

The Politics of Financial Development: The Role of Interest Groups and Government Capabilities[†]

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Abstract

Financial development is good for long term growth. So why doesn't every country pursue policies that render full financial development? In this paper we advance a political economy account of financial development that stresses the joint role of interest groups and government policymaking capabilities in decision making. Building on a profuse political economy literature, we build a theoretical model that shows that incumbent interest groups do not always oppose financial development. The intensity of opposition by incumbents depends on both their degree of credit dependency and the role of governments in credit markets. We provide empirical evidence based on cross country and panel data from a large sample of countries, that financial development is determined, at least partially, by the interaction of incumbent interest groups' preferences and government policymaking capabilities. More specifically, results suggest that lower opposition to financial development leads to an effective increase in credit markets' development only in those countries that have high government capabilities. Moreover, improvements in government capabilities have a significant impact on credit market development only in those countries where credit dependency is high. We thus contribute to this rich literature by providing a unified account of credit market development that includes two of its main determinants, traditionally considered in isolation. The findings provide novel implications for the set of potential policy recommendations.

Keywords: financial development, interest groups, political economy, government capabilities

JEL Codes: G10, G18, G20, G38, O16, D72

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“...political institutions are the most important determinants of financial institutions.”

North and Shirley (2008, 288)

“...there is a technological reason why some industries depend more on external finance than others.”

Rajan and Zingales (1998, 563)

1. Introduction

Financial development – defined as the existence of deep and stable credit markets in an economy— is good for economic growth (Levine 2005).¹ An economy without credit cannot move forward.² At the most basic level, credit is the mechanism through which savers connect to borrowers, enabling firms to carry out investment projects that are the basis for the process of capital accumulation. But credit does not only foster economic growth through investment. It also promotes productivity growth in a number of ways: by helping firms sustain long gestation periods when developing new technologies or processes (Aghion et al 2005); by fostering a better allocation of resources across firms and economic sectors (Levine, 1997)³ and; by reducing the incidence of informality, understood as lack of firm or workers registration, or tax evasion and social security

¹ Levine (2005) is one survey among many of the vast literature behind this stylized fact. For example, Haber (2008) is another relevant study that summarizes the economic history literature on the topic that finds similar evidence.

² Some of the more relevant studies include King and Levine, 1993a; King and Levine, 1993b; Levine, 1997, 1998; Levine and Zervos, 1998, Rajan and Zingales 1998, Beck, Levine and Loayza, 2000, and Levine, Loayza and Beck, 2000. Additionally, at the macro level, depth of access is negatively correlated with poverty rates (Levine, 1997; Honohan, 2004).

³ Several papers provide an analytical basis for this idea. See also Bencivenga, Smith and Starr (1995) for a general discussion. Also, Buera and Shin (2008), Buera, Kaboski and Shin (2008), Jeong and Townsend (2007), Aghion et al (2005), and Greenwald, Kohn and Stiglitz (1990), are examples of models describing how financial restrictions lead to an inefficient allocation of resources either across sectors or across activities with differential productivities. See Arizala, Cavallo and Galindo (2009) for empirical evidence on the link between credit and industry-level TFP growth.

registration avoidance (Catão et al 2009). Finally, access to finance allows firms to cope better with macroeconomic volatility (Cavallo et al 2009).

Why then do so many countries have low financial development? The literature has stressed two explanations. One has to do with structural conditions that either limit the demand or hinder the ability of some countries to meet the rising demand (limited supply). Deficiencies on demand are determined by the stages of country development: economies in the early stages of industrialization and economic development do not have the need for deep and highly sophisticated financial markets. Deficiencies on supply have been tied to underlying structural conditions of a society that create impediments for creating viable financial sectors. A particularly influential strand of the literature in this current has focused on the role of the legal system.⁴ It may be the case that a country's legal framework, which has been usually inherited by most countries from colonial times, significantly determine the extent to which the contemporary legal system protects minority shareholder and creditor rights, thereby conditioning the development of financial markets (La Porta et al. 1997).

Although compelling, some of the implications that arise from this set of explanations do not square well with the evidence, at least as unique explanations. For example, there seems to be quite a lot of heterogeneity in financial development across countries, even within the subset of countries with the same legal origin. At the same time, the history of financial development is one of advances and reversals, something that is hard to reconcile with the idea of structural determinants of financial development. Therefore, it

⁴ Stulz and Williamson (2003) shows that another structural determinant, a country's religions, is highly significant for explaining creditors' right. Guiso, Sapienza and Zingales (2004) show the relevance of social capital, and henceforth trust, for explaining household's financial choices and ultimately financial development. According to Durante (2009), trust is also structurally determined by geography and historical climate patterns.

is necessary to find theories that complement the structural views using more variable factors (Rajan and Zingales, 2003a).

The other strand in the literature looks at the role of the workings of political institutions on the incentives for political actors to provide financial development. The literature has focused on two interconnected explanations. On the one hand, it has concentrated on the role of interest groups as obstacles for financial development. In this current, incumbent interest groups that may see their profits eroded would oppose the policies that would foster financial deepening. In the most cited work (Rajan and Zingales, 2003a) financial development might foster competition by allowing entry to credit constrained firms, which weakens the position of incumbents, both in industry and in finance. In the industrial sector, for example, incumbent firms can provide themselves their own financing so they prefer to limit credit in order to prevent others from entering, which limits competition.⁵ Rajan and Zingales (2003a) argue that this creates a political constituency against financial development.⁶ The incentives and strength of interest groups to fend off financial development will be lower the more open the economy is to both trade and finance.⁷

On the other hand, as summarized in Haber, North and Weingast (2008), the government may also have the incentive to limit financial development in order to draw resources from banks and credit markets, regardless of the structure of interest groups in society. Consequently, even though favoring financial development may be welfare

⁵ Financial institutions may also prefer limiting financial development because they may lose certain “assets” such as “human capital” from the development of financial markets.

⁶ There is a closely related literature based on the patterns of institutionalization and democratic transitions that concentrate on a particular type of incumbent: the politically powerful elite (Hodler, 2007).

⁷ See also Baltagi et al (2009) for empirical evidence supportive of this hypothesis.

enhancing, government officials in some countries may prefer maintaining a lax financial institutional environment, which does not promote credit, in case they need to draw funds from the system.⁸ Governments would be less inclined to “play the system” (be more willing to improve financial regulations and lower restrictions for financial development) the better are their fiscal and financial management capacities.⁹

In this paper we build on these contributions and provide a unified political economy story of financial development that hinges on the interaction between heterogenous interest groups and government policymaking capabilities.¹⁰ That is, first, we expand the research in Rajan and Zingales (2003a) by allowing incumbents’ to be heterogeneous in terms of their position regarding financial development to check if it may generate different attitudes towards greater credit availability.¹¹ This heterogeneity of incumbents comes from the fact that within an economy there are sectors that are intrinsically more dependent on credit (as developed originally in a previous article by Rajan and Zingales of 1998). Consequently, under some conditions, this heterogeneity in terms of how much each firm (in each sector) depends on the availability of credit generates heterogeneity in terms of their positions regarding financial development. For those incumbents who are

⁸ Fry (1995) describes some of the mechanisms used by the government to finance its operations through the financial system, such as increasing reserve requirements, requiring institutions to hold government bonds at yields below the world market rate, and exploiting state run banking institutions.

⁹ Besley and Persson (2009) make a similar argument. Less developed economic institutions (lower tax revenues and lower financial development) are expected in those countries that have not been able to invest in increasing state capacities. Similarly, Bai and Wei (2000) and Dreher and Siemers (2005) argue that lower government capabilities, measured in terms of higher corruption, would also imply lower financial development because the lower ability of the government to raise revenues.

¹⁰ Pagano and Volpino (2001) is a relevant survey of the political-economy literature focused in this topic at the turn of the century that helps to put into perspective the advances since.

¹¹ A recent paper by Braun and Raddatz (2008) does also introduce heterogenous incumbents –dividing them between promoters and opponents of financial development- and find this heterogeneity to be significant to explain financial development. As it will be explained below, the main differences here with that paper are two: we don’t have to decide ex ante about how to split the groups and we combine the role of the heterogeneity with that of government capabilities.

very dependent on credit, even though financial development may erode their profits by fostering competition it may also boost their profits by providing them with cheaper resources to operate and expand their operations. If these sectors are big enough actors in the economy, then the response against financial development by the incumbents described by Rajan and Zingales (2003a) may be weaker or even non-existing altogether. For the whole economy, the overall level of opposition to financial development that governments may face would depend on the combination of how dependent on credit the economic sectors in that economy are together with the *size* of these economic sectors. In other words, the opposition to financial development in a given country hinges on the relative size of the economic sectors that rely more heavily on financial credit.

Second, we combine incumbents' interests and their potential effect on policymaking with the ability of the government to avoid distorting financial markets financial development. Building on insights from Haber, North and Weingast (2008), we argue that in lower capability environments governments are more pressed to direct credit to finance its own operations, thereby curtailing credit flows to the private sector. All in all, this implies that the availability of credit for the private sector –a key feature of financial development—will tend to be lower in lower capabilities environments.¹²

Therefore, our argument is that financial development should be higher in those countries in which interest groups might have a lower incentive to block its development and where the government has lower needs to abuse the financial system for financing its operations. Summarizing, our hypothesis is that the actual level of financial development

¹² This result is consistent with Keefer's findings that "...*financial sector development depends on the willingness of governments to provide public goods*" (Keefer 2008, 151)

observed in a given country at a point in time is the result of the interaction of these two factors.¹³

In order to test this hypothesis we use sector-level panel data to build a cross-country dataset with proxies for the sizes of the interest groups that may have different attitudes towards financial development. We regress measures of financial development against these proxies, and also against measures of country-level institutional capabilities, and their interaction.

To preview our results, we find that lower opposition to financial development will result in an effective increase in credit markets' development only in those countries which have high government capabilities and improvements in government capabilities would only have an impact in those countries in which credit dependency is high.¹⁴ In economic terms, we find that an increase in a country's average credit dependency roughly equal to the difference in this measure between Ecuador and Belgium would imply an average increase in financial development between 6.4% and 25% of GDP, depending on the level of government capabilities.¹⁵ Similarly, we find that an increase in government capabilities roughly equal to the difference between Chile and Japan would imply an average increase in financial development between 6.5% and 29% of GDP,

¹³ This is a novel hypothesis as every other paper we are aware of treats these two lines of influence individually.

¹⁴ Our econometric results are robust to different specifications, even controlling by potential endogeneity of explanatory variables and alternative definitions of government capabilities and financial development variables. The examples that follow have been constructed according to the results reported in Table 1.

¹⁵ For example, for countries with bureaucratic quality around the median, such as Zimbabwe, Portugal, Greece or Costa Rica, the estimated average effect oscillates between 8% and 10% of GDP, while for countries with higher bureaucratic quality levels such as the Netherlands and Canada, the estimated average effect is around 22% of GDP. On the other side of the distribution, for countries with low government capabilities levels such as El Salvador, Guatemala and Zambia, an increase of the credit dependency index would not generate a significant change in financial development levels.

depending on the level of credit dependency of the country.¹⁶ In other words, we find that interest groups politics and government policymaking capabilities are both necessary conditions for financial development. This way, we explain differences in financial development across countries and we also provide evidence about one of the mechanisms through which government capabilities matter for economic growth.

The structure of the paper is as follows: the next section introduces a stylized model that incorporates some of the nuances involved in the process of financial development with heterogeneous agents. Next, we discuss the methodology, the data and the results. The last section presents the conclusions.

2. Conceptual Framework

As argued in the introduction, the literature has recently converged towards studying financial development in a political economy framework.¹⁷ Among the many studies in this field, Rajan and Zingales (2003a) has become the basic building block for most papers that include the role of interest groups as a potential determinant of financial development. In their underlying model, the incumbents are willing to thwart financial development for maintaining the rents they would lose by the increase in competition that improved credit markets might generate.¹⁸ In their setup, incumbents are homogenous.

¹⁶ For countries like Philippines and Costa Rica, the estimated average effect oscillates around 8.3% of GDP, while for countries with higher credit dependence levels, such as the United States, Ireland or Israel, the estimated average effect is around 20% of GDP. For countries with low credit dependency levels, such as Jamaica, Algeria or Ethiopia, an increase on government capabilities would not represent a significant change in financial development levels.

