BANK REGULATIONS AND LOAN CONTRACTS [†]

Romulo Magalhaes *
Universidad Carlos III de Madrid (Dep. of Business Administration) and
Banco Central do Brasil
e-mail: romulo.magalhaes@bcb.gov.br

Josep A. Tribó
Universidad Carlos III de Madrid
Department of Business Administration
e-mail: joatribo@emp.uc3m.es

Abstract

This study examines empirically how bank regulations adopted in lender countries influence the characteristics of loan contracts, using a sample of loans made by 278 large commercial banks around 39 countries, to borrowers in 83 countries, in the period from 1998 to 2006. The analyses provide evidence that: (1) loan spread margins and loan maturity have respectively inverse-U and U-shaped relationships with capital regulations stringency, (2) loan maturity decreases with official supervisory power (3) the loan share of arranger lenders decreases with capital stringency, while increases both with the level of private monitoring and with the official supervisory power. Our findings indicate that more stringent capital regulations are associated with lower priced risk characteristics (spread and maturity) of loan contracts and with higher loan risk diversification. By contrast, official supervisory power is associated with riskier and less diversified loan contracts. In addition, both official supervisory power and private monitoring work as substitutes to capital regulation to reduce the (priced) risk measures of loan contracts when capital stringency is low. For higher capital stringency, supervision and private monitoring are complements to capital regulation to reduce loan contracts risk measures.

JEL Classification:.G21, G28, G32

Keywords: Banks, Regulation, Credit, Risk, Bank Lending, Syndicated Loans

I.   Introduction

The existence of banks as financial intermediaries as well as the functioning of the banking system is argued to be of great importance in determining a country's economic growth and stability (Allen and Gale, 2000; Levine, 2006). More specifically, the credit channel plays a pivotal role in the transmission of the monetary policy, which is a basic element for achieving a sustained economic growth (e.g., Bernanke and Gertler, 1995), as well as financial stability. Governments and national institutions all over the world are aware of such important role played by financial institutions and impose several regulations on the banking sector. More formally, the need of regulation is grounded on two basic reasons: first, the risk of a systemic crisis that would spread along all the economy; second, the inability of depositors to monitor banks (Santos, 2001). This study is interested in looking at how the functioning of credit markets is affected by bank regulations.

The recent international financial crisis triggered a necessary and urgent debate on the restructuring of financial systems. At the core of the discussion there are the roles that the prudential regulation on capital requirements, the official supervision and the market discipline should play in achieving the ultimate regulations' purposes of guaranteeing financial stability and supporting economic growth. Despite the current urgency of this issue, such discussion is already in place at least since the revision of the 1988 Basel Capital Accord, which led to a revised framework, the Basel II Capital Accord (Basel Committee, 2004). This accord establishes three bank regulatory pillars, representing capital requirements, supervisory review process, and market discipline. The effort devoted by Basel II in achieving bank regulatory convergence is not without criticisms, such as the high reliance that Basel II puts on supervisors to ask banks to hold capital above the minimum required. The critics[1] see this reliance as an attempt to replace the market by supervisors or by the complicated formulae proposed by Pillar I. Also, the international standard status of Basel II and the widespread trend for its adoption make such an emphasis on supervision a challenge to the ability of developing countries in spending high resources on more sophisticated bank supervisory systems. Still related to that emphasis is the implicit assumption that the public interest is to prevail, which could not be the case in weak institutional environments, where high supervisory discretion could lead to venal and systematic corruption. On the top of that, the current global financial crisis reveals serious problems with the mix between capital regulation, supervision and market discipline. The failure of that mix to avoid such a big crisis

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[1] For instance, see SFRC (1999), Rochet (2003), Kane (1997, 2002, 2004), Herring (2004).

is leading many officials and politicians to advocate for a movement towards more regulation and supervision, as well as the critics to Basel II are probably revaluating their views.

Our study contributes to the debate on the efficiency of the mentioned mechanisms by adding empirical evidence on the relative importance of and complementarities among such regulatory mechanisms, as well as their interactions with the institutional environments they are inserted in. Our purpose, similarly to Barth *et al* (2006), is to achieve a better understanding of the forces influencing bank regulatory and supervisory choices and how these are translated into the credit policies followed by financial institutions. We provide evidence of the effects of the aforementioned broad regulations on different loan characteristics, like spread margins, maturity and the stake of arranger lenders, using a large sample composed of syndicated loan contracts initiated by 278 large commercial banks around 39 countries, to borrowers in 83 countries, in the period from 1998 to 2006.

The main results indicate that stringent capital regulations have an inverse-U relationship with the priced risk measures of loan contract. Remarkably, capital stringency does not preclude banks to diversify their activities. Regarding bank supervision, we find that official supervisory power is associated with riskier and less diversified loan contracts in syndicates. Also, greater bank transparency achieved with private monitoring stimulates the ownership concentration of syndicated loans. Given the nonlinear relationships between capital stringency and risk measures (inverse-U with spread and direct-U with maturity) we have found that official supervisory power and private monitoring interact differently with capital stringency to influence risk measures of loan contracts, with respect to different levels of capital stringency. For low levels of the latter, both supervisory power and private monitoring are substitutes to capital stringency when reducing the risk measures of loans. For high levels of capital stringency, supervisory power and private monitoring are complements to capital to reduce the risk terms of loans. Evidence on interactions between regulations and other country-level factors points that capital stringency decreases priced risk loan characteristics (decreases spread and increases maturity) especially in countries with high levels of legal enforcement, financial development and competition. Last but not least, we find that private monitoring increases loan risk characteristics in countries with poor legal and financial systems, although it reduces spreads in countries with low competition.

