

**Preliminary**



Inter-American Development Bank  
Banco Interamericano de Desarrollo (BID)  
Research Department  
Departamento de Investigación

**Creditor Protection and Financial Markets:  
An Overview of Empirical Evidence and Implications for Latin America**

Arturo Galindo  
Alejandro Micco

Inter-American Development Bank

October 2003

# **Creditor Protection and Financial Markets: An Overview of Empirical Evidence and Implications for Latin America**

## **1. Introduction**

Latin American countries have undergone significant financial sector reforms since the early 1990s. Despite significant advances in liberalizing financial markets and the overall positive impact of liberalization on the allocation of credit towards growing economic activities,<sup>1</sup> financial markets remain shallow, suggesting that further reform is still needed.

One candidate for further reform is the protection of creditor rights. In their seminal research on creditor rights La Porta, López-de-Silanes, Shliefer and Vishny (1997, 1998) show that creditor protection in Latin American countries is extremely weak. In this paper we argue that the protection of creditor rights is an area where Latin American countries should undertake major reform in order to exploit the advantages of deep and stable financial markets.

To illustrate the importance of creditor rights, a basic model can be considered. The basic credit contract involves three players: the creditor, the debtor, and the institutions that guarantee that each of the other parties will live up to its responsibilities. If institutions are inadequate, it is likely that the benefits that the other parties have to gain from renegeing on the debt contract can be so pronounced that they prevent the realization of the contract. Hence, the ability of these institutions to align the players' incentives with the clauses of the debt contract can become an engine for promoting

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<sup>1</sup> See Galindo, Schiantarelli and Weiss (2002) for a discussion on financial liberalization and credit allocation.

financial depth. In fact, the rights of creditors to the assets pledged as collateral have a major role in explaining the depth of financial markets, the allocation of credit among different groups of investors, and the way the allocation and amount of credit react to economic shocks. Several recent papers, moreover, have shown the importance of these relationships. This paper surveys empirical evidence, reports new evidence on the impact of creditor rights protections on small and medium-sized enterprises' access to credit, and relates it to the Latin American experience.

In addition to the considerations above, the degree to which creditors are protected can have an impact on how other types of reforms affect financial markets. Galindo, Micco and Ordoñez (2002), for example, show that the impact of financial liberalization on economic growth depends on the quality of underlying institutions. In particular, they show that financial liberalization has little impact in countries where creditor rights are unprotected. This paper does not address that issue, however, but rather concentrates on the direct effects of creditor protections on financial markets.

The rest of the paper is organized as follows. Section 2 documents the state of creditor protection in Latin America. Section 3 provides a general framework for understanding the empirical links described in the subsequent sections. Section 4 surveys evidence on the impact of creditor protection on the size of financial markets. Section 5 presents and discusses new evidence on the impact on small and medium-sized debtors of enhancing creditor rights. Section 6 presents evidence on the impact of creditor rights regulations on the dynamics of financial markets, and Section 7 concludes.

## 2. Creditor Rights in Latin America

Recent papers by La Porta, López-de Silanes, Shleifer and Vishny (1997 and 1998) have given new impetus to the empirical discussion on the importance of regulations regarding the rights of creditors to borrowers' assets by providing very valuable data on the state of creditor rights regulations around the world. The La Porta et al. study collects information on various regulations regarding creditor rights protections. Using this information the authors construct an index that summarizes regulations determining creditors' rights to control collateral in case firms file for reorganization or bankruptcy. La Porta et al. consider whether: i) regulations impose an automatic stay on assets in case of reorganization; ii) secured creditors have the right to be paid first in case of bankruptcy; iii) regulations require firms to consult with creditors before filing for reorganization; and iv) regulations mandate removal of the firm's management during reorganization. A positive response to each of the four elements of the index is interpreted as creditor rights protection. It should be noted that this measure goes beyond collateral repossession exclusively since it focuses on total asset liquidation in case of bankruptcy.

Table 1 summarizes the La Porta et al. creditor rights measure for Latin American countries as well as for the average level in OECD and South East Asia countries. While this measure illustrates the degree to which regulations protect creditors, it might be insufficient given that law enforcement can vary from country to country. If one takes into account that law enforcement is weak in Latin America, it is likely that creditors may not enjoy de facto protection. In order to incorporate such weakness in law enforcement into our measure of creditor protection, we create a new index labeled *effective* creditor

rights that multiplies the La Porta et al. creditors' rights index by a rule of law measure. The last column of Table 1 reports the values of this index for Latin American and Caribbean countries, with higher values implying higher *effective* protection. Once rule of law is factored in, the conditions for Latin America look even worse, as creditor rights in the region are not only weak, but also barely enforced. Based on this methodology, it is only fair to say that creditor protection in Latin America is extremely weak.

### **3. Creditor Rights and Financial Markets: A Framework**

In order to understand how creditor rights protections affect credit markets, we develop a simple model based on Holmstrom and Tirole's (1997, QJE and 1998, JPE) that includes the effect of creditor rights and collateral on credit. Consider an economy in which firms seek to finance similar investment projects of a size normalized to one.<sup>2</sup> Entrepreneurs are risk-neutral, and they are differentiated among themselves by their initial wealth that consists of a non-productive asset  $\delta A_i > 0$  that they may only use as collateral (e.g., a house).<sup>3</sup> The cumulative distribution of entrepreneurs' illiquid asset is  $F$ , which we consider exponential for purposes of simplicity.

Firms' projects can either succeed with probability  $p$ , in which case the project yields  $R^S \delta > 1$ , or fail with probability  $(1-p)$ , in which case the project yields 0. In case of failure, the project has residual value of  $L\delta < 1$ . We interpret  $\delta$  as business-cycle conditions exogenous to the firm managed by the entrepreneur.