¹⁷ The edited volume by Haber, North and Weingast (2008) is a good example of the depth of this literature.

¹⁸ Their analysis could be interpreted in terms of a highly stylized Stigler-Peltzman type of model in which incumbents would be able to keep some of the rents associated with incomplete financial development by compensating politicians or regulators for their political costs –financial development is welfare enhancing so citizens should be in favor of it- by providing rents, bribes, or campaign contributions.

However, as Rajan and Zingales (1998) posits, firms across sectors might differ in certain respects, particularly in their degree of credit dependency. That is, because technology across sectors is different, the relevance of capital in the production function and henceforth the need to have access to external sources of finance might be different. For example, as presented in Table A4, developing plastic products is much more capital intense than the tobacco industry. Then, it might be the case that producers of plastic products feel very differently about the possibility of having higher access to capital markets than producers of tobacco products. Hence, while in some sectors it might be the case that financial development could be detrimental for their profits as Rajan and Zingales (2003a) assumes, it might be the case in others that the reduction in the cost of capital is so large after financial development that it might compensate the potential increase in competition. If that were the case, opposition to financial development may be also heterogeneous with some groups losing more from an influx of credit than others.¹⁹ In the limit, it might be the case that even some sectors could be in favor of increasing credit as it is shown in a simple model next.

Consider a simple set-up consisting of one country with N productive sectors that differ only in terms of the dependence of each sector on external credit to finance investment and operations. One way of modeling this is to assume that production technologies differ across sectors in terms of the capital intensity of the production functions. From the perspective of an individual firm, accessing credit markets allows it to purchase certain types of goods—mostly capital goods—that would be unavailable

¹⁹ Additionally, financial development has a differential impact on volatility across sectors according to their credit dependency (Raddatz, 2006), and credit dependent sectors may be hit harder in recessions in financially constrained countries (Braun and Larrain, 2005). Therefore, there may be additional channels of influence we are not considering that would reinforce our results.

without proper funding. Therefore, the more capital intensive is the firm's production technology, then the bigger is the need for external funding.

The representative firm within each sector $i = 1, \dots, N$ produces output using a standard Cobb-Douglas production function

$$q_i = A_i k_i^{\alpha_i} \quad 0 < \alpha_i < 1 \quad (1)$$

where q_i is physical output in sector i , A_i is the sector-level TFP, k_i is the capital stock per unit of labor, and α_i is the sector-specific output elasticity of capital. For simplicity, in what follows we assume that $A_i \equiv 1$.

The sectors operate under monopolistic competition, meaning that incumbent firms in each sector earn positive profits. Monopolistic competition arises and is sustained in this setting because there are barriers to entry, related to credit frictions –i.e., the inability of entrepreneurs to secure the funding needed to begin operations in a sector due to insufficient financial development–.

The inverse demand function that incumbents face in each sector takes the form

$$p_i = \left(\frac{\omega}{q_i} \right)^{\frac{1}{\sigma}} \quad \omega > q_i \text{ for every } q_i \text{ and } \sigma > 1 \quad (2)$$

Where ω is a positive scale factor and σ is the negative of the price elasticity of demand. This class of demand function is the result of a maximization of a CES utility (or a CES aggregator) function and its use is standard in models of monopolistic competition based on differentiated products.²⁰ Note that the σ parameter is directly related to the competitive nature of the sectors. As $\sigma \rightarrow 1$, quantities produced by an individual firm become more sensitive to price changes as in monopoly market

²⁰ See for instance, Hsieh and Klenow (2009)

structures. Instead, as $\sigma \rightarrow \infty$ quantities become insensitive to firm-specific prices as in perfect competition.

For a given level of production, the firms' optimal demand of capital and the total cost function are

$$k_i = q_i^{1/\alpha_i} \quad (3)$$

$$TC_i = Rq_i^{1/\alpha_i} \quad 0 < R < 1 \quad (4)$$

Where R represents the rental cost of capital. Incumbents maximize their profits, defined as $\pi_i = p_i q_i - TC_i$, when their marginal revenue is equal to their marginal cost, i.e.

$$p_i \left(\frac{\sigma - 1}{\sigma} \right) = \frac{R}{\alpha_i} q_i^{1/\alpha_i - 1} \quad (5)$$

This yields the standard result that under a monopolistic competition framework, incumbents maximize their profits when the price equals a markup (i.e., $\frac{\sigma}{\sigma - 1} > 1$) over the marginal cost.²¹ The mark-up is higher, the lower σ is, or in other words, the less competitive is the corresponding sector.

Replacing the inverse demand function $p_i = (\omega / q_i)^{1/\sigma}$ in (5), we get that the optimal level of production q_i^* of the incumbent is

$$q_i^* = \left(\frac{\sigma - 1}{\sigma} \frac{\alpha_i}{R} \omega^{\frac{1}{\sigma}} \right)^{\frac{\alpha_i \sigma}{\alpha_i + \sigma - \alpha_i \sigma}} \quad (6)$$

And replacing (6) into the profit function $\pi_i = p_i q_i - TC_i$, we get that the representative incumbents' profit is

²¹ Note that as $\sigma \rightarrow \infty$, a simple application of L'Hôpital's rule shows that we approach the perfect competition case whereby the mark-up disappears and the profit maximizing condition reduces to the standard price equal marginal cost.

$$\pi_i^* = \left(\frac{\alpha_i + \sigma - \alpha_i \sigma}{\sigma - 1} \right) \left(\frac{\sigma - 1}{\sigma} \omega^{\frac{1}{\sigma}} \right)^{\frac{\sigma}{\alpha_i + \sigma - \alpha_i \sigma}} \left(\frac{R}{\alpha_i} \right)^{\frac{-\alpha_i(\sigma - 1)}{\alpha_i + \sigma - \alpha_i \sigma}} > 0 \quad (7)$$

Using this simple set-up, we do a comparative static exercise: what is the impact of an exogenous increase in credit on equilibrium profits in each sector? An increase in the availability of credit has the effect of reducing the rental cost of capital R . Thus, in what follows we focus on the sign of the partial derivative of the profit function (7) with respect to R . It is easy to show that

$$\frac{\partial \pi_i^*}{\partial R} = - \left(\frac{\sigma - 1}{\sigma} \frac{\alpha_i}{R} \omega^{\frac{1}{\sigma}} \right)^{\frac{\sigma}{\alpha_i + \sigma - \alpha_i \sigma}} < 0 \quad (8)$$

Where the sign is unambiguous for all possible values of R , α_i and σ . This implies that an exogenous increase in credit that lowers R , has an unambiguously positive effect on incumbents' profit. Furthermore, for production levels greater than one, it is also possible to show that this effect is bigger in the sector that is more capital intensive (i.e., the sector with higher α_i).²²

Thus far, we have shown that incumbents' profits increase with financial development and that the effect is bigger for firms in the sector that relies more heavily on credit. The next logical question is who is against developing credit markets? The answer to this question brings us back to the Rajan and Zingales (2003a) hypothesis: increased credit increases the scope for competition within sectors as it enables potential entrants to gain the means to enter (i.e., financial development lowers the barriers to entry

²² To realize this, note that the partial derivative of Equation (7) with respect to α_i is

$\frac{\partial^2 \pi_i^*}{\partial R \partial \alpha_i} = -q_i^{1/\alpha_i} \left(\frac{\sigma + \alpha_i \sigma - 1}{\alpha_i^2 (\sigma + \alpha_i - \alpha_i \sigma)} \ln q_i \right)$ where q_i is defined as in equation (6). This derivative is negative for all $q_i > 1$.

into sectors). As entry happens, incumbents' profits are eroded. Can this effect be big enough to overturn the previously computed effect? The short answer is that the secondary effect is bigger in sectors that are less dependent on credit. Therefore, for the low α sectors, the two effects compound: on the one hand profits do not increase as much with an increase in credit through the channel of reducing the rental cost of capital, and on the other hand, incumbents simultaneously suffer more from the increased competition by new entrants. Therefore, the less credit dependant a given sector is, the more likely it is that the incumbents in that sector will oppose financial development.

To show this more formally, we relate the parameter σ to R . For concreteness, assume that

$$\sigma = \frac{1}{2} \left(1 + \frac{1}{R} \right) \tag{9}$$

This relationship suggests that at higher level of R (low financial development) then σ is low meaning less competition within the sectors, and vice versa. While the functional form is ad-hoc, this simple specification has the advantage of capturing the essence of the argument: barriers to entry into sectors decrease as financial markets develop with the consequent decrease in the cost of capital.²³

So far we have assumed that governments and institutions do not matter much for firms' finances. In order to introduce government capabilities as a factor that determines firms' stance regarding credit development, we use an approach similar to Hsieh and Klenow (2009) and model the impact of low government capabilities on market interest rates as a distortion to the market price of capital. In particular, we assume that

²³ The particular functional form was chosen so that we can get reasonable parameter values for subsequent numerical exercises.

governments in lower capabilities environments are (i) more eager for finance, and (ii) less capable of accessing credit on a competitive basis.²⁴ The combination of (i) and (ii) results in higher interest rates for private productive investments as government financial decisions have the effect of curtailing credit flows to the private sector.²⁵ This way, while we consider that governments decide about the policies that determine the development of credit markets, such as the regulatory framework, according to the strength of the different interest groups in society, we take the level of government capabilities and their financing needs as exogenous. This is the same than assuming that governments have no leeway for deciding the amount of public goods they have to provide and the way they can finance them; those decisions are predetermined by “their type”, i.e., their level of government capabilities.

Consequently, in the model, government capabilities enter as an exogenous parameter, and we assume that

$$R = \frac{r}{\lambda} \tag{10}$$

Where r is the interest rate that would prevail in the private credit market in the absence of any government-induced distortions, and $\lambda > r$ is a parameter that proxies for government capabilities.²⁶ Note that with $\lambda = 1$ the government is neutral (high government capabilities), and with $\lambda < 1$ then $R > r$ (low government capabilities). While

²⁴ This can be compounded by the fact that governments in lower capability environments might be less able to deliver sound financial policies.

²⁵ In this paper we take government capabilities and their financing needs as exogenous. That is, governments will decide how much financial development in terms of the demands from the pressure groups but they will not make a decision on public goods provision and financing needs.

²⁶ Note that $\lambda > r$ is not itself an assumption of the model, but the result of the assumption that $\sigma > 1$ (see equation 2) and the functional forms assumed in the model. The assumption $\sigma > 1$ imposes that $R \leq 1$ (see equation 9), which is satisfied here if and only if $\lambda > r$.

once again the particular functional form may be arbitrary, it has the advantage of introducing the role of government capabilities in credit markets in a very concise way.

Under this framework, it is possible to probe deeper on the consequences of financial development on incumbent's profits. The partial derivative of the profit function (7) with respect to r is

$$\frac{\partial \pi_i}{\partial r} = \frac{\partial \pi_i}{\partial R} \frac{\partial R}{\partial r} + \frac{\partial \pi_i}{\partial \sigma} \frac{\partial \sigma}{\partial r} = q_i^{1/\alpha_i} \left(-\frac{1}{\lambda} + \frac{2r}{\alpha_i(\lambda^2 - r^2)} \ln \left(\frac{\omega}{q_i} \right) \right) \quad (11)$$

where q_i is defined in equation (6). Given $\lambda^2 - r^2 > 0$ and $\omega > q_i$, the second term inside the parenthesis in equation (11) is always greater than zero. Equation (11) implies that an increase in the interest rate (i.e., low financial development) can be understood as the sum of two effects: the first one is the effect associated with a reduction in incumbent's profits due to an increase in the cost of capital, while the second one is an increase of the profits related with the reduction in competition.