The reminder of the article is structured as follows. Section II describes the related literature and develops the empirical hypotheses to be tested. Section III describes the sample and variables used to conduct our empirical analyses. In Section IV we describe the methodology and empirical models to be tested. The empirical results obtained are presented

in Section V. The final section of the article illustrates the main conclusions of this research and offers a discussion of the significance of our results.

II. Related Literature

The purpose of this empirical study is twofold: to investigate the individual effects of bank regulations on capital requirements, supervisory power and private monitoring of banks on the characteristics of loan contracts, and to examine possible interactions between these three broad bank regulations and other mechanisms to affect the characteristics of loans. Thus, in this section we first review the main theories on the separate influence of the three bank regulations on bank lending. Then, we present the theoretical arguments that point to possible interactions, substitutability, complementarities, and trade-offs between those regulations themselves and other mechanisms affecting bank lending, such as competition in the bank industry and country institutional and financial development. We finish the section summarizing the empirical related literature and stating the hypotheses we test in this study.

Bank Capital Regulation

Despite the lack of consensus on whether and how banks need to be regulated, two justifications for regulating banks are often presented: the risk of a systemic crisis and the inability of depositors to monitor banks (Santos, 2001). The use of a deposit insurance scheme by governments is probably the most adopted proposal to avoid bank runs. Although very successful in protecting banks from runs, deposit insurance is not without a cost, as it implies moral hazard on the part of banks. That is because the deposit insurance provider bears the risk to protect depositors from losses, which inhibits depositors' incentive to monitor banks. The consequence is an increase in the risk taking incentives of banks. If the insurance premium is not fairly priced, the risk taking incentives are even higher, as the full cost of risk is not internalized by the bank. Such risk-shifting incentive cannot be removed by charging fairly priced insurance premiums given that information asymmetry makes them impossible to be computed (Chan, Greenbaum and Thakor, 1992), or undesirable from a welfare point of view (Freixas and Rochet, 1995). In this context, bank capital regulation arises as a mechanism to prevent bank failures and their potential externalities, by influencing bank risk taking.

The first stream of literature on bank capital regulation considers complete markets[2]. Those models provide the rationale for capital regulation as a way to overcome the bank risk-taking incentives that arise when fully insured depositors have no incentive to ask risk-adjusted returns and deposit insurance premiums are flat. However, the assumptions of complete markets and no information asymmetry of those models make questionable the need for deposit insurance. Further research on the effects of capital regulations on bank performance, risk and stability has produced contradictory results[3]. The first models that consider banks as portfolio managers in incomplete markets concluded that a flat capital requirement restricts the risk-return frontier of the bank, which may lead to an increase in the bank's probability of failure, as banks may choose riskier portfolios to compensate the loss in utility from the reduction in leverage (Koehn and Santomero, 1980; Kim and Santomero, 1988). In contrast to that prediction, the models of Flannery (1989), Furlong and Keeley (1989) and Keeley and Furlong (1990) take into account the option value of deposit insurance and conclude that an increase in capital requirements reduces bank risk taking. Rochet (1992) finds similar results, and also shows that even a risk-based capital regulation may not be enough to reduce bank risk taking. He argues that the convexity of preferences due to limited liability may dominate risk aversion, which leads an undercapitalized bank to behave as a risk lover. However, as suggested by Milne (2002), a weakness of these studies considering banks as portfolio managers is that they focus only asset risk composition, instead of balancing the benefits of lending against the costs of capital regulation. Accordingly, another strand of research that started with Mingo and Wolkowitz (1977) considers that banks optimize that cost-benefit balance, by widening the ranges of balance-sheet adjustments in response to capital regulation altered incentives[4]. The two-period model of Blum (1999) shows that equity value in later periods changes when risk-based capital requirements bind. He finds different effects on bank risk-taking, depending on which period(s) the bank is constrained by capital requirements. In Calem and Rob (1999), an infinite-horizon model with the possibility of building a capital cushion leads to a U-shaped relationship between capital and risk-taking. Undercapitalized banks have incentives to benefit from deposit insurance through high risk taking, whereas overcapitalized banks take high risk because they are far from insolvency. The models of Hellmann *et al*. (2000), Repullo and Suarez (2004) and Repullo (2004) agree

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[2] Kahane (1977), Kareken and Wallace (1978), Sharpe (1978)

[3] Santos (2001) and VanHoose (2006) provide comprehensive reviews of the theoretical literature on the effects of bank capital regulation on the risk-taking behaviour and solvency of banks.

[4] Among them are the models of Milne (2002) and Estrella (2004), which are commented in a coming subsection.

in that capital requirements are effective in reducing bank risk taking incentives. VanHoose (2006) concludes that this type of models indicate that banks respond to capital regulation by reducing lending, and that the effects on loans extended and risk are model-specific. The implications for overall bank safety and soundness are mixed.