The project is subject to moral hazard in the sense that the probability of success depends on the entrepreneur's actions. When the entrepreneur behaves properly, the

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<sup>2</sup> A complete discussion of this model is presented in Galindo, Micco, Suarez (2003).

probability of success is  $p_H$ . On the other hand, when the entrepreneur shirks, he obtains a private benefit of  $B\delta > 0$  regardless of the outcome of the project, but at the cost of reducing the probability of success to  $p_L < p_H$ . The entrepreneur's actions are not verifiable, but the outcome of the project is. We assume that the project is profitable (including private benefits) only if the entrepreneur behaves:

$$p_H R^S \delta > 1 > p_L R^S \delta + B\delta \quad [A1]$$

Suppose that in equilibrium a Bank is willing to finance the entrepreneur's project at date  $t_0$ . In case of success at date  $t_1$  the Bank receives  $R_B^S$ . In case of failure, the entrepreneur is unable to repay her debt and the bank has the legal right to seize the residual value of the project and the amount of non-productive asset  $A_i^P$  that the entrepreneur pledged as additional collateral.<sup>4</sup> When the project fails, an outcome that we will interpret here as bankruptcy, there is a liquidation cost proportional to the total collateral  $(1 - \alpha)(A_i^c \delta + L\delta)$ ,  $\{1 < 1 - \alpha < 1\}$ . In addition, during the liquidation process, the entrepreneur is able to keep a fraction "x" of the value that should be transferred to the lender. We identify  $\alpha$  and  $x$  with efficiency in the bankruptcy process and creditor rights protection, respectively.

In equilibrium the entrepreneur's expected profit is:

$$p_H (\delta R^S - R_B^S + A_i^c \delta) + (1 - p_H)(1 - x)\alpha(A_i^c \delta + L\delta) - A_i^c$$

where  $A_i^c$  is the amount of the non-productive asset that the entrepreneur offers as collateral.

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<sup>3</sup> We can think of this asset as a durable good.

The entrepreneur is willing to behave if and only if the payoff associated with shirking is not higher than the payoff of behaving. The expected payoff of behaving is proportional to the increase in the probability of success ( $\Delta p$ ) and the difference between the entrepreneur's respective payoffs in case of success and failure. This increase in expected profit must be greater than the entrepreneur's private benefit associated with shirking ( $B\delta$ ). Formally, this condition is:

$$\Delta p \left\{ (R^S - R_B^S + A_i^c \delta) - (1-x)\alpha(L\delta + A_i^c \delta) \right\} \geq B\delta$$

Finally, we assume that banks are risk neutral and competitive, and that they face an infinitely elastic supply of deposits. The risk-less interest rate is normalized to zero. These assumptions imply that in equilibrium banks break even and therefore the gross interest rate they charge ( $R_B^S$ ) satisfies the following condition:

$$p_H R_B^S + (1 - p_H)x\alpha(L\delta + A_i^c \delta) = 1$$

Under the previous assumptions, the optimal contract specifies a payment in case of success and in case of failure, as well as a level of additional collateral that solves the following program:

$$\begin{aligned} & \max \{ p_H (\delta R^S - R_B^S + A_i^c \delta) + (1 - p_H)(1-x)\alpha(A_i^c \delta + L\delta) - A_i^c \} \\ & s.t. \\ & \Delta p \left\{ (R^S - R_B^S + A_i^c \delta) - (1-x)\alpha(L\delta + A_i^c \delta) \right\} \geq B\delta \quad R1 \\ & p_H R_B^S + (1 - p_H)x\alpha(L\delta + A_i^c \delta) = 1 \quad R2 \\ & (R^S - R_B^S + A_i^c \delta) \geq 0 \quad R3 \end{aligned}$$

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<sup>4</sup> We can describe the contract as standard risky debt, with face value  $R_B^S$ . If the borrower is unable to pay back at least this amount, default occurs triggering bankruptcy. In case of default, the lender has the legal right to seize the asset.

Solving for  $R_B^S$  in restriction R2 and plugging its value into entrepreneur's profit, we can see that the latter decreases by  $A_i^c$ . Thus, the entrepreneur is willing to reduce  $A_i^c$  as much as possible until restriction R1 becomes binding. Using R1 we can solve for  $A_i^c$ :

$$\bar{A}_i^c = \frac{1/\delta + p_H(\frac{B}{\Delta p} - R^S) + (p_H - x)\alpha L}{p_H + (x - p_H)\alpha} \quad [1]$$

All entrepreneurs with wealth equal to or greater than  $\bar{A}^c$  will be able to finance their project, but entrepreneurs with little wealth will not be able to finance their project due to the moral hazard problem even though they have a positive net present value. The fraction of projects financed in this economy is given by one minus the cumulative distribution of wealth evaluated at the minimum level of  $A_i^c$  required to induce the entrepreneur to behave ( $\bar{A}^c$ ). This implies that the total amount of credit is equal to:

$$C = 1 - F(\bar{A}^c) \quad [2]$$

From equations [1] and [2] we derive three intuitive results from the model:

- First, the more efficient the bankruptcy process ( $\alpha$ ), meaning the lower the bankruptcy cost, the greater the amount of credit in the economy. The same is true for the case of creditor rights ( $x$ ).
- Second, the greater the efficiency of the bankruptcy procedure and the level of creditor rights, the larger the number of entrepreneurs with little collateral who obtain credit. Note that this has special implications for small and medium-sized enterprises' access to credit, since they are usually firms with reduced access to standard forms of collateral.

- Third, during recessions credit falls because payoffs as well as the value of entrepreneurs' collateral fall.