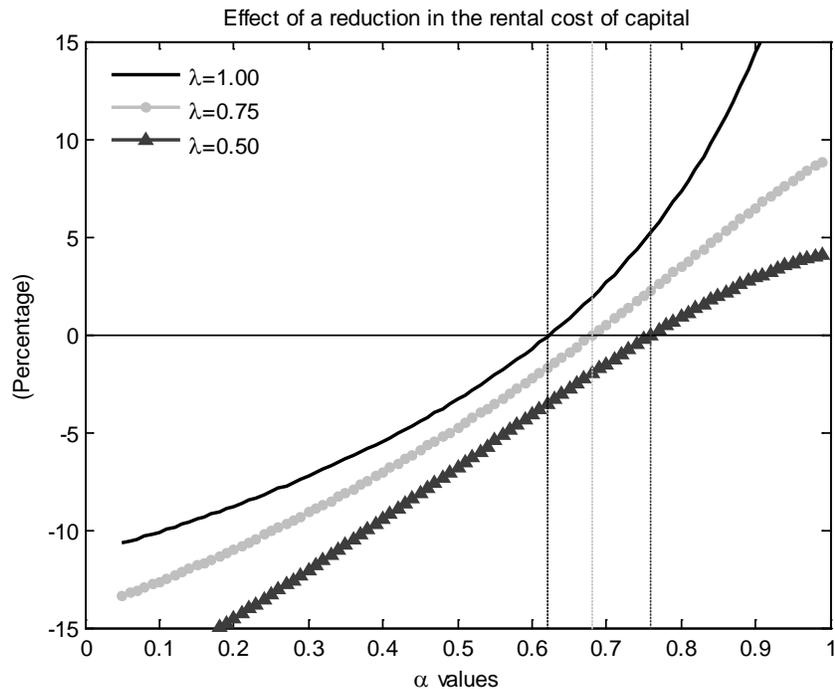
In order to see how the net effect depends on two key parameters of the model, i.e. “ λ ” which captures government policymaking capabilities, and “ α ” that captures the heterogeneity within the interest groups in terms of their need for credit, we approximate the relative change in a firm's profit to a change in the interest rate as:

$$\frac{\Delta \pi_i}{\pi_i} \approx \frac{\partial \pi_i}{\partial r} \frac{\Delta r}{\pi_i} \quad (11a)$$

which depends on the particular level of the interest rate r , the government capabilities λ , and the firms' capital intensity α_i . Figure 1 shows the numerical simulations of equation (11a) fixing for concreteness $r = 0.1$ and $\Delta r = -0.01$. Take, for example, the case $\lambda = 0.50$, a low value of government capabilities. The simulation shows that a

reduction in the cost of capital (i.e., $\Delta r = -0.01$) implies a net reduction in profits for all the firms with capital intensity α_i is below a cutoff value of approximately equal to 0.7. This result suggests that firms in sectors with low α will oppose an increase in credit on the basis that it reduces profits of incumbents. However, the opposition will tend to decline as the need for external finance increases. And as the value of value passes a certain threshold (i.e., approximately $\alpha=0.75$ in this example) the net effect of financial development on incumbents' profits turns positive. At higher initial values of λ , the net impact is positive for more α 's, but it remains true that the effect is quantitatively larger for sectors with high α .

Figure 1



To summarize: financial development has different impacts on incumbents' profits through two opposing channels and the net result hinges on the sectors dependency on capital. On the one hand, it has an unambiguously positive effect on

profits through the channel of reducing the cost of capital. This effect is bigger for firms that operate in sectors that are more dependent on credit. On the other hand, financial development lowers the barriers to entry into sectors, thereby fostering competition and eroding incumbents' profits. This effect, in turn is bigger for firms in the sectors that are less dependent on credit.²⁷ The combination of the two results suggests that the extent to which incumbents are against financial development critically hinges on the sectors' dependence on credit: firms in the low dependence sector are more likely to oppose financial development, while firms in the high dependence one are more likely to demand it.²⁸

Compounding all this is the role of government capabilities. The lower the levels of capabilities, the higher is the capital intensity threshold above which the marginal effect of financial development on incumbents' profit is positive (i.e., the cutoff between opposing or favoring financial development). The intuition is that lower government capabilities generate a "crowding out" effect that raises the cost of private capital. Therefore, the benefits of financial development accrue to a smaller subset of firms – only those that operate in the most capital intensive sectors – than in the case where the same improvement in financial development occurs in a context of better government capabilities.

²⁷ Braun and Raddatz (2008) show this empirically. In their example, the negative impact of additional credit is higher for textiles (a sector with low credit dependency) than for non-basic chemicals (a sector with higher credit dependency).

²⁸ These results could be presented in the same stylized Stigler-Peltzman model mentioned above. Government capabilities affect firms' stance regarding financial development through their impact on financial conditions, which varies by sector. Consequently, opposition to financial development –the welfare enhancing policy- from incumbent interest groups would differ according to the level of credit dependency of the economy –which is determined by the economic structure of the country- together with government capabilities.

Taken altogether these results suggest that the extent to which incumbents will block financial development hinges on the combination of the sectors' dependence on credit and government capabilities. A direct implication is that financial development at the country level will be positively related to the relative size of the sectors that are highly dependent on credit and to the degree of institutional quality: countries where the relative size of the highly dependent sectors is large, will tend to have –all else equal— more financial development, but this effect may be neutralized if government capabilities are low.²⁹ This is the implication of the model that we take to the data.

3. Model specification and data

Armed with the intuition given by the analytical framework, the question we take to the data is the following: does the combination of heterogeneity among incumbents in their opposition to financial development together with the heterogeneity in government capabilities explain part of the variance in financial development observed across countries?

To answer this question, we collect data on several variables that describe in detail the financial development, the interest groups heterogeneity and their attitudes toward financial development, and the government policymaking capabilities for a number of countries. In our baseline scenario, we use a simple cross section analysis which is well suited to capture long-run, steady state relationships between the variables of interest.

²⁹ This hypothesis is compatible with related findings in Perotti and Volpin (2004, 4) on entry regulations: “there appears to be more entry in industries that require more external capital in countries which are more democratic”.

The econometric specification for our baseline model is

$$FD_j = \beta_0 + \beta_1 CD_j + \beta_2 GC_j + \beta_3 (CD_j \times GC_j) + \gamma \mathbf{X}_j + \varepsilon_j \quad (12)$$

where FD_j is a proxy variable of financial development level for country j , CD_j is a variable of incumbents' credit dependence, which captures interest groups' heterogeneity, GC_j is a proxy of the government policymaking capabilities, whereas $CD_j \times GC_j$ is the interaction of these two. Finally, \mathbf{X}_j represents a set of control variables which affects the level of financial development of a country, such as the level of industrialization (Rajan and Zingales, 1998), the openness to trade and financial markets (Chinn and Ito 2006; Baltagi et al 2009; and Rajan and Zingales 2003a) and the legal origin (La Porta et al 1997).

The null hypothesis of interest is that, after conditioning by other determinants, an increment in credit dependence in a country (i.e., a reduction in the opposition to financial development) only has a significant effect on financial development in countries with high levels of government policymaking capabilities. In the same vein, an increase in government capabilities is significant only in conjunction with low opposition to financial development. This means that the marginal effects of credit dependence and government capabilities variables, defined as

$$\frac{\partial FD_j}{\partial CD_j} = \beta_1 + \beta_3 GC_j \quad (13)$$

$$\frac{\partial Credit_j}{\partial GC_j} = \beta_2 + \beta_3 CD_j \quad (14)$$

must be significant only for higher values of CD_j and GC_j respectively. A direct implication derived from equations (13) and (14) is that, under the null hypothesis, the

interaction effect (β_3) must be positive. However, the sign and statistical significance of the marginal effects depend on particular combinations between the level coefficients (β_1 and β_2) and the values of $\beta_3 GC_j$ and $\beta_3 CD_j$ respectively.³⁰

Our empirical strategy is implemented in two steps. First, we estimate equation (12) using information about financial development, credit dependence and government capabilities. Second, we evaluate the sign and statistical significance of the marginal effects in equations (13) and (14). If estimated marginal effects are positive and significant only for high values of CD_j and GC_j , then we interpret this as supportive evidence for our null hypothesis.

3.1. The data

In order to follow our empirical strategy, the first challenge is to define the three main variables of interest: (i) a country level financial development indicator, (ii) a variable which captures the interest groups' heterogeneity and their attitudes towards credit and (iii) a government policymaking capabilities indicator. With respect to (i) we follow the convention in the literature of using the ratio of private credit to GDP as the benchmark measure of a country's financial development. As explained by Levine et al. (2000) this ratio isolates the credit issued to the private sector, as opposed to credit issued to governments, government agencies, and public enterprises. Furthermore, it excludes credit issued by the central bank. It is our preferred measure of financial development

³⁰ In order to compute the statistical significance of equations (13) and (14), it is important to note take into account that the standard errors associated with the coefficient estimates are individually not enough to determine whether the marginal effect is statistically significant. For example, note that for equation (13):

$$std\left(\frac{\partial FD_j}{\partial CD_j}\right) = \sqrt{\text{var}(\beta_1) + (GC_j)^2 \text{var}(\beta_3) + 2(GC_j) \text{cov}(\beta_1, \beta_3)}$$

because it is the most direct measure of financial intermediation to the private sector. Thus, we interpret higher levels of this variable as indicating higher levels of financial services for the private sector, and therefore greater credit availability and access. The data source is the World Development Indicators dataset (WDI), which contains annual information for a large panel of countries. We also run robustness checks using other proxies for financial development such as the stock market capitalization of listed companies as a percentage of GDP, and the liquid liabilities of financial intermediaries as percentage of GDP, taken from Beck, Demirgüç-Kunt and Levine (2000) dataset.

To proxy the extent of incumbents' support or opposition to financial development, we combine industrial statistics about technological requirements of credit by industrial sector with the relative size of each industry within a given country. In particular, we merge information from the United Nations Industrial Development Organization (UNIDO) database of production-related industrial statistics for 28 industrial sectors (3-digit ISIC code) in a panel of 96 countries for the years 1963 to 2003, with information from Rajan and Zingales (1998) on industrial sectors' dependence on credit, which is expressed as percentage of capital expenditures. This latter measure is computed using two key assumptions: (i) there is a technological reason why some industries depend more on external finance than others; (ii) these technological differences persist across countries and over time.³¹ This measure captures credit

³¹ This strategy of computing an industry's dependence on external funds for any country with the coefficients identified for the United States by Rajan and Zingales is accepted in the literature. See, for example, Hsieh and Parker (2006).

dependence related to the use –in equilibrium—of external funds (as opposed to firm savings) in asset acquisition.³²

From the UNIDO dataset we compute, for every country in the sample, the share of sector i in the corresponding country’s total value added (i.e., $\phi_{i,j}$, where $i = 1, \dots, 28$; and $j = \text{country}$). This share varies from 0.000001 to 0.942 in our sample and proxies for the “size” of industrial sectors within each country j . Next, we multiply each $\phi_{i,j}$ by the corresponding Rajan and Zingales’s measure of dependence on credit of each sector i (RZ_i). The transformed variables compound sector’s size with sector’s need for credit. Finally, in order to get a country-level proxy for incumbents’ resistance towards financial development, we aggregate the transformed variables over the 28 industrial sectors in each country j :

$$CD_j = \sum_{i=1}^{28} \phi_{i,j} RZ_i \quad (15)$$

In words, our proxy for interest groups’ incentive to block financial development is the country-level average of Rajan and Zingales’s measure of dependence on credit, where the weights are given by the size of each sector in the country’s industrial value added.³³ A high value of CD_j variable implies that incumbents have lower incentives to block financial development, and vice versa. With respect to the institutional variables, we proxy government policymaking capabilities using those variables usually found in the literature for which there is enough coverage in terms of both countries and years.

³² In the appendix, we present a table with the list of 28 manufacturing sectors and their corresponding level of external dependence ranked from the lowest to the highest.

³³ In the robustness checks section we replace $\phi_{i,j}$ with alternative relative size measures that are based on labor and wage shares.

One proxy is the quality of the bureaucracy. This variable works well with the framework in this paper because: (i) bureaucratic quality is expected to affect a government's ability to raise revenues and manage its fiscal and financial stance; hence, to affect its incentives to develop financial markets; (ii) high bureaucratic quality is not achieved overnight. It embodies a series of investments made by the polity over time; hence, it summarizes the ability and willingness of political actors to invest in a third party that could limit their discretion and at the same time help to enforce long term commitments. This way, bureaucratic quality should capture long term determinants such as political stability and inclusiveness of political institutions (Besley and Persson 2009).³⁴

The source of the data on bureaucratic quality is the ICRG dataset which covers the period 1960 – 2005 in a yearly frequency.³⁵ The bureaucratic quality index takes values from 0 to 6, where 6 represents that economy has a strong and expert bureaucracy. We also use other variables from the same dataset, such as an index of corruption and an index of government stability, and the ICRG Index of the quality of institutions (POL2), which is the sum of the corruption, law and order, and bureaucratic quality indexes.³⁶

In addition we include in the dataset other variables which are commonly used as determinants of a country's level of financial development. These variables are (i) the log of real GDP per capita in PPP, as proxy of the level of industrialization, taken from the Penn World Tables (version 6.3);³⁷ (ii) trade openness, computed as the sum of total

³⁴ If data availability were not a restriction, bureaucratic quality could be combined with two other similar traits of a polity that capture similar long term investments such as judiciary independence and Congress capabilities (Scartascini, Stein, and Tommasi 2009).