The studies mentioned so far, however, neglected the existence of information asymmetries, claimed to be associated to the nature of banks, as these perform activities of screening and monitoring of loans. The modern banking theory differs from the previous literature by introducing information asymmetries in their models. VanHoose (2006) observes that models that put emphasis on the role of banks as monitors for moral hazard risks in general do not point to improvements in bank soundness as an effect of capital regulation. In this context, the model of Besanko and Kanatas (1996) illustrates how capital requirements alter the incentives to bank loan quality monitoring: the issuance of equity to meet capital requirements have a dilution effect on inside shareholders´ stake. The consequence is a reduction on loan monitoring incentives, which reflects into higher loan loss probability and bank's market value drops. In the same context, Diamond and Rajan (2001) conclude that in the long run capital requirements can increase the likelihood of a bank run, as they encourage banks to liquidate sooner. In contrast to these models, Santos (1999) concludes that an increase in capital requirements reduces the bank's risk of insolvency. He argues, in a framework with a principal-agent problem between the bank and the borrowing firm, that the financial contract adjustment following an increase in capital requirements induces the borrower to lower its risk. Cooper and Ross (2002) focus on the interplay between deposit insurance and capital regulation to also conclude that high capital requirement induces the bank to take less risk. The study of Thakor (1996) considers the possibility of adverse selection in bank screening of borrowers to conclude that the probability of a borrower to be rationed increases with higher costs of funds, which in turn can be the consequence of a tightened capital requirement.

A common feature of the previous models assuming asymmetric information is that they consider a representative bank. Instead, some studies consider heterogeneous banks when examining the effects of capital regulation on bank behaviour, in settings assuming asymmetry of information. Almazan (2002) analyzes responses of heterogeneous banks to capital regulation. Banks differ by balancing monitoring expertise versus capital, which are substitutes, in the sense that they both affect the size of *ex post* rents. He proposes a new role to bank capital, as "a tool that allows a bank to offer lower loan rates without affecting its incentives to monitor" (p. 89). Among his findings, he concludes that a decrease in capital

requirements or an increase in the riskless interest rate favours highly capitalized banks, whereas a poorly capitalized bank separates itself from hi-cap banks and has stronger incentives to financial specialization. Kopecky and VanHoose (2006) show that lending decreases and when capital requirements suddenly constrain the banking system, but also alters the equilibrium share of banks that choose to monitor their loans. The net effect on the aggregate loan quality is ambiguous. This result is the same obtained by Boot and Marinc (2006) by different channels. In their setting, good banks invest more in monitoring than bad banks. Tougher capital requirements strengthen good banks in the short term, but it does not necessarily hold in the long term if bank quality is at intermediate levels and competition is high.

In contrast to the mixed conclusions on the effects of capital regulation on bank risk and balance-sheet adjustments, the literature on the macroeconomic and monetary policy implications of capital regulation is much more consensual. VanHoose (2006) was able to summarize the results of this research in two conclusions: (1) in the short-run, binding risk-based capital requirements reduces individual bank lending and increases market loan rates, and (2) in the long-run, risk-based capital regulation lead to absolute and relative increases in bank capital ratios.

We finish this subsection following a conclusion of VanHoose (2006): "the intellectual foundation for bank capital regulation in general and for the proposed Basel II system specifically is not particularly strong. Instead of expanding the scope and complexity of the current system of capital regulation, it may be time to contemplate alternative approaches to bolstering the safety and soundness of the banking system." This conclusion is a motivation for us to undertake this empirical research using a more comprehensive scope of bank regulation.

Bank Supervision

Under the public interest view of regulation[5], bank supervision arises as an activity capable of overcoming inherent failures of financial markets. In such approach to regulation, bank

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[5] There are two approaches underlying the research on regulation. The public interest approach to bank regulation thinking considers that regulation serves to the public interest of improving social welfare, by boosting economic development, preventing systemic crises and protecting depositors. This approach assumes the existence of market failures and that governments have the incentives and capabilities to overcome those failures. Opposed to that view, the private interest approach arises by viewing regulation as a product, subject to supply and demand forces. In this view, the private interests of the regulator and bankers prevail over the public interest, when determining bank regulations. It is the case for political and/or regulatory capture, which can lead to venal and systematic corruption. In practice, it is reasonable to view regulations to experience a dynamic

supervisors have the proper incentives, abilities and the necessary powers to accomplish their purposes of ensuring safety and soundness of the banking system (Barth *et al.,* 2006). More specifically, supervision has a role in reducing excessive bank risk-taking and promoting bank performance and stability. In this view, powerful and independent supervisory agencies are desirable, in order to avoid regulators suffering the political pressure of bankers. By contrast, the private interest view assumes that supervisors may use their power to serve either their own private interests or the ones of bankers and politicians. The consequences of powerful supervision in this view are poor bank performance and increased corruption.

Research on bank supervision is scarce and limited to few empirical studies and to the discussion of conceptual issues underlying the Basel II's proposal for the supervisory review process, known as Pillar II. By identifying implicit assumptions in some criticisms to the proposal of Pillar II (e.g. SFRC, 2001 and Hamalainen *et al*., 2003), VanHoose (2007) proposes a discussion on three conceptual issues underlying the appropriateness of the supervisory review process. The first issue refers to the question if rules are preferred over discretion in the supervisory process. It is raised by a common criticism that Pillar II proposal gives a lot of discretion to banks and supervisors, which could result in increased risk arbitrage and regulatory forbearance. The second issue is related to the first and asks how tough a policy rule really should be. There is theoretical disagreement whether prompt closing troubled banks is an optimal supervisory policy. Sleet and Smith (2000) argue that it may not always be appropriate. Kocherlakota and Shim (2005) find that optimal policy consists in forbearance if the probability of collapse of collateral value is low, and prompt closure otherwise. Shim (2006) claims that a policy of random closures or bailout is better to one of prompt corrective action without considering bailout. Despite the ambiguities of theories, there is a strong argument to adopt a prompt corrective action policy: the documented huge loss associated to the 1980's US savings crisis[6], after authorities followed a policy of regulatory forbearance instead of corrective actions. The third conceptual issue refers to whether international coordination of regulatory and supervisory rules is appropriate. The existent research on this issue is scarce. Holthausen and Rønde (2005) consider a setting with multinational bank operating in two countries to conclude that a multinational regulator (i.e., coordinated national regulators) to make closure decisions can improve on social welfare if the separate countries' regulators have divergent interests. In a similar setting, Dell'Aricia and

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process of responding to different incentives along the time, fluctuating between the extreme approaches (Kane, 1997). See Barth *et al.* (2006, chapter 2) for a review on public and private interest approaches to regulation.