Finally, we study the relationship between the level of credit and the business cycle. As previously mentioned, we interpret a recession as a lower level of  $\delta$ . The elasticity of credit with respect to  $\delta$  is:

$$\xi_{C,\delta} = \frac{1}{\delta} \frac{1}{p_H + (x - p_H)\alpha} HR(\bar{A}^c) \quad [3]$$

where

$$HR(\bar{A}^c) = \frac{f(\bar{A}^c)}{1 - F(\bar{A}^c)} \quad : \text{ the hazard rate}$$

As noted above, Equation [3] implies that credit falls during recessions. To see whether the volatility of credit decreases with efficient bankruptcy procedures as well as with better creditor rights we derive equations [4] and [5] by taking derivatives of [3] with respect to  $x$  and  $\alpha$ :

$$\frac{d\xi_{C\delta}}{dx} = \left( \frac{\alpha}{p_H + (x - p_H)\alpha} \xi_{C\delta} \right) \quad [4]$$

$$\frac{d\xi_{C\delta}}{d\alpha} = \left( \frac{(x - p_H)}{p_H + (x - p_H)\alpha} \xi_{C\delta} \right) \quad [5]$$

In short, the better the creditor rights (high  $x$ ) and the more efficient the bankruptcy procedure,<sup>5</sup> the smaller the decline in credit during recessions. This last result

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<sup>5</sup> This result holds for any distribution with a non-extreme decreasing hazard rate (e.g., exponential, Weibull with  $p > 1$ , uniform and log-normal).

implies that countries with inefficient bankruptcy procedures and lower creditor rights should have a higher volatility in credit over the cycle.

Summarizing, our simple model provides three main conclusions. Higher creditor rights and efficiency in the bankruptcy procedure i) increase the financial depth, ii) allow opaque (small) entrepreneurs to have access to credit, and iii) reduce credit volatility over the business cycle. The next section provides empirical evidence for these three results.

#### **4. Creditor Rights and Financial Breadth**

Several research papers have linked creditor rights protection to financial depth.<sup>6</sup> The main argument behind this relationship is that the protection of creditor rights guarantees an environment in which creditors and debtors will wish to pursue financial contracts. Creditor rights protection stimulates both lenders and borrowers to enter into financial contracts and to abide by their clauses and thus constitutes an essential ingredient of financial development. This is a standard interpretation of equations [1] and [2] in the previous section.

Consequently, advocates of creditor rights-oriented regulations claim that if the right to repossess collateral in case of debtor default is not strictly protected, the use of collateral will lose its important role in solving the information asymmetries that can lead to credit rationing and underinvestment.<sup>7</sup>

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<sup>6</sup> See for example La Porta et al. (1997, 1998), Padilla and Requejo (2000), and Galindo and Micco (2001). Galindo and Micco (2001) develop a model in which the asymmetry of responses of credit markets to shocks is linked to the institutional set up; the authors estimate the responses using a panel of over 50 countries with information ranging from 1990 to 1999.

<sup>7</sup> Among many uses described thoroughly in Coco (2000), collateral can solve problems derived from asymmetries in valuation of projects, uncertainty about the quality of projects and the riskiness of borrowers, and problems related to the cost of monitoring or supervising the borrower's behavior. When not dealt with, these problems can lead to partial or complete credit rationing. Collateral requirements can solve or at least mitigate the impact of these problems on the extension of credit. Such requirements help

Theoretical findings regarding the role played by collateral in mitigating problems derived from asymmetric information are based on the presumption that collateral can be repossessed by the creditor in case of default. That is, it is presumed that a third party stands ready to protect and enforce the creditor's security interest on the collateral stipulated in the debt contract. The right to repossess collateral as well as efficiency in doing so act as a threat that can ensure that borrowers will not engage in inadequate behaviors, and this threat can serve to align the borrower's incentives with the clauses of the contract. If lenders feel that regulations do not protect them, and that their chance of taking control over the assets pledged as collateral is uncertain, they are likely to prefer not to extend credit, since the implicit bankruptcy risk will severely reduce their expected earnings. Under these circumstances, credit rationing will resurface. Therefore countries with a higher degree of creditor protection can be expected to enjoy deeper debt markets since they can take advantage of the use of additional non-interest clauses such as collateral to mitigate problems derived from information asymmetries (the first conclusion from our simple model).

The creditor rights measure developed by La Porta et al. (LLSV) has been used in several studies to address a number of important questions. LLSV examine the impact of creditor rights regulations on the size of credit markets and also explore the determinants of creditor rights, reaching the conclusion that legal systems based on the French civil law tradition, as is the case for Latin American countries, tend to grant less protection to creditors and more to debtors than do systems based on the Anglo-Saxon legal tradition.

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to reduce asymmetric valuation problems, that is, the conflict that arises when borrowers and lenders disagree about the true value of the project; reduce credit rationing since pledging collateral can convey information about borrowers and about the projects to be financed; and alleviate moral hazard problems by adding a potential cost to borrowers if they do not make their best effort to succeed.

Empirical evidence further suggests that creditor protection can have a significant impact on the development of financial markets.<sup>8</sup> In summary, after controlling for relevant features such as inflation, past economic growth, the size of the economy, and fiscal imbalances, a strong correlation between creditor protection and financial sector development is found in most empirical studies

In this section we report regressions similar to those in LLSV and in PR with a few variants. First, we introduce the variables that we call effective creditor rights 1 and effective creditor rights 2, which are the interaction of the rule of law variable and the creditor rights index, and of the efficiency of the judiciary and the creditor rights indexes. These variables capture the effects of law enforcement and efficient judicial procedures on creditor regulation. Countries with high creditor rights can lose their benefits if rules and regulations are not enforced or if they are enforced inefficiently. The rest of the variables are similar to LLSV's. In order to isolate any possible cyclical effect from the dependent variable we take an average of private credit to GDP during the 1990s.<sup>9</sup> Following LLSV, we include as controls the average growth rate since 1970 and the size of the economy proxied by the 1990s average of Log(GNP); following Padilla and Requejo we include in our regression the average of inflation and the government's deficit.

Table 2 presents our cross-country results. Each column represents a different specification. As in previous empirical studies, the creditor rights index in itself appears significantly at a marginal level. The effective creditor rights indexes appear highly

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<sup>8</sup> La Porta et al., Padilla and Requejo (2000), and Galindo and Micco (2001) show that creditor protection can impact the size of financial markets, the level of interest rates and the level of non-performing loans.

significant, as well as the rule of law, the efficiency of the judiciary, the risks of contract repudiation and of expropriation, and the property rights variables. To some extent all of these variables reflect creditor rights. Column (10) includes a variable constructed using the principal components of all of the above, and it also comes in significant. Finally, the last column includes the legal origin of countries as regressors, as previous studies have shown that legal origin is a good exogenous proxy for creditor protection. Column (11) shows the impact of different legal origins on credit markets. The main result is that countries whose legal systems are based on the French civil tradition have shallower financial markets than others. As in LLSV, the finding here is that common law countries provide better protection to creditors. The main result of the table is evident. Better legal protections enhance the ability of creditors to operate in risky environments and increase the depth of credit markets. There are several reasons for this. From the perspective of our model credit markets are deeper due to the fact that protections increase the implicit value of collateral, or alternatively reduce liquidation costs in case of borrower default. For example, lower protection reduces the possibility of seizing collateral at low cost and hence reduces the expected return to creditors in case of default. The implicit increase in credit risk shrinks credit markets.