³⁵ This is the same source of institutional quality data used in Baltagi et al (2009).

³⁶ These have been the variables of choice in previous studies such as Bai and Wei (2001), and Girma and Shortland (2004).

³⁷ <http://pwt.econ.upenn.edu/>

exports and imports as percentage of GDP, taken from the World Development Indicators database, (iii) financial openness, defined as the volume of foreign assets and liabilities as percentage of GDP, based on the Lane and Milesi-Ferretti (2006) dataset, and (iv) legal origin dummies, taken from the Global Development Network Growth database.³⁸

The conjunction of the three main variables and the control variables determines the sample. Of these, the most restrictive in the time series dimension is the credit dependence variable which is built from UNIDO data available only up to the year 2003. Putting altogether, we end up with an unbalanced panel of 97 countries (27 developed and 70 developing) for which yearly data is available from 1965 to 2003. (See Table A3 in Appendix for a List of Countries)

A second important challenge is the definition of the time span to use in the analysis. As it is mentioned at the beginning of this section, we are interested in establishing the long-run relationship between financial development levels and the opposition to financial development by the interest groups. Therefore, we choose to aggregate the data over a time period which describes accurately the dynamics of financial development. We use the average of financial development during the period 1980 – 2003, because 1980 is considered the starting point of the financial development recovery of the last part of twentieth century (Rajan and Zingales, 2003a). On the other hand, we attempt to minimize potential reverse causality problems by averaging the explanatory variables over a preceding, non-overlapping period: 1975 – 1979.³⁹

³⁸<http://go.worldbank.org/ZSOKYFU6J0>

³⁹ Given the unbalanced nature of the underlying panel dataset, the data coverage for many countries in our sample begins only in the 1980's. Therefore, when we take averages over non-overlapping years we lose many countries in the sample and end up with a single cross-section of 74 countries. However, many of these countries re-enter the sample when we compute panel models (see sub-section 4.1.4)

4. Regression results

The regression results for the pooled model (12) are presented in Table 1. Our results are consistent with the traditional insights reported in the financial development literature. First, in all cases we find that the coefficient of GDP per capita is positive and statistically significant. Second, compared with countries with British legal origin (our base category), countries with French or Scandinavian legal origins show lower levels of financial development.⁴⁰ Third, the openness effect, i.e. the effect of the combination of financial and trade openness, has a positive significant coefficient on financial development.⁴¹ Finally, the proxies for government capabilities and credit dependence are not statistically significant per se. However, in model with interactive terms, the significance of the constituent terms of an interaction cannot be fully assessed independently from the interaction term.⁴² Moreover, the coefficient estimates of the interaction term are positive and statistically significant, which suggests that both variables have a reinforcing effect over the dependent variable.

The novelties are the results on the sign of the estimated marginal effects of credit dependence and government capabilities (equations (13) and (14)). In order to facilitate the interpretation of these results, we focus on the graphical representation of these equations using the coefficient estimates from the baseline regression. For example, Figure 2 shows the estimated marginal effect of an increase of one standard deviation in the credit dependence variable, using the reported coefficient estimates in column (1.1).

⁴⁰ However, opposite to the results in La Porta et al (1997), German legal origin dummy yields a positive coefficient in all our regressions. This difference can be explained by differences in samples, as La Porta et al (1997) study includes 7 German common law countries, while ours include only 3 (Austria, Japan and South Korea).

⁴¹ See Baltagi et al (2009).

⁴² See Brambor et al (2005) for a thorough analysis linear regression models with interaction terms.

In this figure, the vertical axis shows the value of the right-hand-side of (13), and the horizontal axis shows the different values of GC_j in our sample. The thick black line is the actual estimated marginal effect based on the regression results, while the bands around the central estimate are the 95% confidence intervals. In addition, the vertical dashed lines represent the quartiles of the distribution of GC_j distribution.

Figure 2

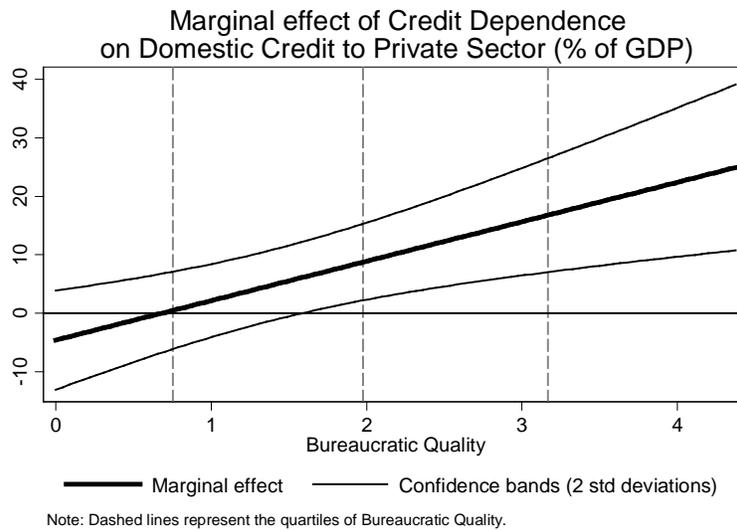
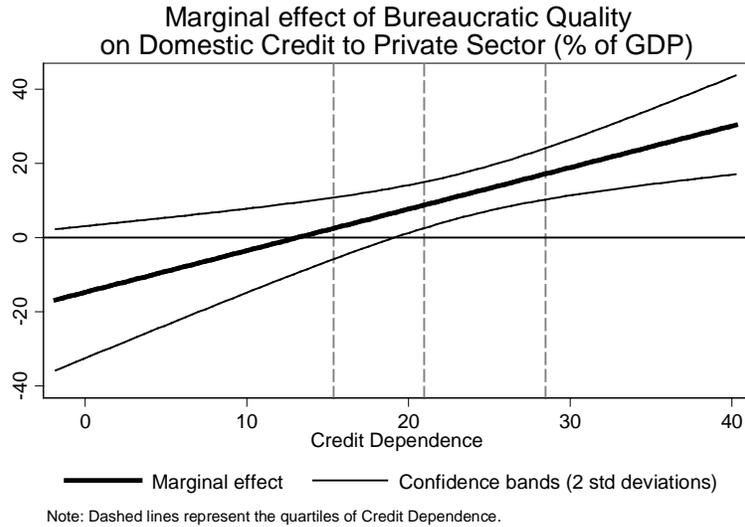


Figure 2 shows that a reduction in the opposition to credit development (i.e., an increase in CD_j) has a positive and statistically significant impact on the level of financial development only in countries with high government policymaking capabilities. In this particular estimation, the marginal effect is significant only for countries located above the median of the distribution of the bureaucratic quality index.

Similarly, Figure 3 shows the analog marginal effect of government capabilities at different levels of credit dependence (equation (14)). The result shows that an increase in government capabilities has a positive and statistically significant impact on the level of

financial development only in those countries with lower opposition to financial development.

Figure 3



Taken together, these results are supportive of the main hypothesis of the paper: it is the combination of low opposition to financial development and high government capabilities that explains why some countries end up with higher levels of financial development. These results are consistent with previous results in the literature that showed that interest groups and government capabilities are important for determining financial development. The novelty here is that we show that their influence is not independent from each other, but rather reinforcing.

4.1. Robustness Checks

In this section, we check the robustness of the results to the specification of other measures of both financial development and incumbents' opposition variables, the

treatment of the potential endogeneity problem, and the use of alternative estimation techniques.

4.1.1. Alternative measures of financial development

The first robustness check examines the sensitivity of our baseline results to changes in the financial development proxy. There are alternative measures that can describe additional features such as the evolution of local equity markets or the size of a country's local financial intermediation. In particular, we include two commonly used proxies: (i) the stock market capitalization and (ii) the financial intermediaries' liquid liabilities, both as percentage of GDP, taken from the Beck, Demirgüç-Kunt and Levine (2000) dataset.

Table 2 shows the estimation of the pooled model (12). For concreteness, we only report the regression results that use the bureaucratic quality (columns 2.1 and 2.3) and the institutional quality variables (columns 2.2 and 2.4) as proxies for government capabilities. The results are similar to those reported in Table 1: the coefficient estimates show the expected sign and significance. In particular, the estimated interaction effects are once again positive and significant.

Estimated marginal effects are presented in Figures 4 and 5. These figures correspond to the effects estimated based on regression results reported in columns (2.1) to (2.3). In both cases the figures on left-hand side panels show the results for the marginal effect of an increase in one standard deviation in credit dependence variable (a reduction in the opposition to financial development), while the right-hand side panels show the results for the marginal effect of an increase in government capabilities

variable. Figures 4 and 5 support the main conclusion of our baseline result: the marginal effects are positive and statistically significant only for relatively high levels of the conditioning variable (i.e., either government capabilities or low opposition to financial development respectively).

Figure 4

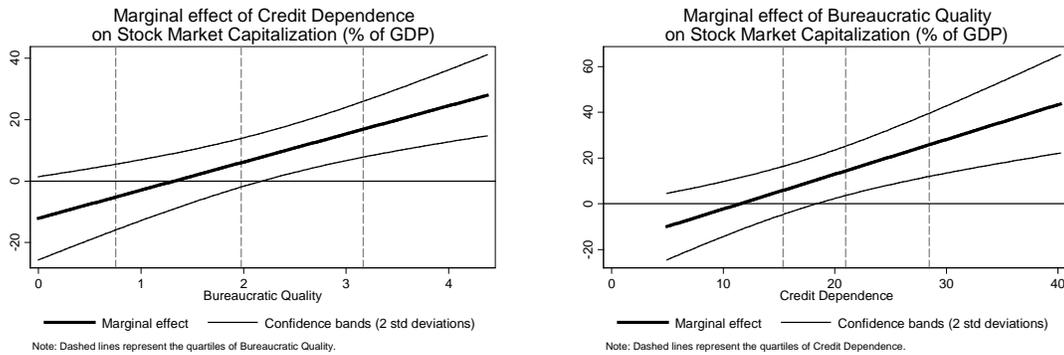
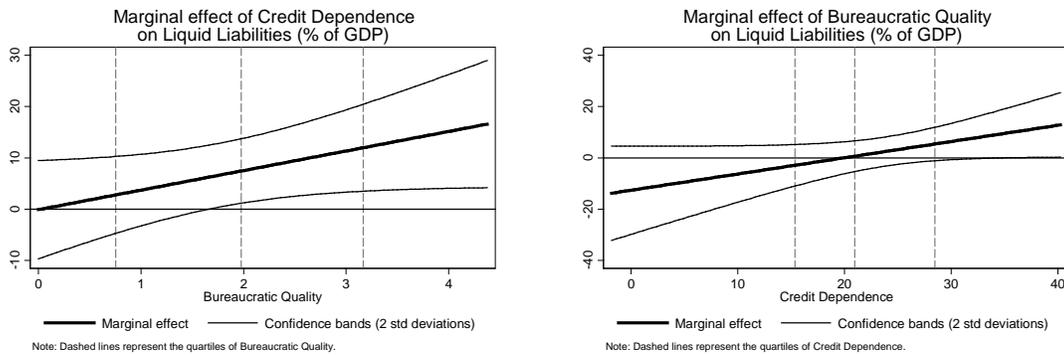


Figure 5



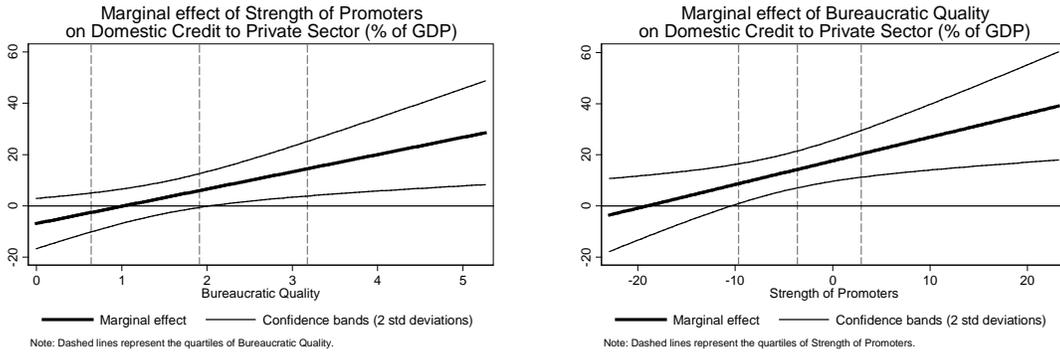
4.1.2. Alternative measures of opposition to financial development

Our favorite measure of incumbents' opposition to credit (CD_j) summarizes a country's technological requirements of external funding. However, there are alternative variables which can measure the interest groups' support or opposition to financial development.