[6] See Kane (1989), Barth (1991), and White (1991).

Marquez (2006) find that a socially preferred outcome is achieved by a supranational regulator if countries have relatively homogeneous banking systems. It requires, however, tougher supervisory standards than the highest standard that would have been implemented by the separate regulators.

Private Monitoring of Banks

The reliance on the private monitoring of banks, also referred as market discipline, is argued to be an alternative way to restrict excessive risk-taking behaviour of banks. From the private interest view of regulation, such reliance is argued to have a greater importance, as supervisors and regulators are assumed to succumb to bankers' and politicians' interests. Other arguments in favour of market discipline are given by Herring (2004): "[it] is forward-looking and inherently flexible and adaptive. Market surveillance is continuous, impersonal, and non bureaucratic… In contrast, official oversight usually is rule-based, episodic, bureaucratic, slow to change… One of the principal merits of market discipline is that bank directors and managers are faced with the burden of proving to the market that the bank *is not* taking excessive risks rather than subjecting officials to the burden of proving, in a review process, that the bank *is* taking excessive risks." (pp. 365-366).

The market discipline concept applied to banking refers mainly to the reactions of fund suppliers – depositors, debt holders, shareholders – in order to induce banks to solve a perceived deterioration in bank solvency. These reactions can basically take two forms: the intensive margin, which is a reduction in the amount that funds suppliers maintain in the bank or, the maintenance of the same amount but at a higher rate of return; or, the extensive margin, which consists in the entire interruption of funds supply to the bank. The conditions for fund suppliers to be able to engage in market monitoring are given by Flannery (2001): first, suppliers must have correct information at appropriate times, in an amount enough for them to infer its implications[7]; second, fund suppliers must have incentives to react to perceived deterioration of bank solvency, e.g., they must believe that banks will not be bailed out by regulators; third, the market signals from fund suppliers to a perceived increase in the bank's risk of insolvency must be visible by all fund suppliers, which means that the markets they participate must be open and active; fourth, the distressed bank must respond to the signals by seeking to solve the problem. Hamalainen *et al.* (2003) describe many potential social benefits of market discipline. Among the most important ones, we mention: first, the

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[7] However, theoretical models argue that full disclosure of information is unlikely optimal. E.g. see Verrecchia (1983) and Boot and Thakor (2001).

possible reduction in moral hazard resulting form deposit insurance; second, the threat of market discipline provides constant pressure on management to improve cost efficiency; third, if the market discipline process is faster than regulatory actions, it may help regulators to screen "bad banks" from "good banks", and promote the shift of the burden of proof aforementioned by Herring (2004). Among the potential negative effects of market discipline, the most important is the possibility of a bank run resulting from extensive margin reactions of fund suppliers to widespread perceptions of higher failure probabilities[8]. Another undesirable effect is when market participants and regulators take misguided reactions as a consequence of persistent false market signals sent by fund suppliers.

Despite the variety of conclusions from the academic research regarding the relative effectiveness and desirability of relying on market discipline as a mechanism of bank regulation, VanHoose (2007) observes that Basel II has ignored the potentially useful signalling roles of market discipline. He warns that market discipline aspects of Basel II represent at best minimal innovations for most well-developed banking systems. However, he argues that countries with less developed banking systems are more likely to benefit from Basel II's pillar III recommendations.

Mix and interactions between mechanisms

Although the many criticisms to the proposed approaches of Basel II, its general framework of structuring bank regulation and supervision in three pillars – risk-based capital requirements, supervisory review and market discipline - is widely consensual and accepted. The basic assumption of this framework is that the three pillars will reinforce each other and result in effective improvements for bank safety and soundness. In other words, they are assumed to be complements. An obvious implicit assumption is that the intended result may not be achieved unless all pillars are sufficiently well designed and structured (VanHoose, 2007). Some authors, like Llewellyn and Mayes (2003), examined the conditions for market discipline and prompt corrective action to be complements. However, little research effort was dedicated to analyze joint interactions among the three regulatory mechanisms. Also, little effort was made by both the academic researchers and the Basel Committee to develop the second and third pillars, which raises concerns regarding the appropriateness of the proposals of Basel II in achieving its purposes. Next, we present the academic contributions to

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[8] In the model of Chen and Hasan (2006), greater information transparency of banks tends to boost the likelihood of bank runs, unless bank informational disclosures clarify to depositors that the problem is idiosyncratic.

the issue of how the mechanisms of capital requirements, supervision and market discipline mix and interact, and the correspondent implications to bank behaviour.

In Campbell et al. (1992), the monitoring of banks by the regulator is assumed as an alternative to capital requirements as a mechanism to deter bank risk taking. The authors care about the incentive problems arising from the propensity of monitoring agents to shirk, in a context where agents' effort is unobservable. Put differently, a private interest view of supervision is assumed. In their model, depositors offer incentive contracts that provide different payments to the regulator depending on whether the bank is solvent or insolvent. They get interesting results on the combination of capital requirements and monitoring in the optimal contract: first, as bank assets' risk increases, it is optimal for depositors to increase both capital and monitoring, i.e., the mechanisms are complementary. Second, as incentive problems with monitors increase, depositors should increase capital requirements at the expense of monitoring, i.e. the mechanisms are substitutes.