Basic macro controls such as inflation and budget deficit are significant in most specifications and come in with a negative and positive sign, respectively, suggesting that macroeconomic imbalances are harmful for financial market development. Average growth rates and the level of GNP are rarely significant.

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<sup>9</sup> The variable credit to private sector is extracted from the World Bank's World Development Indicators and refers to financial resources provided to the private sector, such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment.

Summarizing, this section has shown robust evidence that confirms results previously presented in the empirical literature. Countries with higher creditor protection, higher law enforcement, and more efficient judicial systems tend to have deeper credit markets than those where legal protections are low. Hence there is a link through which legal protections can impact the real economy. It is nonetheless worth noting that, while these exercises provide some evidence on the importance of creditor protection for financial markets, they do not allow for conclusions on what is the best form of regulation.

## **5. Creditor Protection and Access to Credit**

Informational asymmetries tend to increase financial restrictions for smaller creditors who usually have less assets to pledge as collateral, and extensive empirical evidence suggests that “size matters” for financial constraints is extensive. The main intuition behind this result is that, as opposed to large firms, smaller borrowers are not able to internalize many of the capital allocation functions carried out by financial markets. Hence financial development may have a disproportionate impact on smaller firms. This implication can easily be linked to the framework in Section 3 (equations [1] and [2]).

In this section we present evidence of different degrees of creditor rights protection on access to credit for small and medium size enterprises. For this purpose we use the World Business Environment Survey (WBES) database. The WBES is a cross-country firm-level survey conducted in 54 developed and developing countries in 1999.

The survey includes information on firm characteristics as well as on entrepreneurs' perceptions of several issues, including access to financial markets.<sup>10</sup>

In particular, we test whether the share of firms investment financed with bank credit depends on legal protections, and whether this is affected by the size of firms. The survey classifies firms into three groups. Firms with fewer than 50 employees are labeled as small, firms with more than 50 but fewer than 500 are medium sized, and firms with more than 5000 are considered large. We test whether the interaction of different creditor protection measures with the size of the firm influences the degree to which investment is financed with bank credit.

The results are reported in Table 3. Given that the dependent variable in these regressions is naturally truncated between 0 and 1, the empirical model is estimated using a standard two-limit Tobit model. Odd columns report results when including country specific effects. Even columns do not include country specific effects, but instead use macro-level controls. The results clearly indicate that, in comparison to large firms, medium-sized and small firms finance significantly less of their investment with bank credit. In fact, the share of bank credit in smaller firms is on average lower than that of medium-sized firms. However, the degree to which smaller firms are constrained depends on the quality of the regulatory framework. The interaction between the small firm dummy and the legal determinants is consistently significant and positive across specifications, suggesting that in countries where creditor rights are protected (and enforced) smaller firms can access more bank credit to finance their investment.

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<sup>10</sup> Previous uses of this database to test credit restrictions on small and medium sized firms include Clarke et al. (2002), who analyze whether foreign banks affect credit to smaller firms, and Love and Mylenko (2003), who analyze whether credit information registries affect financing constraints to these types of firms. This study follows an approach similar to those of both previous studies.

In the case of medium-sized firms, the evidence is weaker but nonetheless suggestive; only in three of the specifications do we find significant interactions. However, the coefficient is always positive, suggesting some slight improvement for these types of debtors when creditor protections are enhanced.

The WBES also provides information on how entrepreneurs view their position with respect to credit markets. In Appendix 1 we study how their perceptions with respect to several proxies of credit restrictions vary across countries with different creditor protection and by firm size classes. The results are in line with those presented in this section.

The overall evidence of this section suggests that creditor protection tends to reduce significantly the financing constraints of smaller and medium-sized creditors. The ability to pledge collateral can be substantially more important for firms lacking internal capital markets or other forms of access to formal financial markets. Consequently, a reform aimed at increasing creditor protections can not only increase the size of financial markets and promote economic growth, but can also have a significant impact on credit allocation and income distribution.

## **6. Creditor Rights and Financial Volatility**

In addition to promoting the depth of credit markets in general and reducing constraints on smaller and medium-sized debtors in particular, credit protection can also reduce the impact of adverse shocks over the credit cycle. If creditor rights are protected, when the economy faces an adverse shock that increases credit risk, the extent to which credit contracts will depend on the regulations regarding collateral repossession. If creditors