Rajan and Zingales (2003b) argue that if finance leads to competition, this fact must be reflected in competition measures, such as the incumbents' profit margin. Based on this idea, Braun and Radatz (2006) propose the use of the “strength of promoters” variable, which is defined as the difference between the profitability of promoters and opponents to financial development. To compute this variable, Braun and Radatz (2006) implement a three stage procedure: first, they compute the profitability of each sector using the UNIDO dataset, defined as the difference between total sales and production costs (i.e., materials and labor costs) divided by total sales. This is the so-called “price-cost margin ratio” (PCM). Second, they classify the sectors as opponents and promoters of financial development based on the correlation between the sector-specific PCM and the ratio of private credit to GDP in pooled cross-country regressions. Finally, the “strength of promoters” by country is computed as the difference between the weighted (by their value added share) PCM of the two groups in every country.

We estimate equation (12) replacing CD_j by the “strength of promoters” as the proxy of incumbents' opposition to financial development. As in the previous estimations, a high value of strength of promoters means low opposition to financial development. Estimation results are reported in Table 3. Columns 3.1 and 3.2 show the results for private credit equations and columns 3.3 and 3.4 for the stock market capitalization equations. The results are similar to the baseline. In particular, the coefficient estimates of the interaction term between credit dependence and government capabilities are positive and statistically significant in all the cases. Moreover, Figure 6 shows the marginal effects based on column (3.1), which confirms our main result of the paper on the joint importance of both variables to explain financial development.

Figure 6



4.1.3. Endogeneity

A potential problem that plagues this type of studies on financial development, including our own, is the question of potential role of endogeneity. In particular, the size of the sectors that rely more on credit are possibly bigger in countries with more developed financial markets, suggesting that the causality runs in the opposite direction. In a recent paper, Svaleryd and Vlachos (2005) argue that the pattern of industrial specialization depends on the availability of endowments for factors that are used relatively more intensively in the production process. Thus, countries with well functioning financial systems tend to specialize in industries highly dependent on external financing.

This result takes special importance, because our credit dependence variable (CD_j) is computed as the sum of the relative size of an industrial sector ($\phi_{i,j}$) multiplied by its dependence on credit (RZ_i).⁴³ Even though we use lagged values to construct the

⁴³ However, the results of Slaveryd and Vlachos (2005) suggest that private credit over GDP (our preferred measure of financial development), is dominated by other indicators of financial development as a driver of specialization. In particular, measures of “stock market development” and “accounting standards” seem to be the most important determinants of the pattern of industrial specialization.

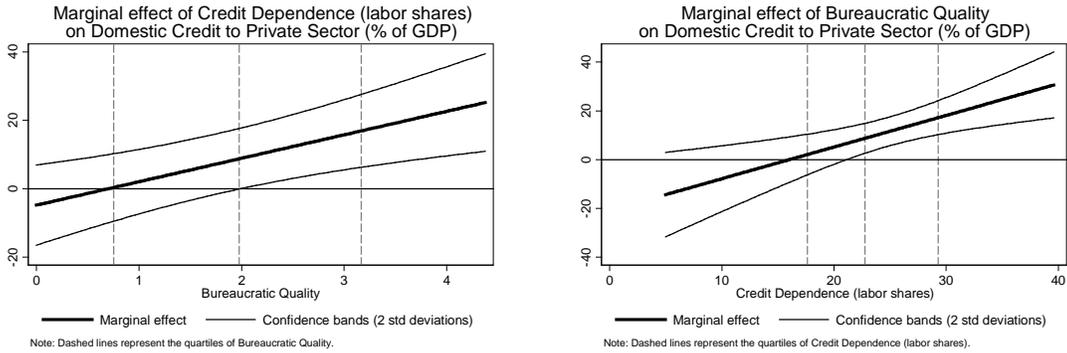
credit dependence proxies (i.e., we average the data over years preceding the period we use to average the data for financial development), it is possible that this variable may be influenced by the initial endowment of credit in the economy. If that is the case, and if this endowment also influences the current level of credit, then the positive correlation that we find in the baseline scenario may simply reflect an accounting identity.

To deal with the potential effect of endogeneity we consider two alternative approaches. First, we test the sensitivity of our results to changes in the proxy for industrial sector size in the economy ($\phi_{i,j}$). In particular, we use two alternative industrial shares that do not depend on industrial value added which is conceivably endogenous. The first one is based on the number of workers employed in each sector (i.e., the share of sector i in the corresponding country's total industrial employment), whereas the second one is based on information about salaries (the share of sector i in the corresponding country's total industrial salaries). These measures reflect other determinants of economic structure, namely, the supply of labor and, if wages are considered as proxy of workers' skills, the supply of skilled labor. Both measures are computed based on UNIDO dataset and are available for the period 1965 – 2003.

Table 4 presents the estimation results of our baseline model (12) using the modified proxies of credit dependence. In particular, columns 4.1 – 4.4 shows that the results are robust. Coefficient estimates have the same sign and statistical significance than the baseline. Moreover, the estimated marginal effects of credit dependence and government capabilities are significant only for high values of the conditioning variable (Figure 7).⁴⁴

⁴⁴ This figure is based on estimated coefficients taken from column (4.1) of Table 4.

Figure 7



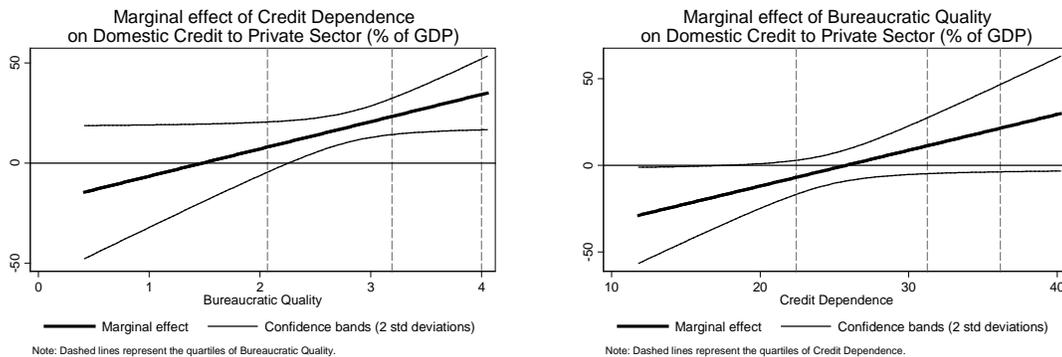
Alternatively we implement an instrumental variables approach. Since credit dependence summarizes the revealed industrial economic patterns of a country, good instruments must be correlated to the pattern of industrial specialization, but may not be correlated with the error term in equation (12).

We consider as possible instruments: the initial endowments (i.e., average 1963-1969) of the production factors: namely capital, labor, schooling, and arable land area. The rationale for the choice of instruments is the following: industrial specialization is governed by the relative availability of production factors (e.g. capital, labor, skilled labor, land and institutions).⁴⁵ Moreover, the initial endowments of production factors are conceivably related to current financial development (the dependent variable) only through their influence on the patterns of industrial specialization (credit dependence). Therefore, the selected instruments conceivably satisfy the exclusion restrictions. While we cannot directly test the validity of the underlying identification assumptions, we can test whether the exclusion restrictions are violated through a suitable over identification test.

⁴⁵ See Slaveryd and Vlachos (2005) and Hidalgo et al (2007).

The instrumental variables results are reported in Table 4, columns (4.5) and (4.6). As explained, we instrument CD_j and $CD_j \times GC_j$ with initial values of the production factors: capital, labor, schooling, and arable land area.⁴⁶ The results are very similar to the baseline –although the estimation is a little bit more imprecise— and the marginal effects related with credit dependence and government policymaking capabilities variables remain unchanged. Figure 8 shows the estimated marginal effects for equation (4.5). Once again, we find that the combination of low opposition to credit and high policymaking capabilities results in a positive effect on the level of financial development in an economy. Moreover, the model passes the Hansen over identification test of the exclusion restrictions.

Figure 8



4.1.4. Dynamic panel estimation

As a final test, we extend our analysis to a dynamic panel framework. Panel estimator uses pooled cross-country and time series data to exploit the additional

⁴⁶ The source of the stock of capital and number of employees is the UNIDO dataset, while the variable average years of secondary schooling education is taken from Barro and Lee (2000). Finally, the source of the arable land area is the World Development Indicators dataset.

information provided by the over-time variation in financial development and its determinants. In this case, we estimate the following dynamic panel model

$$FD_{j,t} = \beta_0 + \alpha FD_{j,t-1} + \beta_1 CD_{j,t-1} + \beta_2 GC_{j,t-1} + \beta_3 (CD \times GC)_{j,t-1} + \gamma \mathbf{X}_{j,t-1} + \delta_t + \eta_j + \varepsilon_{j,t} \quad (16)$$

The variables used for this estimation are the same as those in the cross-section estimations, and δ_t is a time-specific effect; η_j is a country-specific time-invariant effect; and $\varepsilon_{j,t}$ is the idiosyncratic error term.⁴⁷ All the variables are transformed into five-year averages to eliminate business cycle fluctuations. Our final sample is a unbalanced panel with $N = 94$ countries and $T = 8$, where the subscript t designates one of those five-year averages over the period 1965-2003.⁴⁸

Equation (16) includes a lagged term to take into account the persistence of the financial development variable over time. This determines a “dynamic” panel set-up which imposes some estimation challenges of its own. In particular, simple panel OLS estimation of (16) would render biased estimates because η_j is in the error term $\varepsilon_{j,t}$. A simple fixed effects (within-groups) transformation of (16), which eliminates η_j is also biased for panels with a small number of temporal observations because, given the dynamic nature of the model, the new transformed (differenced) variables are correlated to the error term (see Bond 2002). In order to address this problem, we apply the System GMM estimator developed Arellano and Bover (1995) and Blundell and Bond (1998). This estimator allows us to explicitly control for potential biases arising from country

⁴⁷ Note that with the inclusion of η_j , the legal-origin dummies are removed from the set of control variables as they are subsumed by the time-invariant effect.

⁴⁸ The number of countries increases considerably with respect to the cross-section case because, in the latter, we lose many countries when we average the data over non-overlapping periods. However, in the panel regressions, most of those countries re-enter the sample.

specific effects in dynamic panel settings.⁴⁹ In principle, this method can also be used to address another problem that may be prevalent in our sample: the potential reverse causality between the dependant variable and some of the explanatory variables. The standard approach within this framework is to use internal lagged instruments which is valid under the assumption that the explanatory variables are “weakly exogenous.” This means that even though they may be correlated with past or current error terms (and thus they are not “strictly exogenous”), they are uncorrelated with future error terms.

However, the use of internal lagged instruments has been shown to generate problems of instrument proliferation which can easily lead to incorrect inference (see, Roodman 2009). In our sample, instrument proliferation seems to be a problem as we consistently get implausibly high P-values for the Hansen Test of over-identification restrictions, even when we limit the number of instruments to the minimum. For this reason, we deal with the potential endogeneity problem differently by lagging the explanatory variables one period (5 years) and treating them as strictly exogenous in the model. Thus, by restricting the number of internal lagged instruments included in the regressions to only those of the lagged dependent variable, we can dampen the problems associated to instrument proliferation. We test the over-identifying restrictions of the model and the results are supportive of our approach.

