks' market shares	Bankscope (2004)
Market share	bank's share of assets of total banking assets	Bankscope (2004)
LIBOR	London interbank offered rate	World Bank (2004)
III. Legal indicators		
Creditor Rights	Sum of Collateral and Bankruptcy	hand collected
Creditor Rights Mul	Product of Collateral and Bankruptcy	hand collected
Collateral	see Table II	hand collected
Colldum	value of 1 after improvement in collateral law (0 before)	hand collected
Bankruptcy	see Table II	hand collected
Bankdum	value of 1 after improvement in bankruptcy law (0 before)	hand collected
Rule of Law	index developed to measure law enforcement capabilities	Kaufmann et al. (2003)

Table V
Regression results for the legal indicators - Testing for H1 and H2a/b

Notes: Regression results from estimating specification $y_{it} = \alpha_t + \alpha_i + \gamma \cdot X_{it} + \delta \cdot CreditorRights_{jt-1} + \varepsilon_{it}$. In all regressions the dependent variable is the logarithm of loans. Variables are defined as in Table II. Standard errors are reported in parentheses. The regressions were run for 1874 bank year observations of 323 different banks for the years 1995 to 2002. Standard errors are block bootstrapped by clusters of their country of operation. The bottom line of the table states the adjusted R-squared of each estimation. ***Significantly different from 0 at the 1-percent level.

	(1)	(2)	(3)	(4)	(5)	(6)
Creditor Rights	0.163 (0.031)***	0.128 (0.040)***	0.161 (0.031)***	0.124 (0.039)***		
Collateral					0.193 (0.044)***	0.166 (0.064)***
Bankruptcy					0.115 (0.143)	0.06 (0.148)
$Loans_{jt(-i)}$			0.039 (0.270)	0.066 (0.308)		
bank/macro controls	no	yes	no	yes	no	yes
Adjusted R^2	90.12%	92.60%	90.12%	92.62%	90.14%	92.65%

Table VI
Multinational banks

Notes: Regression results from estimating specification $y_{st} = \alpha_t + \alpha_k + \alpha_j + \gamma \cdot X_{it} + \delta \cdot CreditorRights_{jt-1} + \varepsilon_{st}$. In all regressions the dependent variable is the logarithm of loans. Variables are defined as in Table II. Standard errors are reported in parentheses. The regressions were run for 534 subsidiary year observations of 27 multinational banks for the years 1995 to 2002. Standard errors clustered by country of operation. The bottom line of the table states the adjusted R-squared of each estimation. * Significantly different from 0 at the 10-percent level. **Significantly different from 0 at the 5-percent level.

	(1)	(2)	(3)	(4)	(5)	(6)
Creditor Rights	0.119 (0.049)**	0.107 (0.054)*	0.286 (0.124)**	0.212 (0.099)*		
Collateral					0.134 (0.060)**	0.135 (0.056)**
Bankruptcy					0.079 (0.039)*	0.020 (0.040)
$Loans_{jt(-i)}$			-0.159 (0.189)	0.268 (0.091)**		
bank/macro controls	no	yes	no	yes	no	yes
Adjusted R^2	50.82%	65.08%	50.84%	65.30%	50.77%	65.23%

Table VII
Regression results testing for H3

Notes: Regression results from estimating specification $y_{it} = \alpha_t + \alpha_i + \gamma \cdot X_{it} + \beta \cdot OWN_{it} + \theta \cdot Legal_{jt} + \delta \cdot OWN_{it} \cdot CreditorRights_{jt} + \varepsilon_{it}$. In all regressions the dependent variable is the logarithm of loans. Variables are defined as in Table II and Table IV. Standard errors are reported in parentheses. The regressions were run for 1874 bank year observations of 323 different banks for the years 1995 to 2002. All standard errors are clustered by country of operation and block bootstrapped when indicated at the bottom of the table. The bottom line of the table states the adjusted R-squared of each estimation. A reported dash means that the respective coefficient got absorbed by the fixed effects in the specification. * Significantly different from 0 at the 10-percent level. **Significantly different from 0 at the 5-percent level. ***Significantly different from 0 at the 1-percent level.