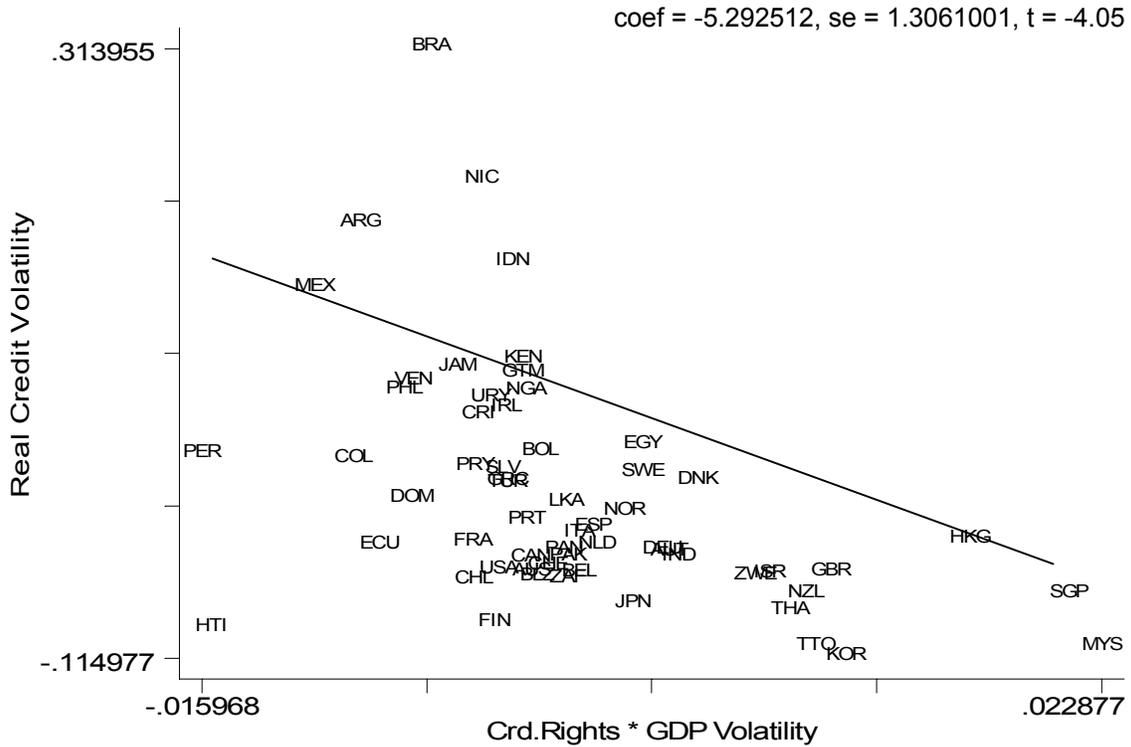
cannot recover the collateral pledged in case borrowers default, it is likely that the overall increase in credit risk experienced during a recession will be exacerbated by the fact that creditors will not even be able to recover the collateral. In such cases, the credit market overreacts to the exogenous shock and credit strongly contracts. This result is derived from equations [4] and [5] in Section 3.

To test the validity of this proposition, Galindo and Micco (2001) construct a panel of information for the 1990-1999 period for a sample of developed and developing countries. The panel is unbalanced due to lack of information on several years for some countries, and it is confined to the 1990s in order to avoid the impact of possible changes in regulation that cannot be captured due to the fact that the legal data are collected on only one moment in time. These authors find that countries with lower effective creditor rights seem to have lower credit volatility after controlling for GDP volatility. Figure 1 suggests that the effect of shocks (proxied by changes in GDP) on real credit is amplified by low creditor rights.<sup>11</sup> In terms of this sample, an improvement in effective creditor rights from the 19<sup>th</sup> percentile—Brazil—to the 80<sup>th</sup> percentile—Norway—reduces credit volatility by almost 50 percent (from 9.2% to 4.8%).

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<sup>11</sup> In the most formal analysis we deal with the potential inverse causality in this relation.

**Figure 1. Credit Volatility and Creditor Rights**  
(Controlling by GDP Volatility)



Source: Galindo and Micco (2001).

To study this relationship more formally we estimate the following empirical model:

$$\Delta credit_{i,t} = \alpha + \beta Shock_{i,t} + \delta legal\_protection_i * Shock_{i,t} + \varepsilon_{i,t}$$

where *legal\_protection* represents the different measures of legal protections as introduced in the previous section,  $\Delta$  credit is the growth rate of real private credit (as defined above in footnote 16), and *Shock* is a proxy of the yearly change in the state of the economy. We use two measures for this proxy. First, we construct a measure of

exogenous shocks, which is basically the weighted average of the real growth rates of the countries' trading partners.<sup>12</sup> Second, we proxy by GDP growth. Due to possible endogeneity of real GDP we instrument this measure with the external shock variable. In order to capture the changing nature of the coefficient across different legal regimes we interact the state of the economy proxy variable with creditor protection, and in order to control for possible trend components we include average GDP growth during the period.<sup>13</sup> We report OLS coefficients for the external shock variable and two-stage least square instrumental variables estimators for the GDP growth measure of shocks in tables 5 and 6.

Table 5 immediately suggests that an increase in almost any of the legal protections reduces the amplitude of the real credit cycle. In particular, it is interesting to note the role of effective creditor rights (column 1) and specifically of creditor rights (column 2) in reducing the amplitude of the cycle, even when controlling for rule of law separately (column 3). We find that countries with legal systems of French origin countries tend to experience higher volatility than common law countries. These results support the implications of our model, as credit is more stable in countries with high creditor legal protection. When credit markets are hit by negative shocks, creditors in countries with low legal protection experience high losses since they are not even able to seize the collateral pledge. Such a loss translates into a strong contraction of credit. On the other hand, in the face of positive shocks, credit increases more in these countries than elsewhere, as there is an opportunity to compensate for losses during downturns. In

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<sup>12</sup> GDP growth is weighted by total exports to the country divided by domestic GDP. Note that the weight does not equal one.

<sup>13</sup> We also included change in inflation and the government's budget deficit in our regressions. The results were not significant and are not reported, but they are available from the authors upon request.

countries with high legal protection, however, credit is more stable since creditors face lower liquidation costs and hence experience lower losses than in countries where protections are not in place.

The instrumental variables estimation in Table 6 captures the impact of the exogenous component of GDP growth on credit expansion. The results, though slightly weaker, remain mostly unchanged.

The main intuition driving these results is that weak creditor protection can exacerbate the increase in credit risk that occurs naturally in recessions. When economies are hit by adverse shocks and creditors are not protected, lenders will disproportionately reduce their lending, given that when facing an adverse economy-wide shock, like a reduction in the terms of trade or a reversal of international capital flows, their chances of recovering either their loans or the collateral that guarantees them are slim.

## **7. Conclusions**

It is common knowledge that many Latin American countries have gone through intense reform processes during the past 15 years, and many of these reforms have been aimed at increasing the size and stability of credit markets. The region's financial markets nonetheless remain comparatively small and volatile, particularly with respect to other emerging market economies.