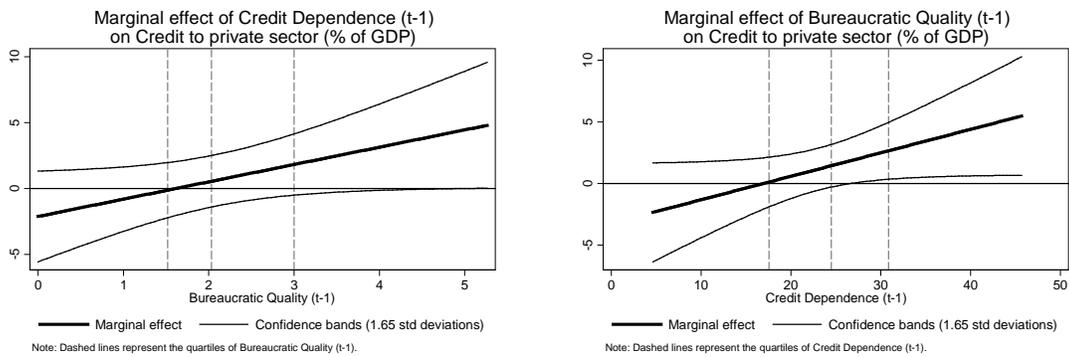
The estimation results for the baseline specification are reported in Table 5. In all cases, the coefficient estimates have the expected signs. However, our dynamic panel estimates shows systematically lower t statistics for the sets of variables which include interactions possibly due to the high correlation between these variables, which difficult

⁴⁹ All our models were estimated using the one-step System GMM estimator.

the estimation of parameters. In fact, in virtually all cases correlation coefficients between level variables (CD_j and GC_j) and the interaction terms are about 0.8 (Table A2).

The left panel of Figure 9 shows the estimated marginal effect on the dependant variable ($FD_{j,t}$) of a decrease in the opposition to financial development (i.e., an increase in $CD_{j,t-1}$), while the right panel shows the marginal effect of an increase in government capabilities ($GC_{j,t-1}$), based on the first column of Table 5. The results are similar to the case of the cross-section model: the marginal effects are positive and significant only at high levels of $GC_{j,t-1}$ and $CD_{j,t-1}$, respectively. This, in turn, is supportive of the main hypothesis of the paper: that it is the combination of low opposition to financial development and high government capabilities that explains why some countries end up with higher levels of financial development.

Figure 9



5. Conclusion

Politics matter for financial development. Otherwise, if countries were managed by benevolent social planners, they would have all moved towards full financial development. Greater access to credit has important implications for the development of an economy as it allows firms to enter markets and grow, and the resources move to the most productive activities. However, while it increases overall welfare in the long run, it also affects the distribution of rents in the short run. Incumbents may see their profit margins shrink, countries may face a higher probability of a negative shock, and governments may lose some of their sources of revenues. The combination of interest groups that try to safeguard their rents and governments that vie for political survival may prove lethal for financial development.

This paper proves that point. Countries in which interest groups have more at stake in terms of potential rent losses and governments that have fewer capacities to manage the economy are more likely to have lower financial development. However, these are not independent events. We find that high interest group opposition to financial development and low government capabilities determine lower levels of financial development.

The framework and the results in this paper are a step forward in the literature because it shows that the heterogeneity of the incumbents (as measured by Rajan and Zingales 1998) is relevant to explain their attitudes towards financial development (in a political economy model a la Rajan and Zingales 2003), but their influence is not independent of the underlying governance structure.

The policy implications of these results are also novel regarding the previous literature. The legal origins view prescribed changes to the legal codes and the political institutions view prescribed far reaching institutional reforms designed to limit the authority of public officials (Haber, North, and Weingast 2008). The results in this study indicate that it is not enough to tinker with certain very specific rules and a broader approach may be warranted.

First, the reforms should affect the long term incentives of political actors to invest in their capabilities. How to reach this goal may be a matter of discussion for a whole volume. Preliminary evidence seems to indicate that politicians would be more eager to invest in the capabilities of government when the conditions are helpful for intertemporal cooperation. Basically, when the basic institutional structure of a country provides actors with long term horizons, open and transparent policy arenas, and enforcement mechanisms (Spiller and Tommasi 2007). On the contrary, institutions such as electoral systems that reward short term political gains will not be conducive to long term investments (Scartascini 2008, Scartascini and Tommasi 2009, Saiegh 2010.)

Second, it may be also necessary to affect the incentives and the power structure of interest groups. Two alternatives may work. On the one hand, governments and international organizations may find it useful to help in the organization of those groups that would benefit from greater financial development. That is, governments and international organizations should be very proactive on reducing the collective action costs for firms in sectors that are highly credit dependant. Moreover, by helping in the set up of encompassing associations, they may achieve this objective while also moving

these associations into a self-sustaining path of endogenous investments in their capabilities as described in the work by Ben Ross Schneider.⁵⁰

On the other, following the work pioneered by Hausmann and Rodrik,⁵¹ it may make sense for countries to make strategic bets in those economic areas that would provide greater industrial complexity while weakening the opposition for financial development. This way, an important development constraint may be lifted.

⁵⁰ See, for example, Schneider (2010).

⁵¹ See, for example, Hausmann and Rodrik (2003, 2006) and Hausmann, Hwang and Rodrik (2007).

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Table 1: Estimation results

Dependent variable: Domestic credit to private sector (% of GDP, Average 1980 - 2003)				
Variables	(1.1)	(1.2)	(1.3)	(1.4)
Credit dependence	-0.531	-1.554	-1.68	-1.121
<i>% of capital expenditures, Average 1975 - 1979</i>	(-1.08)	(-1.43)	(-2.18)**	(-1.78)*
Bureaucratic Quality Index	-10.28			
<i>0 - 6, Average 1975 - 1979</i>	(-1.66)			
Credit dependence x Bureaucratic Quality	0.781			
	(3.14)***			
Government Stability		-7.544		
<i>0 - 12, Average 1975 - 1979</i>		(-1.60)		
Credit dependence x Government Stability		0.438		
		(2.44)**		
Corruption			-15.38	
<i>0 - 6, Average 1975 - 1979</i>			(-2.65)**	
Credit dependence x Corruption			0.841	
			(3.79)***	
Index of the Quality of Institutions (POL2)				-4.082
<i>0 - 18, Average 1975 - 1979</i>				(-1.90)*
Credit dependence x POL2				0.262
				(3.40)***
Real GDP per capita, PPP	6.121	7.983	7.365	6.166
<i>In logs, average 1975-1979</i>	(2.06)**	(2.52)**	(2.55)**	(1.98)*
Trade openness	-0.0364	-0.0139	-0.0531	-0.0269
<i>% of GDP, Average 1975 - 1979</i>	(-0.16)	(-0.06)	(-0.23)	(-0.12)
Financial Openness	-0.114	-0.152	-0.18	-0.152
<i>% of GDP, Average 1975 - 1979</i>	(-1.11)	(-1.35)	(-1.67)*	(-1.46)
Trade openness x Financial Openness	0.00196	0.00226	0.00231	0.00213
	(2.21)**	(2.37)**	(2.63)**	(2.53)**
French Origin	-4.90	-7.79	-5.33	-5.79
<i>Dummy variable</i>	(-0.75)	(-1.10)	(-0.77)	(-0.85)
German Origin	33.20	31.50	41.56	36.51
<i>Dummy variable</i>	(1.56)	(1.72)*	(2.00)*	(1.69)*
Scandinavian Origin	-22.26	-20.82	-24.86	-26.01
<i>Dummy variable</i>	(-2.13)**	(-1.78)*	(-2.25)**	(-2.29)**
Constant	-11.02	-2.344	9.58	2.327
	(-0.45)	(-0.06)	(0.32)	(0.09)
Observations	74	74	74	74
R-squared	0.671	0.637	0.670	0.671

Notes: t statistics (computed using robust standard errors) in parentheses. * Significant at 10%, ** significant at 5%, *** significant at 1%.

Table 2: Estimation results – additional financial development measures

Variables	Stock Market Capitalization		Liquid Liabilities	
	(2.1)	(2.2)	(2.3)	(2.4)
Credit dependence	-1.4	-1.457	-0.0123	-0.436
<i>% of capital expenditures, Average 1975 - 1979</i>	(-1.79)*	(-1.65)	(-0.02)	(-0.66)
Bureaucratic Quality Index	-12.2		-8.799	
<i>0 - 6, Average 1975 - 1979</i>	(-1.98)*		(-1.46)	
Credit dependence x Bureaucratic Quality	1.059		0.441	
	(3.70)***		(1.85)*	
Index of the Quality of Institutions (POL2)		-2.12		-3.263
<i>0 - 18, Average 1975 - 1979</i>		(-0.82)		(-1.63)
Credit dependence x POL2		0.256		0.156
		(2.96)***		(2.11)**
Real GDP per capita, PPP	-3.211	-4.257	5.502	5.246
<i>In logs, average 1975-1979</i>	(-0.82)	(-0.98)	(2.02)**	(1.89)*
Trade openness	-0.265	-0.322	-0.159	-0.16
<i>% of GDP, Average 1975 - 1979</i>	(-0.91)	(-1.19)	(-0.78)	(-0.80)
Financial Openness	-0.11	-0.12	-0.381	-0.393
<i>% of GDP, Average 1975 - 1979</i>	(-0.62)	(-0.69)	(-3.30)***	(-3.44)***
Trade openness x Financial Openness	0.00467	0.00493	0.00506	0.00512
	(3.66)***	(4.17)***	(6.05)***	(6.22)***
French Origin	-7.18	-8.98	-1.65	-1.36
<i>Dummy variable</i>	(-1.11)	(-1.34)	(-0.28)	(-0.23)
German Origin	-25.04	-19.34	40.13	41.43
<i>Dummy variable</i>	(-1.82)*	(-1.09)	-1.35	-1.41
Scandinavian Origin	-22.4	-26.46	-21.93	-23.35
<i>Dummy variable</i>	(-1.41)	(-1.58)	(-2.64)**	(-2.62)**
Constant	67.51	76.19	6.983	18.49
	(2.13)**	(2.36)**	(0.28)	(0.71)
Observations	61	61	70	70
R-squared	0.763	0.748	0.625	0.63

Notes: Dependent variables are expressed as percentage of GDP and are computed as the average between 1980 - 2003. t statistics (computed using robust standard errors) in parentheses. * Significant at 10%, ** significant at 5%, *** significant at 1%.

Table 3: Estimation results – alternative measures to incumbents’ opposition

Variables	Private Credit		Stock Market Capitalization	
	(3.1)	(3.2)	(3.3)	(3.4)
Strength of Promoters	-0.648	-0.81	-1.34	-1.092
<i>% of total sales, Average 1970 - 1974</i>	(-1.40)	(-1.11)	(-2.27)**	(-1.58)
Bureaucratic Quality Index	12.07		19.07	
<i>0 - 6, Average 1970 - 1974</i>	(4.41)***		(4.45)***	
Strength of Promoters x Bureaucratic Quality	0.633		0.935	
	(2.64)**		(3.21)***	
Index of the Quality of Institutions (POL2)		3.426		5.46
<i>0 - 18, Average 1970 - 1974</i>		(3.15)***		(3.61)***
Strength of Promoters x POL2		0.172		0.208
		(1.77)*		(2.04)**
Real GDP per capita, PPP	9.832	9.449	-1.45	-3.202
<i>In logs, average 1975-1979</i>	(2.75)***	(2.45)**	(-0.31)	(-0.60)
Trade openness	-0.0951	-0.0892	-0.493	-0.45
<i>% of GDP, Average 1975 - 1979</i>	(-0.37)	(-0.34)	(-1.63)	(-1.56)
Financial Openness	-0.154	-0.171	-0.119	-0.117
<i>% of GDP, Average 1975 - 1979</i>	(-1.14)	(-1.27)	(-0.58)	(-0.61)
Trade openness x Financial Openness	0.00249	0.00259	0.00549	0.00536
	(2.55)**	(2.69)***	(4.37)***	(4.51)***
French Origin	-3.43	-7.02	-1.77	-6.79
<i>Dummy variable</i>	(-0.44)	(-0.87)	(-0.24)	(-0.98)
German Origin	35.76	37.05	-22.37	-20.24
<i>Dummy variable</i>	-1.35	-1.34	(-1.26)	(-0.91)
Scandinavian Origin	-22.1	-26.53	-20.2	-27.33
<i>Dummy variable</i>	(-1.77)*	(-1.95)*	(-1.35)	(-1.57)
Constant	-55.5	-53.69	18.79	30.15
	(-2.40)**	(-2.29)**	(0.57)	(0.86)
Observations	66	66	56	56
R-squared	0.659	0.64	0.778	0.753

Notes: Dependent variables are expressed as percentage of GDP and are computed as the average between 1980 - 2003. t statistics (computed using robust standard errors) in parentheses. * Significant at 10%, ** significant at 5%, *** significant at 1%.