Calem and Rob (1999) find a role for market discipline in reducing the risk-taking incentives of undercapitalized banks. They suggest the mechanism of market pricing of uninsured liabilities, conditional on risk being priced *ex ante* in response to changes in banks' portfolio risks. Milne (2002) claims a role for *ex post* penalties imposed by supervisors in case capital requirements are not fulfilled. He argues that such a mechanism is likely to be more efficient in reducing risk-taking incentives than toughening capital requirements tied to asset risks. In their theory of bank capital based on the financial fragility as essential for banks to create liquidity, Diamond and Rajan (2000) also indicate a role for prompt corrective action, in the presence of deposit insurance. Dowd (2000) points that the problem of financial fragility introduced by Diamond and Rajan (2000, 2001) can be fully solved if banks keep a sufficient large capital cushion. Marini (2003) extends the analysis of Dowd (2000) to conclude that market-capitalized banks are also protected from insolvency crisis. The arguments of Dowd and Marini offer the conclusion that market-capitalized levels of bank capital can substitute for both supervision and deposit insurance.

Some studies explicitly incorporate the mechanisms of the three pillars of Basel II. The dynamic model of Estrella (2004) consists of bank decisions regarding elements of the three pillars, while the regulator wants to induce the bank to behave according to its objectives. The author finds that higher capital requirements only partially align bank behaviour to regulator's objectives. Extra regulatory effort directed to less capitalized banks and market discipline alleviate the problem, although not sufficiently to attain the regulator's first best desired outcome. As proposed by the author, a complete alignment to the regulator's

interest can be achieved if a regulatory commitment to an *ex post* penalty is applied. The comprehensive and ambitious study of Decamps *et al.* (2004) proposes a dynamic model based on continuous-time cash flows to examine interactions between the three pillars of Basel II. The authors interpret capital requirements as a closure threshold. They show that market discipline can be used to reduce the closure threshold, especially if there is a risk for regulatory forbearance. Regarding the second pillar, the authors suggest a mechanism of indirect market discipline, where supervisors can modulate the intensity of their interventions based on reliable signals given by market prices of the securities issued by banks. For these findings to hold, however, some assumptions are necessary: direct market discipline requires the protection of banking supervisors from political interference, whereas indirect market discipline cannot be used under any circumstances, since market prices are not reliable during crises periods.

In his analysis of pillars II and III of Basel II, VanHoose (2007) argues that the market discipline pillar does not go far enough in the right direction, while the supervisory-process pillar goes too far in exactly in the wrong direction. He suggests that "the market-discipline pillar would be significantly improved by requiring national regulators to begin studying the informational properties of market signals in bank debt markets for possible use in corrective-action policies" (p. 32).

There are some considerations concerning the interaction of bank regulations with other country-level aspects related to the economic and legal environments where banks operate. As previously mentioned, from the private interest view of bank regulations emerges the idea that high reliance on market discipline can substitute for regulatory and supervisory power. An important related issue is whether excessive reliance on market discipline is appropriate for countries with weak legal and financial systems, and accounting standards (Barth *et al.*, 2006). The public interest view advocates for reliance on official supervisors to monitor the banking systems in weak institutional environments. It is argued that in such settings, great reliance on private monitoring leads to exploitation of small savers and consequently, to less bank development. The counter argument from the private interest view is that powerful supervisors are more likely to benefit private interests precisely in less institutionally developed countries. Caprio and Honohan (2004) go further and claim that for many reasons low developed countries may be better positioned to exercise market discipline: the lower complexity and the size of the banking and financial markets facilitate monitoring; the absence or low credibility of deposit insurance stimulates market monitoring; the presence of many foreign banks may result in more information disclosure. Barth *et al.* (2006)

conclude that only empirical testing can resolve the debate. These authors offer a kind of reconciliation of bank supervision and market discipline when commenting the results of their empirical analysis: "[S]upervision works best when it facilitates market monitoring". Our study also offers a contribution in respect of this.

Empirical evidence

The mixed conclusions offered by theory regarding the effects of capital regulation, supervision and market discipline on bank lending is a big motivation to undertake empirical research on the issue. This section summarizes the empirical studies on such effects.

Regarding capital regulation, the evidence on its effects on bank lending is not consensual. For instance, different analyses of the credit crunch occurred in the United States in the early 1990s produced contrasting results. Some studies conclude that the introduction of capital requirements resulted in a reduction in loan supply, as a consequence of increase in capital ratios. Peek and Rosengren (1995a, 1995b) conclude that a decrease in loan supply induced by capital regulation, together with lower loan demand caused the decline in lending. Similar evidence is offered by Brinkmann and Horvitz (1995), Furlong (1992), Haubrich and Wachtel (1993), and Lown and Peristiani (1996). The contrasting evidence comes from Berger and Udell (1994), who attribute the credit crunch to a decline in loan demand and to other factors affecting loan supply. Wagster (1999) also concludes that other factors excluding capital regulation generated the credit crunch in the U.S. His study looks at other countries and find mixed evidence. On a set of 572 banks in 15 developing countries, Chiuri et al. (2002) provide evidence in favour of the decrease in lending as a consequence of capital regulation. The review of Jackson et al. (1999) examines many studies looking at the effects of capital regulation on capital ratios and reaches a mixed conclusion: in the short term, banks reduce lending to adjust to a tightened capital requirement, but do not maintain higher capital ratios in the mid term. Ashcraft (2001) and Flannery and Rangan (2004) find little evidence of the influence of U.S. capital regulations on capital ratios, respectively for the 1980s and more recent years.