Empirical research suggests that the protection of creditor rights is an area where much reform must still be undertaken. In general, the protection of creditor rights is weak in Latin America due to both insufficient regulations and ineffectiveness in enforcing those regulations. This paper surveys existing evidence and provides new evidence on the

role of creditor protections in increasing the size, the scope of access, and the stability of credit markets. The evidence presented suggests that stricter creditor rights protections can contribute to increasing the size of credit markets, reducing their instability, and increasing access, especially for small and medium-sized enterprises that naturally tend to experience tighter financial constraints.

In addition to the areas of direct influence explored in this paper, it is worthwhile to recognize additional research pointing out how other types of reforms require creditor rights protections in order to maximize their effectiveness. Recent research has pointed out that financial liberalization, in particular that of domestic financial markets (including liberalizing interest rate caps, eliminating directed credit, and the like), only has a positive impact in countries with strong creditor rights protection and enforcement. Creditor rights protections allow lenders to take advantage of liberalization by granting them the instruments to deal properly with credit risk.

The importance of rules and regulations that govern credit contracts has been stressed time and again. Nonetheless, the reforms undertaken so far have been insufficient. Several reasons explain the inadequacy of reform in this area. First, there is not one specific area to reform in order to achieve an adequate framework for protecting creditors. Not only do rules and regulations in different codes regarding seizing collateral need to be reformed, with all the complexity that this usually involves in civil law countries, but also, and probably more importantly, the judicial system needs to be made more agile. With these goals in mind, several analysts have formulated principles concerning an adequate framework for secured transactions, and the EBRD has drafted some basic principles to define a well-functioning regulatory framework for secured

transactions. Such principles clearly note the need to establish out-of-court remedies that assure prompt, effective and relatively less expensive enforcement of creditor rights. However, the civil law tradition also limits this alternative, making it difficult (but not impossible) for lawmakers to achieve a satisfactory reform. Despite these difficulties Eastern European countries such as Romania and Estonia have been able to implement many of these principles.

In addition to the problems noted above, the political economy problem faced by policymakers when deciding whether to execute these types of reform is far from trivial. Despite the fact that there is a certain degree of awareness on the importance of this topic, there is also a great degree of misunderstanding. In general the public might view these sorts of policies as a way to redistribute wealth in favor of the already-demonized financial sector, which can lead to a loss of popularity of such reforms. This issue, however, is a matter for future research.

## **Appendix 1**

In addition to the other information noted in the text of this paper, the WBES also provides information on how entrepreneurs view their position with respect to credit markets. In Table A1 we analyze how their perceptions with respect to several proxies of credit restrictions vary across countries with different creditor protections. In particular, we analyze their response to questions related to how different financial conditions affect firms' performance. We look at questions regarding difficulty in access external finance, difficulties derived from facing high interest rates, and difficulties associated with not being able to access long-term loans. The survey offers four possible answers ranging from 1 (no problem) to 4 (major difficulty). Hence we estimate an empirical ordered response model using controls similar to those in Table 3. In addition to standard controls we also include an "optimism" variable to capture whether the results are driven by the general mood of the individual surveyed. This variable is constructed based on 12 questions on perceptions of the quality of infrastructure and regulation, which in principle should be the same or similar for all of them.

As in Section 5, we report interactions between creditor rights and the small and medium-sized firm dummies. Columns (1), (3) and (5) include country-specific effects, and columns (2), (4) and (6) report macro-level controls. The results suggest that in countries with high creditor rights small and medium sized firms report fewer problems in accessing external finance, paying high interest rates, and accessing long term credit. However, the results are only consistently significant for medium-sized enterprises.

Regarding small firms, the signs of the interactions are negative, but they are rarely significant.<sup>14</sup>

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<sup>14</sup> We report results only for the creditor rights variable. The other creditor protection variables yield similar results regarding signs, but are rarely significant.

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**Table 1. Creditor Protection In Latin America**

	Creditor Rights	Rule of Law	Effective Creditor Rights
Argentina	0.00	0.54	0.00
Bolivia	0.00	0.13	0.00
Brazil	0.25	0.63	0.16
Chile	0.50	0.70	0.35
Colombia	0.00	0.21	0.00
Costa Rica	0.50	0.67	0.33
Dom. Rep.	0.25	0.31	0.08
Ecuador	0.25	0.67	0.17
El Salvador	0.25	0.24	0.06
Guatemala	0.00	0.14	0.00
Honduras	0.25	0.21	0.05
Jamaica	0.25	0.35	0.09
México	0.00	0.54	0.00
Panama	0.50	0.21	0.11
Paraguay	0.25	0.41	0.10
Peru	0.25	0.25	0.06
Trinidad & Tob.	0.25	0.67	0.17
Uruguay	0.50	0.50	0.25
Venezuela	0.50	0.64	0.32
Average Latin America	0.25	0.42	0.12
Average OECD	0.49	0.93	0.45
Average South East Asia	0.88	0.65	0.56

Source: LLSV(1997, 1998) and Galindo and Micco (2001).

Notes: Creditor Rights, Rule of Law and Effective Creditor Rights are normalized between 0 and 1.