Table 4: Estimation results – Dealing with potential endogeneity

Dependent variable: Domestic credit to private sector (% of GDP, Average 1980 - 2003)						
Variables	Labor shares		Wages shares		IV estimation	
	(4.1)	(4.2)	(4.3)	(4.4)	(4.5)	(4.6)
Credit dependence	-0.632	-1.409	-1.012	-1.907	-2.732	-2.811
<i>% of capital expenditures, Average 1975 - 1979</i>	(-0.82)	(-1.48)	(-1.10)	(-1.83)*	(-1.04)	(-1.03)
Bureaucratic Quality Index	-14.5		-16.13		-47.62	
<i>0 - 6, Average 1975 - 1979</i>	(-1.96)*		(-1.76)*		(-2.08)**	
Credit dependence x Bureaucratic Quality	0.905		0.94		1.844	
	(3.16)***		(2.80)***		(2.01)**	
Index of the Quality of Institutions (POL2)		-5.304		-6.68		-11.65
<i>0 - 18, Average 1975 - 1979</i>		(-2.12)**		(-2.47)**		(-1.97)**
Credit dependence x POL2		0.299		0.338		0.466
		(3.39)***		(3.62)***		(1.93)*
Real GDP per capita, PPP	5.954	5.736	6.639	5.937	19.47	19.66
<i>In logs, average 1975-1979</i>	(1.82)*	(1.77)*	(2.01)**	(1.85)*	(4.07)***	(4.13)***
Trade openness	-0.0174	-0.0369	-0.0864	-0.0866	0.0318	0.0571
<i>% of GDP, Average 1975 - 1979</i>	(-0.07)	(-0.16)	(-0.32)	(-0.35)	(0.10)	(0.20)
Financial Openness	-0.128	-0.144	-0.132	-0.161	0.049	0.0244
<i>% of GDP, Average 1975 - 1979</i>	(-1.19)	(-1.33)	(-1.21)	(-1.45)	(0.33)	(0.15)
Trade openness x Financial Openness	0.002	0.00213	0.0023	0.00243	-0.000889	-0.000737
	(2.29)**	(2.50)**	(2.40)**	(2.65)**	(-0.39)	(-0.32)
French Origin	-4.18	-5.51	-5.92	-6.99	0.61	-1.71
<i>Dummy variable</i>	(-0.65)	(-0.84)	(-0.86)	(-1.02)	(0.09)	(-0.27)
German Origin	27.15	32.02	29.16	32.70	51.79	56.08
<i>Dummy variable</i>	(1.14)	(1.32)	(1.26)	(1.42)	(4.01)***	(3.58)***
Scandinavian Origin	-24.32	-27.45	-22.83	-27.19	-24.4	-27.93
<i>Dummy variable</i>	(-2.30)**	(-2.47)**	(-2.13)**	(-2.41)**	(-2.21)**	(-2.45)**
Constant	-5.769	15.47	1.099	30.47	-65.14	-67.58
	(-0.25)	(0.63)	(0.04)	(0.96)	(-0.75)	(-0.78)
Observations	70	70	71	71	27	27
R-squared	0.68	0.682	0.658	0.67	0.815	0.811
Hansen's overidentification test (p-value)					0.54	0.296

Notes: The instruments included are: the log of capital stock (average 1963-1969), the log of number of industry workers (average 1963-1969), the logarithm of the average years of schooling in the total population over 25 (1965) and the logarithm of the arable land area (average 1963 - 1969). t statistics (computed using robust standard errors) in parentheses. * Significant at 10%, ** significant at 5%, *** significant at 1%.

Table 5: Estimation results – System GMM estimation

Dependent variable: Domestic credit to private sector (% of GDP, 5-years Averages)
Estimation method: One-step System GMM

Variables	(5.1)	(5.2)	(5.3)	(5.4)
Credit dependence	-0.24	-0.525	-0.246	-0.155
<i>% of capital expenditures, first lag</i>	(-1.01)	(-1.71)*	(-0.93)	(-0.59)
Bureaucratic Quality Index	-2.533			
<i>0 - 6, first lag</i>	(-1.10)			
Credit dependence x Bureaucratic Quality	0.149			
<i>First lag</i>	(1.59)			
Government Stability		-1.297		
<i>0 - 12, first lag</i>		(-1.59)		
Credit dependence x Government Stability		0.0912		
<i>First lag</i>		(2.29)**		
Corruption			-2.088	
<i>0 - 6, first lag</i>			(-0.98)	
Credit dependence x Corruption			0.107	
<i>First lag</i>			(1.32)	
Index of the Quality of Institutions (POL2)				-0.541
<i>0 - 18, first lag</i>				(-0.73)
Credit dependence x POL2				0.0307
<i>First lag</i>				(1.06)
Credit to private sector	0.782	0.814	0.795	0.787
<i>% of GDP, first lag</i>	(8.89)***	(9.50)***	(9.04)***	(8.86)***
Real GDP per capita, PPP	4.16	3.995	4.227	4.301
<i>In logs, first lag</i>	(3.19)***	(3.01)***	(3.42)***	(3.41)***
Trade openness	0.0602	0.0574	0.0543	0.0598
<i>% of GDP, first lag</i>	(1.10)	(1.02)	(0.98)	(1.09)
Financial Openness	-0.0342	-0.0254	-0.0325	-0.0299
<i>% of GDP, first lag</i>	(-0.73)	(-0.54)	(-0.72)	(-0.65)
Trade openness x Financial Openness	0.000196	0.000125	0.000192	0.000166
<i>First lag</i>	(0.58)	(0.36)	(0.57)	(0.49)
Constant	-19.98	-17.72	-19.52	-22.86
	(-1.76)*	(-1.46)	(-1.91)*	(-2.16)**
Number of observations	416	416	416	416
Number of countries	94	94	94	94
Number of instruments	27	27	27	27
AR (1) test (p-value)	0.0269	0.032	0.0282	0.0282
AR (2) test (p-value)	0.115	0.109	0.132	0.118
Hansen test (p-value)	0.319	0.315	0.337	0.316

Notes: t statistics (computed using robust standard errors) in parentheses. * Significant at 10%, ** significant at 5%, *** significant at 1%.

Appendix

Table A1: Summary statistics

Summary statistics: Cross section Analysis									
Variable	Units	Sample period	Source	Obs	Mean	Std. Deviation	Minimum	Maximum	
Financial Development Indicators									
Domestic credit to private sector	% of GDP	Average 1980 - 2003	WDI dataset	74	50.02	36.59	5.70	184.59	
Stock market capitalization	% of GDP	Average 1980 - 2003	Beck, Demirgüç-Kunt and Levine (2000)	61	38.87	42.52	0.95	240.52	
Banks liquid liabilities	% of GDP	Average 1980 - 2003	Beck, Demirgüç-Kunt and Levine (2000)	70	50.70	32.63	16.85	195.33	
Incumbents' opposition variables									
Credit dependence	% of total capital expenditures	Average 1975-1979	Authors' calculations based on UNIDO dataset	74	23.37	8.66	-1.81	40.21	
Credit dependence (labor shares)	% of total capital expenditures	Average 1975-1979	Authors' calculations based on UNIDO dataset	70	24.95	7.56	4.99	39.59	
Credit dependence (wage shares)	% of total capital expenditures	Average 1975-1979	Authors' calculations based on UNIDO dataset	71	26.11	7.72	10.03	41.00	
Strength of promoters	% of total sales	Average 1970-1974	Authors' calculations based on UNIDO dataset	71	-1.95	8.08	-18.17	28.00	
Government policymaking capabilities variables									
Bureaucratic Quality Index	0-6	Average 1975-1979	ICRG dataset	74	2.10	1.37	0.00	4.38	
Government Stability	0-12	Average 1975-1979	ICRG dataset	74	6.72	2.05	2.81	10.58	
Corruption	0-6	Average 1975-1979	ICRG dataset	74	3.30	1.65	0.00	6.00	
Index of the Quality of Institutions (POL2)	0-18	Average 1975-1979	ICRG dataset	74	8.54	4.46	1.10	16.00	
Additional control variables									
Real GDP per capita, PPP (log)	% of GDP	Average 1975-1979	Penn World Tables (v 6.3)	74	8.73	1.03	6.71	11.16	
Trade openness	% of GDP	Average 1975-1979	WDI dataset	74	61.53	28.90	12.77	167.68	
Financial openness	% of GDP	Average 1975-1979	Authors' calculations based on Lane and Milesi-Ferretti (2006)	74	71.44	44.65	18.48	285.66	
Legal origin: British	Dummy variable		Global Development Network Growth dataset	74	0.36	0.48	0.00	1.00	
Legal origin: French	Dummy variable		GDN dataset	74	0.53	0.50	0.00	1.00	
Legal origin: German	Dummy variable		GDN dataset	74	0.04	0.20	0.00	1.00	
Legal origin: Scandinavian	Dummy variable		GDN dataset	74	0.07	0.25	0.00	1.00	
Summary statistics: Data panel analysis (5-years averages, 1965-2003)									
Variable	Units	Observations (countries)	Mean	Std. Deviation			Minimum	Maximum	
				Overall	Between	Within			
Financial Development Indicators									
Domestic credit to private sector	% of GDP	416 (94)	44.13	30.73	27.75	14.66	3.73	143.71	
Incumbents' opposition variables									
Credit dependence	% of total capital expenditures	416 (94)	24.23	9.01	8.52	3.07	4.64	45.69	
Government policymaking capabilities variables									
Bureaucratic Quality Index	0-6	416 (94)	2.29	1.24	1.20	0.38	0.00	5.26	
Government Stability	0-12	416 (94)	6.86	1.85	1.52	1.22	2.52	11.00	
Corruption	0-6	416 (94)	3.47	1.50	1.36	0.49	0.00	6.00	
Index of the Quality of Institutions (POL2)	0-18	416 (94)	9.29	4.07	3.81	1.24	1.00	16.00	
Additional control variables									
Real GDP per capita, PPP (log)	% of GDP	416 (94)	8.81	0.99	1.02	0.18	6.45	11.39	
Trade openness	% of GDP	416 (94)	62.39	28.41	30.14	9.32	11.27	192.80	
Financial openness	% of GDP	416 (94)	106.48	72.14	61.47	45.51	20.12	464.60	