Regarding the effect of capital regulation on bank risk taking, the evidence also is mixed, although the majority of studies point to an overall increase in risk after the implementation of the Basel I capital regulation framework. Hendricks and Hirtle (1997) find evidence in favour of risk reducing, but argue that the benefits are likely to be small, as most banks only slightly increase their capital ratios in response to capital regulations. On a sample of 98 U.S. bank holding companies in the 1975-1986 period, Furlong (1988) concludes that

less risk-averse banks did not increase their asset risk in response to the introduction of capital regulation in the 1980s. Sheldon (1996) finds little evidence that Basel I capital regulation reduced asset risk on a cross-country sample in the 1987-1994 period. According to Jackson *et al.* (1999), a weakness of these two studies is that they do not control for many potential influences on bank risk-taking. Barth *et al.* (2004, 2006) minimize this problem by using a sample of survey data across 107 countries, which allows them to include controls for the effects that different country regulatory policies may produce in the functioning of banking systems. Their results regarding whether capital regulation induces banks to take less risk are mixed. Although they find that more stringent capital requirements are related to fewer nonperforming loans, they do not find a relation between stringent capital regulation and the likelihood of a banking crisis.

Empirical evidence about the effects of supervision on bank lending and risk-taking is very limited. DeYoung *et al.* (2001) find that government supervisory examinations of large commercial banks produce new, value-relevant information. Although debenture prices do not immediately reflect this information, its implied regulatory actions are priced by the market. Berger *et al.* (2000) compares the timeliness and accuracy of government assessments of bank condition against market evaluations. They find that supervisors and bond rating agencies both acquire some information that would help the other group forecast changes in bank condition. However, the supervisory assessments and market indicators are not strongly interrelated. In addition, supervisory assessments are less accurate than either stock or bond market indicators in predicting future changes in performance. Both studies considered only large U.S. banking firms. By contrast, Barth *et al.* (2006) use a large sample of banks and countries, including emerging ones, to derive conclusions regarding the effectiveness of bank supervision. They find that empowering direct official supervision of banks does not boost bank development. The authors are cautious about their result, as their supervisory variables are constructed based on a survey of statutory powers, which is not necessarily how supervision works on the ground.

Turning to the empirical evidence on market discipline in banking, the review of Flannery (1998) of mid 1990s research concludes for the existence of supporting evidence to a role for market discipline in supplementing regulatory supervision. This kind of evidence generally tests if suppliers of funds are able to perceive changes in banks' risk profiles. In this regard, Flannery and Sorescu (1996) show that investors can rationally distinguish among risks taken by U.S. banks, by looking at the spreads between yields on subordinated debt and treasury bonds with the same maturities as indicators of capital adequacy and predictors of

bank condition. It is especially true if subordinated debt is perceived as not being guaranteed by the government. Distinguin *et al.* (2006) find evidence that market-based indicators can help predicting the degree of bank stress, as long as the bank does not heavily rely on uninsured deposits. By examining the bond rating disagreements between two rating agencies, Morgan (2002) concludes that banks are more opaque than other industries, as agencies disagree more when evaluating the bond issue of banks. Morgan and Stiroh (2001) examine market spreads on new bonds issued by U.S. banks and bank holding companies in primary markets to conclude that debt markets provide clear signals of asset risk differentials across banks. In evaluating subordinated-debt spreads as indicators of bank risk, Evanoff and Wall (2001) conclude that these are better predictors of regulatory ratings than capital ratios.

There is some evidence on the joint effects of bank regulations. Returning to the 1990s U.S. credit crunch, Furfine (2001) concludes that toughened supervision had a larger influence on banks' balance sheet choices than explicit capital requirements. Barrios and Blanco (2003) used different models to assess the response of bank capital to market forces versus capital constraints. They concluded that the 76 Spanish commercial banks in their sample were unconstrained by capital regulation between 1985 and 1991, as the market-based model better fitted the data. Similarly, Beatty and Gron (2001) find that the introduction of risk-based capital regulations did not influence the behaviour of the 438 U.S. bank holding companies between 1986 and 1995.

We conclude this section with a brief description of some features of the empirical analysis we perform in this article. Our analysis builds on the empirical work of Barth *et al* (2006). However, besides having a much more limited scope than that study, our approach differs from theirs by using transaction-level data across countries, instead of taking essentially a country-level approach. This study relies on the cross-country surveys on bank regulation and supervision performed by Barth *et al.* (2001, 2006, 2008) as its source of data on bank regulations. These surveys consist of hundreds of rules regarding bank regulation and supervision adopted by more than 100 countries around the world. To measure bank regulatory and supervisory policies, we borrow the approach proposed by those same authors (Barth *et al.*, 2006, chapter 4), which consists in using broader indices as empirical proxies rather than an "examine-every-rule" approach. They argue that the broader approach is statistically preferred, as many individual rules would render impossible the identification of their independent impact on bank operations. Furthermore, it is also preferred from a theoretical viewpoint, as there are only few broad concepts of bank regulation and supervision. Finally, the broader approach is appropriate for this study, as our focus is to

measure how three broad regulatory mechanisms influence some loan contracts features. These mechanisms mirror the Basel II's three pillars framework, although our study is not making an assessment of the specific effectiveness of Basel II. Instead, our empirical approach relies on explanatory variables represented by the Capital Regulatory, Official Supervisory and Private Monitoring indices suggested by Barth *et al*. (2006), to represent respectively bank capital regulations, supervisory power and market discipline.