**Table 2. Financial Breadth and Creditor Protection**

Dependent Variable: CREDIT/GDP											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Log(GNP)	1.90 (1.19)	2.76 (1.66)	0.42 (0.30)	2.85 (1.78)*	2.78 (2.12)**	-0.80 (0.54)	-1.00 (0.66)	0.80 (0.49)	1.36 (0.76)	1.96 (1.55)	0.17 (0.09)
Growth GDP	-51.65 (1.11)	-75.50 (1.46)	6.53 (0.15)	-61.32 (1.23)	-9.78 (0.24)	3.93 (0.10)	20.20 (0.53)	-2.40 (0.06)	-25.15 (0.54)	-53.90 (1.36)	25.23 (0.53)
Log(1+Inflation)	-51.58 (1.71)*	-60.10 (1.72)*	-49.99 (2.23)**	-55.80 (1.67)	-45.99 (1.51)	-40.41 (2.41)**	-30.78 (1.96)*	-35.57 (2.62)**	-65.19 (2.13)**	-41.44 (1.43)	-31.46 (1.92)*
Budget Deficit	3.11 (2.20)**	4.28 (2.94)***	2.38 (1.82)*	4.18 (2.93)***	3.35 (2.60)**	2.30 (1.81)*	1.94 (1.58)	2.96 (1.82)*	3.29 (1.87)*	3.69 (2.94)***	2.14 (1.27)
Effective Creditor Rights 1	14.11 (2.88)***										
Creditor Rights		8.54 (1.69)*									
Rule of Law			18.66 (3.95)***								
Effective Creditor Rights 2				9.83 (1.72)*							
Efficiency of the Judiciary					14.14 (1.89)*						
Risk of Expropriation						22.93 (5.20)***					
Risk of Contract Repudiation							25.56 (6.02)***				
Property Rights								20.66 (4.81)***			
Lawsuits									6.97 (1.05)		
Civil Origin										-31.73 (2.89)***	
Scandinavian Origin										-20.03 (1.07)	
German Origin										28.42 (1.58)	
Principal Components											10.47 (4.03)***
Constant	46.92 (1.23)	35.75 (0.91)	64.43 (1.86)*	30.42 (0.76)	10.85 (0.27)	97.19 (2.69)***	95.26 (2.52)**	61.55 (1.50)	59.08 (1.30)	61.57 (1.96)*	71.43 (1.45)
Observations	52	52	53	48	49	53	53	47	47	53	41
R-squared	0.37	0.30	0.41	0.34	0.38	0.47	0.51	0.48	0.33	0.48	0.46

Robust t-statistics in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 3. Access to Credit and Creditor Protection**

Tobit Estimates -Dependent Variable: Share of firm's financing coming from bank credit										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
small	-0.208 (0.060)***	-0.164 (0.061)***	-0.546 (0.143)***	-0.489 (0.147)***	-0.429 (0.109)***	-0.394 (0.112)***	-0.216 (0.054)***	-0.174 (0.055)***	-0.376 (0.103)***	-0.380 (0.105)***
medium	-0.110 (0.055)**	-0.134 (0.056)**	-0.344 (0.139)**	-0.280 (0.141)**	-0.262 (0.106)**	-0.237 (0.108)**	-0.127 (0.050)**	-0.139 (0.051)***	-0.207 (0.099)**	-0.252 (0.101)**
creditor rights*small	0.057 (0.034)*	0.046 (0.034)								
creditor rights*medium	0.018 (0.034)	0.040 (0.034)								
property rights *small			0.096 (0.032)***	0.088 (0.033)***						
property rights *medium			0.061 (0.032)*	0.046 (0.032)						
efficiency of the judiciary * small					0.084 (0.030)***	0.079 (0.030)***				
efficiency of the judiciary * medium					0.051 (0.029)*	0.044 (0.030)				
effective creditor rights * small							0.409 (0.172)**	0.334 (0.175)*		
effective creditor rights * medium							0.212 (0.176)	0.289 (0.181)		
rule of law * small									0.436 (0.174)**	0.468 (0.177)***
rule of law * medium									0.223 (0.168)	0.300 (0.172)*
creditor rights		-0.020 (0.028)								
property rights				-0.020 (0.032)						
efficiency of the judiciary						0.007 (0.031)				
effective creditor rights								-0.137 (0.157)		
rule of law										0.372 (0.215)*
Manufacturing sector	0.098 (0.031)***	0.089 (0.032)***	0.097 (0.030)***	0.088 (0.031)***	0.096 (0.030)***	0.084 (0.031)***	0.096 (0.031)***	0.088 (0.032)***	0.097 (0.030)***	0.090 (0.031)***
Share of government ownership	-0.004 (0.002)**	-0.003 (0.002)	-0.003 (0.002)**	-0.002 (0.002)	-0.003 (0.002)*	-0.002 (0.002)	-0.004 (0.002)**	-0.003 (0.002)	-0.003 (0.002)*	-0.002 (0.002)
Share of foreign ownership	-0.001 (0.000)	-0.000 (0.001)								
Sales growth 1996-1998	-0.001 (0.001)	-0.002 (0.001)**	-0.001 (0.001)	-0.001 (0.001)**	-0.001 (0.001)	-0.001 (0.001)**	-0.001 (0.001)	-0.002 (0.001)**	-0.001 (0.001)	-0.001 (0.001)**
Log GDP per capita 1998		0.103 (0.036)***		0.094 (0.041)**		0.065 (0.042)		0.089 (0.039)**		-0.025 (0.053)
Real GDP growth rate 1996-1998		0.029 (0.009)***		0.021 (0.010)**		0.015 (0.010)		0.028 (0.009)***		0.006 (0.010)
Average Inflation 1990-1998		0.000 (0.000)								
Constant	-0.211 (0.136)	-1.005 (0.350)***	0.007 (0.133)	-0.868 (0.359)**	0.125 (0.350)	-0.711 (0.368)*	0.021 (0.137)	-0.817 (0.324)**	0.006 (0.139)	0.033 (0.404)
Country Fixed Effects	Yes	No								
Observations	1024	1024	1061	1061	1061	1061	1024	1024	1074	1074