	(1)	(2)	(3)	(4)	(5)	(6)
Creditor Rights	0.136 (0.035)***	-	-	0.149 (0.038)**	-	-
Foreign	-0.605 (0.272)*	-0.723 (0.245)***	-0.544 (0.158)***			
Creditor Rights*Foreign	0.102 (0.040)**	0.144 (0.036)***	0.088 (0.036)**			
Green				-	-	-
Creditor Rights*Green				0.095 (0.038)**	0.135 (0.091)	0.112 (0.060)*
bank/macro controls	no	no	yes	no	no	yes
country*year intercepts	no	yes	yes	no	yes	yes
bootstrap	yes	no	no	yes	no	no
Adjusted R^2	90.20%	91.46%	93.91%	90.06%	91.41%	93.89%

Table VIII
Nature of legal indicator

Notes: Regression results from estimating specification $y_{it} = \alpha_t + \alpha_i + \gamma \cdot X_{it} + \delta \cdot CreditorRights_{jt-1} + \varepsilon_{it}$. In all regressions the dependent variable is the logarithm of loans. Variables are defined as in Table II and Table IV. Standard errors are reported in parentheses. The regressions were run for 1874 bank year observations of 323 different banks for the years 1995 to 2002. Standard errors are block bootstrapped by clusters of their country of operation. The bottom line of the table states the adjusted R-squared of each estimation. * Significantly different from 0 at the 10-percent level. **Significantly different from 0 at the 5-percent level. ***Significantly different from 0 at the 1-percent level.

	(1)	(2)	(3)	(4)	(5)	(6)
Creditor Rights (t+1)	-0.003	0.008				
	(0.109)	(0.110)				
Creditor Rights (t)	0.085	0.084				
	(0.041)**	(0.036)**				
Creditor Rights (t-1)	0.157	0.097	0.175	0.147		
	(0.045)***	(0.027)***	(0.039)***	(0.058)**		
Creditor Rights (t-2)	-0.062	-0.025				
	(0.061)	(0.053)				
Rule of Law			-0.005	-0.009		
			(0.017)	(0.016)		
Colldum					0.343	0.307
					(0.128)***	(0.169)*
bank/macro controls	no	yes	no	yes	no	yes
Adjusted R^2	90.22%	92.65%	90.12%	92.97%	90.00%	92.58%

Table IX
Sample related issues

Notes: Regression results from estimating specification $y_{it} = \alpha_t + \alpha_i + \gamma \cdot X_{it} + \delta \cdot CreditorRights_{jt-1} + \varepsilon_{it}$. In all regressions the dependent variable is the logarithm of loans. Variables are defined as in Table II. Standard errors are reported in parentheses. The regressions were run for the sample as indicated above each regression output. Standard errors are block bootstrapped by clusters of their country of operation. The bottom line of the table states the adjusted R-squared and number of observations N of each estimation. * Significantly different from 0 at the 10-percent level. **Significantly different from 0 at the 5-percent level. ***Significantly different from 0 at the 1-percent level.

	(1)	(2)	(3)	(4)	(5)	(6)
Sample	balance	balance	no M&A	no M&A	EU	EU
Creditor Rights	0.176	0.147	0.175	0.134	0.193	0.108
	(0.050)***	(0.055)***	(0.034)***	(0.043)***	(0.054)***	(0.063)*
bank/macro controls	no	yes	no	yes	no	yes
Adjusted R^2	89.16%	91.47%	89.66%	92.30%	90.96%	93.15%
N	946	946	1719	1719	1241	1241
	(7)	(8)	(9)	(10)	(11)	(12)
Sample	no crises & bank restruct.	no crises & bank restruct.	crises countries out	crises countries out	privatization out	privatization out
Creditor Rights	0.156	0.136	0.134	0.109	0.160	0.114
	(0.052)***	(0.054)***	(0.048)***	(0.049)***	(0.032)***	(0.039)***
bank/macro controls	no	yes	no	yes	no	yes
Adjusted R^2	92.68%	94.19%	90.76%	93.19%	90.12%	92.80%
N	1394	1394	1280	1280	1487	1487

Table X
Use of movable assets and bankruptcy proceedings in practice

Notes: This table reports responses of the EBRD Banking Environment and Performance Survey (BEPS). In panel I answers are reported to the following question: "How frequently did your bank accept movable assets as security for loans?" In panel II answers are reported to the following question: "Indicate the proportion of defaulted debt recovered before fees and expenses on secured loans in default resolved through: - proceedings outside bankruptcy, - liquidation proceedings under bankruptcy, or - reorganization proceedings under bankruptcy" Answers are further divided according to bank ownership (foreign/domestic). Responses are of 219 banks for the year 2004. For the second question, percentage values do not add up to 100 since banks did not respond to some questions. Non-respondents were about equal between the three response categories.

	all banks	domestic banks	foreign banks
Panel I: Use of movable assets			
never/seldom	11.7%	6.4%	16.0%
sometimes/frequently	66.9%	68.0%	66.0%
almost always/always	21.4%	25.6%	18.0%
Panel II: Use of bankruptcy proceedings			
Outside formal bankruptcy	51.4%	56.9%	38.1%
Liquidation under bankruptcy	16.5%	13.5%	22.8%
Reorganization under bankruptcy	4.7%	3.7%	6.9%