III. Data description

The main source of our data is the LPC Reuters *DealScan* database, which provides detailed data on loans made all over the world by banks to large firms. Such loan level information includes many features of loan contracts, such as lender and borrower identities, dates of origination, purpose of loan, deal amounts, number of lenders, lender deal share, spread margins, loan maturity, covenants, and borrower sector and ratings. To conduct our cross-country study on bank regulations, we adopt the loan deal as the unit of analysis. At the same time, we are interested in the behaviour of banks. Therefore, our sample selection consisted in taking, whenever possible, the 15 largest commercial banks or banking holding companies in terms of total assets, in 39 of the 49 countries included in the study of La Porta *et al.* (1998)[9]. Besides establishing a limit in the number of countries included in the study, we believe that such selection allows comparability with other cross-country studies, mainly related to the "law and finance" literature. Then, we collected information on all confirmed loan deals originated by those banks between 1998 and 2006 (including these years). Such selection of period is motivated by the availability of the bank regulations data, which consist of surveys made by the World Bank in the years 2000, 2003 and 2007 (Barth *et al.*, 2001, 2006, 2008). We assume that country bank regulations reported by those surveys are in place for the following 3-year periods: 1998 to 2000, 2001 to 2003 and 2004 to 2006. Hence, yearly bank regulations variables representing each country's capital requirements stringency, official supervisory power and the level of private monitoring are added to the database. Similarly, other country-level variables are included, namely, the borrower country's sovereign debt rating, the level of legal protection of creditors in lender country, and proxies for financial development, economic development, economy size, and business cycle. Finally, bank-level characteristics are collected from the *Bankscope* database, and hand-matched with the previous loan deal level information. Raw data from *DealScan* was filtered to allow only confirmed loans, and to exclude loans made to firms in the financial and in the public sectors (first digit of SIC code equal to 6 or 9). These loans are dropped because the risks of firms in these sectors are argued to be very different from other firms, as they are likely to be government owned and government protected monopolies (Qian and Strahan, 2007). Considering that some banks have no loans reported by *DealScan*, and that in fact less than 15

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[9] New Zealand was excluded because most banks there are owned by Australian banks. Scarcity of data motivated the exclusion of Colombia, Ecuador, Kenya, Nigeria, Peru, Sri Lanka, Turkey, Uruguay and Zimbabwe.

banks were included for some countries, we ended up with a sample of 46,453 loans originated by 278 banks around 39 countries, during the period from 1998 and 2006.

What follows is a description of each of the variables used in the analyses.

3.1 Dependent Variables

The following variables represent the loan contract characteristics selected to be examined if they are affected by bank regulations, after controlling by other country-level, loan-level, lender-specific and borrower-specific characteristics.

- **Spread Margin:** this variable corresponds to the "All-in Spread Drawn" information available for each deal in the *DealScan* database. It corresponds to the base points in excess of the interbank market rate that is asked by lenders to borrowers in a deal. It also incorporates any charged fees associated to the loan. Together with other contract features, it reflects the risk priced by lenders to borrowers in a specific loan contract.

- **Log of Maturity:** it is the logarithm of the maturity, expressed in number of months, of a loan. As well as the Spread Margin variable, it corresponds to a contract feature supposed to reflect the risk priced by lenders to borrowers.

- **Share of Arranger Lender:** it is the percentage share of the deal volume that is lent by an arranger lender. Bank regulations may be among or influence the incentives of arrangers to hold more or less ownership of a multiple lender loan, as they affect the risk taking behaviour of banks.

3.2 Explanatory Variables

When studying the influence of bank regulations on loan contracts characteristics, we include four different sets of explanatory variables: country-level, lender-specific, borrower-specific, and loan-level. The first set includes country-level variables reflecting: (1) some supply side factors that may affect the availability of funds and the conditions in which lenders want to extend loans to borrowers, i.e., the loan contracts characteristics. In this set are the variables that represent the focus of this study, namely, the country-level bank regulations; (2) demand-side factors, such as the level of economic development, the business cycle, and sovereign credit ratings in borrowers' countries. The second set consists of lender-specific characteristics, such as its size and leverage, which represent supply-side factors at the loan deal level, and likely influence loan contracts features. The third set of explanatory variables refers to borrower-specific characteristics representing both demand-side and credit risk factors, essential to determine loan contracts characteristics. The fourth set of variables

includes characteristics of the loans, other than those used as dependent variables, which also relate to demand-side and credit risk factors determining loan contract features. Additionally, year dummies are included as explanatory variables. What follows is a brief description of the explanatory variables used in our regressions.

3.2.1. Country-level Explanatory Variables

We start by describing the bank regulations variables, which are the focus of our study. Such variables are collected for the 39 lender countries, from the three World Bank surveys, conducted by Barth *et al*. (2001, 2006, 2008) in the years 2000, 2003 and 2007. Accordingly, we assume that these variables are in place respectively for the 3-year periods of 1998 to 2000, 2001 to 2003, and 2004 to 2006.