Standard errors in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

### Table 4. Credit Response to External Shock and Creditor Rights

Dependent Variable: Change in Real Credit

Variables	(1)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Average Growth (90s)	1.62 (4.63)***	1.74 (4.87)***	1.59 (4.30)***	1.39 (3.95)***	1.59 (4.36)***	1.35 (3.78)***	1.41 (3.62)***	1.30 (3.15)***	1.44 (4.06)***	1.54 (4.37)***	1.19 (2.76)***	1.56 (4.33)***
Foreign Shock	4.26 (4.00)***	3.39 (3.33)***	3.81 (3.78)***	2.14 (3.69)***	3.72 (2.59)***	2.78 (2.20)**	3.58 (3.36)***	2.65 (2.36)**	2.29 (3.67)***	1.76 (3.48)***	2.17 (2.12)**	0.81 (2.17)**
Effective Creditor Rights*Foreign Shock	-1.76 (3.85)***											
Creditor Rights * Foreign Shock		-1.84 (2.82)***	-1.47 (2.03)**									
Rule of Law * Foreign Shock			-1.38 (1.88)*	-1.83 (3.02)***								
Effective Creditor Rights2 * Foreign Shock					-1.51 (2.24)**							
Efficiency of the judiciary* Foreign Shock						-1.70 (1.63)						
Lawsuits* Foreign Shock							-2.63 (3.10)***					
Property Rights* Foreign Shock								-2.13 (1.88)*				
Risk of Contract Repudiation * Foreign Shock									-1.87 (3.03)***			
Risk of Expropriation * Foreign Shock										-1.60 (2.94)***		
Principal component * Foreign Shock											-0.94 (1.50)	
Civil Origin * Foreign Shock												3.69 (2.31)**
Scandinavian Origin* Foreign Shock												-1.89 (1.06)
German Origin * Foreign Shock												2.27 (1.65)*
Constant	-0.02 (1.57)	-0.02 (1.43)	-0.02 (1.23)	-0.00 (0.29)	-0.02 (1.41)	-0.01 (0.73)	-0.01 (0.75)	-0.00 (0.18)	-0.01 (0.46)	-0.01 (0.51)	-0.00 (0.01)	-0.01 (0.77)
Observations	550	550	550	560	490	500	440	440	560	560	400	560
R-squared	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.05

Robust t-statistics in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 5. Credit Response to GDP Shock instrumented by External Volatility**

IV-2SLS-Dependent Variable: Change in Real Credit

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Average Growth (90s)	5.32 (2.81)***	3.95 (3.00)***	5.81 (2.55)**	4.49 (2.59)***	2.66 (2.92)***	2.40 (2.81)***	2.44 (2.75)***	4.66 (2.56)**	4.39 (2.59)***	2.19 (2.55)**	3.35 (3.04)***
GDP Growth	-3.41 (1.74)*	-1.92 (1.42)	-4.16 (1.64)	-3.05 (1.57)	-0.90 (0.95)	-0.75 (0.81)	-0.77 (0.78)	-3.12 (1.56)	-2.76 (1.51)	-0.66 (0.67)	-1.92 (1.51)
Effective Creditor Rights*GDP Growth	-0.44 (2.16)**										
Creditor Rights * GDP Growth		-0.38 (1.84)*	-0.25 (1.00)								
Rule of Law * GDP Growth			-0.66 (1.69)*	-0.61 (1.95)*							
Effective Creditor Rights2 * GDP Growth					-0.12 (0.81)						
Efficiency of the judiciary* GDP Growth						-0.09 (0.54)					
Property Rights* GDP Growth							-0.33 (1.24)				
Risk of Contract Repudiation * GDP Growth								-0.64 (1.90)*			
Risk of Expropriation * GDP Growth									-0.67 (2.15)**		
Principal component * GDP Growth										-0.09 (0.74)	
Civil Origin * GDP Growth											0.65 (1.33)
Scandinavian Origin* GDP Growth											-1.52 (2.26)**
German Origin * GDP Growth											-0.05 (0.12)
Constant	-0.01 (0.41)	-0.01 (0.62)	-0.00 (0.03)	0.00 (0.30)	-0.01 (0.41)	-0.00 (0.24)	0.00 (0.02)	0.00 (0.07)	-0.00 (0.09)	0.00 (0.10)	0.00 (0.00)
Observations	549	549	549	559	489	499	440	559	559	400	559
R-squared					0.14	0.14	0.16			0.18	0.01

Robust t-statistics in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table A1 Access to Credit and Creditor Rights**

Ordered probit estimates - Dependent Variable:						
	Limited access to finance as a major obstacle to firm development		High interest rates as a major obstacle to firm development		Limited access to long term loans as a major obstacle to firm development	
	(1)	(2)	(3)	(4)	(5)	(6)
small	0.379 (0.093)***	0.411 (0.108)***	0.627 (0.205)***	0.539 (0.208)***	0.254 (0.116)**	0.151 (0.130)
creditor rights*small	-0.042 (0.046)	-0.040 (0.047)	-0.152 (0.088)*	-0.099 (0.099)	-0.042 (0.067)	-0.003 (0.070)
medium	0.375 (0.150)**	0.419 (0.147)***	0.489 (0.151)***	0.474 (0.146)***	0.353 (0.126)***	0.371 (0.116)***
creditor rights*medium	-0.122 (0.071)*	-0.112 (0.071)	-0.209 (0.063)***	-0.168 (0.067)**	-0.185 (0.068)***	-0.180 (0.074)**
Manufacturing sector dummy	0.160 (0.073)**	0.186 (0.066)***	-0.008 (0.096)	0.028 (0.091)	0.026 (0.070)	-0.008 (0.070)
Share of government ownership	0.006 (0.005)	0.006 (0.005)	-0.008 (0.003)***	-0.006 (0.003)**	-0.000 (0.002)	-0.001 (0.003)
Share of foreign ownership	-0.006 (0.001)***	-0.006 (0.001)***	-0.002 (0.001)	-0.002 (0.001)	-0.003 (0.001)***	-0.003 (0.001)***
Sales growth 1996-1998	0.004 (0.002)*	0.004 (0.002)*	0.000 (0.002)	0.001 (0.002)	0.001 (0.001)	0.002 (0.001)
Optimism	-0.083 (0.061)	-0.087 (0.048)*	-0.166 (0.605)***	-0.133 (0.064)**	-0.192 (0.066)***	-0.196 (0.054)***
Creditor Rights		0.034 (0.062)		0.091 (0.059)		0.069 (0.069)
Log GDP per capita 1998		-0.082 (0.083)		-0.376 (0.087)***		-0.354 (0.150)**
Real GDP growth rate 1996-1998		-0.071 (0.025)***		-0.089 (0.029)***		-0.120 (0.032)***
Average Inflation 1990-1998		0.000 (0.000)**		0.000 (0.000)		0.001 (0.000)***
Observations	1094	1094	1082	1088	1069	1074

Robust standard errors in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.