Table A2: Pairwise correlations

Correlation matrix: Cross section analysis										
Variables	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8	CS9	CS10
CS1 Credit dependence	1.000									
CS2 Bureaucratic Quality Index	0.650 ***	1.000								
CS3 Government Stability	0.617 ***	0.817 ***	1.000							
CS4 Corruption	0.662 ***	0.831 ***	0.729 ***	1.000						
CS5 Index of the Quality of Institutions (POL2)	0.708 ***	0.938 ***	0.826 ***	0.942 ***	1.000					
CS6 Credit dependence x Bureaucratic Quality	0.826 ***	0.935 ***	0.818 ***	0.864 ***	0.940 ***	1.000				
CS7 Credit dependence x Government Stability	0.901 ***	0.805 ***	0.874 ***	0.783 ***	0.857 ***	0.934 ***	1.000			
CS8 Credit dependence x Corruption	0.863 ***	0.825 ***	0.749 ***	0.931 ***	0.922 ***	0.946 ***	0.919 ***	1.000		
CS9 Credit dependence x POL2	0.862 ***	0.872 ***	0.801 ***	0.897 ***	0.947 ***	0.977 ***	0.949 ***	0.982 ***	1.000	
CS10 Real GDP per capita, PPP (in logs)	0.389 ***	0.546 ***	0.527 ***	0.599 ***	0.608 ***	0.571 ***	0.534 ***	0.574 ***	0.584 ***	1.000
CS11 Trade openness	-0.102	0.084	0.056	0.125	0.072	0.023	-0.043	0.044	0.013	0.252 **
CS12 Financial Openness	0.101	0.141	0.076	0.184	0.163	0.157	0.109	0.189	0.167	0.257 **
CS13 Trade openness x Financial Openness	0.088	0.147	0.094	0.169	0.149	0.152	0.100	0.169	0.150	0.241 **
CS14 Domestic credit to private sector	0.598 ***	0.645 ***	0.563 ***	0.599 ***	0.647 ***	0.727 ***	0.677 ***	0.691 ***	0.710 ***	0.537 ***
CS15 Stock Market Capitalization	0.511 ***	0.587 ***	0.430 ***	0.582 ***	0.585 ***	0.647 ***	0.541 ***	0.629 ***	0.628 ***	0.392 ***
CS16 Liquid Liabilities	0.454 ***	0.414 ***	0.419 ***	0.390 ***	0.425 ***	0.504 ***	0.508 ***	0.479 ***	0.499 ***	0.418 ***
CS17 Credit dependence (labor shares)	0.895 ***	0.6716 ***	0.6201 ***	0.663 ***	0.7264 ***	0.8468 ***	0.8963 ***	0.8665 ***	0.8784 ***	0.511 ***
CS18 Credit dependence (wages shares)	0.935 ***	0.6462 ***	0.5917 ***	0.6228 ***	0.6808 ***	0.8287 ***	0.8839 ***	0.8329 ***	0.8507 ***	0.4074 ***
CS19 Strength of promoters	0.345 ***	0.3405 ***	0.3349 ***	0.3722 ***	0.3371 ***	0.8003 ***	0.9599 ***	0.9205 ***	0.8962 ***	0.5007 ***

Variables	CS11	CS12	CS13	CS14	CS15	CS16	CS17	CS18	CS19
CS11 Trade openness	1.000								
CS12 Financial Openness	0.754 ***	1.000							
CS13 Trade openness x Financial Openness	0.830 ***	0.916 ***	1.000						
CS14 Domestic credit to private sector	0.187	0.303 ***	0.335 ***	1.000					
CS15 Stock Market Capitalization	0.394 ***	0.585 ***	0.622 ***	0.761 ***	1.000				
CS16 Liquid Liabilities	0.316 ***	0.413 ***	0.516 ***	0.848 ***	0.690 ***	1.000			
CS17 Credit dependence (labor shares)	-0.0968	0.1446	0.1121	0.6637 ***	0.5707 ***	0.4965 ***	1		
CS18 Credit dependence (wages shares)	-0.1812	0.0489	0.0248	0.6007 ***	0.4867 ***	0.417 ***	0.9507 ***	1	
CS19 Strength of promoters	0.0799	0.0793	0.1253	0.3978 ***	0.3547 ***	0.3663 ***	0.2906 **	0.3182 ***	1

Correlation matrix: Panel analysis										
Variables	DP1	DP2	DP3	DP4	DP5	DP6	DP7	DP8	DP9	DP10
DP1 Credit dependence	1									
DP2 Bureaucratic Quality Index	0.593 ***	1								
DP3 Government Stability	0.417 ***	0.6255 ***	1							
DP4 Corruption	0.6082 ***	0.8016 ***	0.5469 ***	1						
DP5 Index of the Quality of Institutions (POL2)	0.6433 ***	0.9203 ***	0.663 ***	0.9274 ***	1					
DP6 Credit dependence x Bureaucratic Quality	0.8507 ***	0.8973 ***	0.5833 ***	0.8073 ***	0.8873 ***	1				
DP7 Credit dependence x Government Stability	0.8878 ***	0.7101 ***	0.7601 ***	0.6855 ***	0.7643 ***	0.8841 ***	1			
DP8 Credit dependence x Corruption	0.8657 ***	0.7807 ***	0.527 ***	0.9002 ***	0.8773 ***	0.9372 ***	0.8648 ***	1		
DP9 Credit dependence x POL2	0.8775 ***	0.831 ***	0.5854 ***	0.8517 ***	0.9066 ***	0.9737 ***	0.9043 ***	0.9758 ***	1	
DP10 Real GDP per capita, PPP (in logs)	0.5366 ***	0.624 ***	0.4351 ***	0.6309 ***	0.6788 ***	0.6591 ***	0.5866 ***	0.6571 ***	0.6767 ***	1
DP11 Trade openness	-0.0021	0.1384 ***	0.1624 ***	0.1086 **	0.1337 ***	0.072	0.0724	0.0674	0.0735	0.2143 ***
DP12 Financial Openness	0.1206 **	0.1684 ***	0.0947 *	0.169 ***	0.2055 ***	0.1878 ***	0.1306 ***	0.1743 ***	0.1965 ***	0.2446 ***
DP13 Trade openness x Financial Openness	0.0746	0.136 ***	0.1069 **	0.1105 **	0.1518 ***	0.1252 **	0.1043 **	0.109 **	0.1311 ***	0.2389 ***
DP14 Domestic credit to private sector	0.5128 ***	0.5521 ***	0.3655 ***	0.5059 ***	0.5628 ***	0.617 ***	0.5342 ***	0.5806 ***	0.6085 ***	0.5902 ***

Variables	DP11	DP12	DP13	DP14
DP11 Trade openness	1			
DP12 Financial Openness	0.565 ***	1		
DP13 Trade openness x Financial Openness	0.7839 ***	0.88 ***	1	
DP14 Domestic credit to private sector	0.2117 ***	0.3098 ***	0.2901 ***	1

* Significant at 10%, ** significant at 5%, *** significant at 1%.

Table A3: List of countries

World Bank Country Code	Country Name	World Bank Income Level	Cross section estimation	Panel estimation	World Bank Country Code	Country Name	World Bank Income Level	Cross section estimation	Panel estimation
1 ALB	Albania	lower-middle-income		x	50 KOR	Korea, Rep.	upper-middle-income	x	x
2 ARE	United Arab Emirates	high-income, non-OECD	x	x	51 KWT	Kuwait	high-income, non-OECD	x	x
3 ARG	Argentina	upper-middle-income		x	52 LBY	Libya	upper-middle-income	x	x
4 AUS	Australia	high-income, OECD	x	x	53 LKA	Sri Lanka	lower-middle-income	x	x
5 AUT	Austria	high-income, OECD	x	x	54 LVA	Latvia	lower-middle-income		x
6 BEL	Belgium	high-income, OECD	x	x	55 MAR	Morocco	lower-middle-income	x	x
7 BGD	Bangladesh	low-income	x	x	56 MDG	Madagascar	low-income	x	x
8 BGR	Bulgaria	lower-middle-income		x	57 MEX	Mexico	upper-middle-income	x	x
9 BOL	Bolivia	lower-middle-income	x	x	58 MLT	Malta	high-income, non-OECD		x
10 BRA	Brazil	upper-middle-income		x	59 MWI	Malawi	low-income	x	x
11 BWA	Botswana	upper-middle-income		x	60 MYS	Malaysia	upper-middle-income	x	x
12 CAN	Canada	high-income, OECD	x	x	61 NAM	Namibia	lower-middle-income		x
13 CHL	Chile	upper-middle-income	x	x	62 NER	Niger	low-income		x
14 CHN	China	low-income		x	63 NGA	Nigeria	low-income	x	x
15 CIV	Cote d'Ivoire	low-income	x	x	64 NIC	Nicaragua	low-income	x	x
16 CMR	Cameroon	low-income	x	x	65 NLD	Netherlands	high-income, OECD	x	x
17 COG	Congo, Rep.	low-income		x	66 NOR	Norway	high-income, OECD	x	x
18 COL	Colombia	lower-middle-income	x	x	67 NZL	New Zealand	high-income, OECD	x	x
19 CRI	Costa Rica	lower-middle-income	x	x	68 OMN	Oman	upper-middle-income		x
20 CYP	Cyprus	high-income, non-OECD	x	x	69 PAK	Pakistan	low-income	x	x
21 DNK	Denmark	high-income, OECD	x	x	70 PAN	Panama	upper-middle-income		x
22 DOM	Dominican Republic	lower-middle-income	x	x	71 PER	Peru	lower-middle-income		x
23 DZA	Algeria	lower-middle-income	x	x	72 PHL	Philippines	lower-middle-income	x	x
24 ECU	Ecuador	lower-middle-income	x	x	73 PNG	Papua New Guinea	lower-middle-income	x	x
25 EGY	Egypt, Arab Rep.	lower-middle-income	x	x	74 POL	Poland	upper-middle-income		x
26 ESP	Spain	high-income, OECD	x	x	75 PRT	Portugal	high-income, OECD	x	x
27 ETH	Ethiopia	low-income		x	76 PRY	Paraguay	lower-middle-income	x	x
28 FIN	Finland	high-income, OECD	x	x	77 ROM	Romania	lower-middle-income		x
29 FRA	France	high-income, OECD	x	x	78 RUS	Russian Federation	lower-middle-income		x
30 GAB	Gabon	upper-middle-income	x	x	79 SDN	Sudan	low-income	x	x
31 GBR	United Kingdom	high-income, OECD	x	x	80 SEN	Senegal	low-income	x	x
32 GHA	Ghana	low-income	x	x	81 SLV	El Salvador	lower-middle-income	x	x
33 GRC	Greece	high-income, OECD	x	x	82 SVN	Slovenia	high-income, non-OECD		x
34 GTM	Guatemala	lower-middle-income	x	x	83 SWE	Sweden	high-income, OECD	x	x
35 HKG	Hong Kong, China	high-income, non-OECD	x		84 SYR	Syrian Arab Republic	lower-middle-income	x	x
36 HND	Honduras	low-income	x	x	85 TGO	Togo	low-income	x	x
37 HTI	Haiti	low-income		x	86 THA	Thailand	lower-middle-income	x	x
38 HUN	Hungary	upper-middle-income		x	87 TTO	Trinidad and Tobago	upper-middle-income	x	x
39 IDN	Indonesia	low-income	x	x	88 TUN	Tunisia	lower-middle-income	x	x
40 IND	India	low-income	x		89 TUR	Turkey	upper-middle-income	x	x
41 IRL	Ireland	high-income, OECD		x	90 TZA	Tanzania	low-income		x
42 IRN	Iran, Islamic Rep.	lower-middle-income	x	x	91 UGA	Uganda	low-income		x
43 ISL	Iceland	high-income, OECD	x	x	92 URY	Uruguay	upper-middle-income	x	x
44 ISR	Israel	high-income, non-OECD	x	x	93 USA	United States	high-income, OECD	x	x
45 ITA	Italy	high-income, OECD	x	x	94 VEN	Venezuela	upper-middle-income	x	x
46 JAM	Jamaica	lower-middle-income	x	x	95 ZAF	South Africa	lower-middle-income	x	x
47 JOR	Jordan	lower-middle-income	x		96 ZMB	Zambia	low-income	x	x
48 JPN	Japan	high-income, OECD	x		97 ZWE	Zimbabwe	low-income	x	x
49 KEN	Kenya	low-income	x	x					

Table A4: Manufacturing industries and external financial dependence

ISIC code	Industry name	Rajan & Zingales
314	Tobacco	-45.0
361	Pottery, china, earthenware	-15.0
323	Leather products	-14.0
324	Footwear, except rubber or plastic	-8.0
372	Non-ferrous metals	1.0
322	Wearing apparel, except footwear	3.0
353	Petroleum refineries	4.0
369	Other non-metallic mineral products	6.0
313	Beverages	8.0
371	Iron and steel	9.0
311	Food products	14.0
321	Textiles	15.5
341	Paper and products	16.5
342	Printing and publishing	20.0
351	Industrial chemicals	20.5
355	Rubber products	23.0
332	Furniture, except metal	24.0
381	Fabricated metal products	24.0
331	Wood products, except furniture	28.0
354	Misc. petroleum and coal products	33.0
384	Transport equipment	38.7
390	Other manufactured products	47.0
362	Glass and products	53.0
382	Machinery, except electrical	75.5
352	Other chemicals	85.5
383	Machinery, electric	90.5
385	Professional & scientific equipment	96.0
356	Plastic products	114.0

Source: Rajan and Zingales (1998)