Bank Regulations Variables:
- **Capital**: it is the Capital Requirements Stringency Index of Barth *et al*. (2006). It measures the level of stringency of capital restrictions imposed to banks, such as eligible funds for entering in the banking industry, and the use of risk based approaches by central banks when defining capital ratio requirements. In our data, it ranges from 2 to its maximum possible value of 10, with higher values representing stricter capital regulations. To some extent, this variable also tells us how much a country's capital regulations are aligned with Basel II Accord's first pillar, as capital ratio requirements responds to 7 out of 10 possible units of the index.
- **Official**: it is the Official Supervisory Power Index of Barth *et al*. (2006). It represents the degree of the power that the supervisor authority has to oversee and intervene in banks functioning. In our data, the index ranges from 4 to 15.5. As this variable relates to the regulatory response supervisors can give to the first pillar, and also deal with residual risks, it can be interpreted as a proxy of the degree that a country's regulations are pursuing Basel II Accord's second pillar recommendations.
- **Private Monitoring**: this variable corresponds to the Private Monitoring Index of Barth *et al*. (2006). It gives a measure of the degree to which banks are exposed to external monitoring, which does not refer to official regulatory and supervisory oversight. It takes into account regulatory requirements of information and accounting disclosure, external auditing, depositor protection, use of subordinated debt, and discipline. In this sense, this index to some extent captures the existence of bank regulations that are aligned to the purposes of Basel II Accord's third pillar of market

discipline. This variable ranges from 5 to 11 in our dataset, where higher values represent more regulations promoting the private monitoring of banks.

The next variables are additional lender country-level, and borrower country-level factors, that may affect respectively the supply-side and the demand-side of lending.

Other Lender Country-level Variables:
- **Financial Development:** as a proxy of a lender's country financial development, we use a variable created by Beck *et al.* (2000), given by the total credit to the private sector by deposit money banks, as a share of GDP. It is available for each year of the period. Higher values of this variable correspond to more developed financial systems.
- **Competition:** as proxy for competition in lender country, we use the logarithm of the number of commercial banks operating in the lender country. Source: Barth *et al.* (2006).

Borrower Country-level Variables:
- **Creditor Rights**: it is the index of La Porta *et al.* (1998), which measures a country's level of legal protection of lenders, against expropriation by borrowers. It is included as a control, as Qian and Strahan (2007) present evidence that creditor rights influence the characteristics of loans. The relevant creditor rights index is the one of the borrower's country. It is assumed constant along the period from 1998 to 2006
- **Economic Development:** the logarithm of the borrower's country GDP per capita, available for each year. Source: IMF.
- **Business Cycle:** the percent growth in borrower's country GDP from the previous year to the current year. Source: IMF.
- **Economy Size:** the logarithm of the borrower country GDP, where GDP is given in billions of US Dollars. Source: IMF.
- **Sovereign Credit Risk:** an index ranging from 1 to 24, representing the borrower's country Fitch Sovereign Rating on foreign currency, long term debt. Higher values of the index represent higher risk. It is available for each year. Source: Fitch Ratings.

3.2.2. Lender-specific Explanatory Variables
- **Lender Size (Log of Total Assets):** Source: *Bankscope*.

- **Lender Leverage:** it is the ratio of total book value of liabilities to total book value of assets. Source: *Bankscope*.

3.2.3. Borrower-specific Explanatory Variables

- **Borrower Rating:** following Qian and Strahan (2007), this variable consists of an index ranging from 1 to 6, representing the Moody's senior debt rating at the close of the loan. When Moody's ratings are missing, S&P ratings are used. The index equal to 1 represents a rating of "Aaa", 2 indicates "Aa", and 6 indicates "B" or worse. If there is no rating information for the borrower, zero is assigned to this variable, and a separate indicator for unrated borrowers is included. Source: *DealScan*.

- **Industry sector dummies:** ten indicators, corresponding to the first digit of the SIC code that describes the broad sector of activity of the borrower. Source: *DealScan*.

- **Same Country:** a dummy variable that indicates if the loan was made to a borrower in the same country as the lender. Source: *DealScan*.

3.2.4. Loan-specific Explanatory Variables

- **Log of Deal Amount:** it is the logarithm of the loan deal amount, expressed in US Dollars. Source: *DealScan*.

- **Deal Purpose dummies:** these are 7 indicators of the most common specific purposes of the loan, which accounts for 84% of the loans in the sample. These purposes are: Acquisition line, CP Backup, Corporate Purposes, Debt Repayment, LBO/MBO, Takeover, and Working Capital. Source: *DealScan*.

- **Deal type dummies:** three variables, accounting for 73% of the loans in the sample, indicating the most common types of deals: 364-day facility, Revolver line >= 1 year, and Term Loan. Source: *DealScan*.

3.3 Descriptive Statistics

Descriptive information of the main variables is shown in Table 1.

Insert Table 1 about here

Table 1 shows that the average spread margin of the deals is 188.8 basis points over LIBOR with a maturity of 55.3 months (3.7 on a log scale), an average number of members in

each deal of 7 with each leader's stake of 15.8%. Also, there is a high percentage of loans to the same country (60%) with a mean deal amount of 185 million US dollars (18.8 on a log scale). Once we focus on variables of banks' characteristics, we have found that the average bank has 481 million dollars in assets (20 on a log scale) with 94% of leverage. The variables on regulatory measure indicate that Capital Requirements Stringency has a mean value of 6.4 ranging between 2 and 10; the Official Supervisory Power has a mean value of 11.1, ranging from 4 to 14 and the Private Monitoring has a value of 8.8 ranging from 5 to 11. On the borrowers' side, Table 1 indicates that La Porta *et al.*'s Creditor Rights index has a mean value of 1.5, ranging from 0 to 4 and that the Sovereign Credit Risk index has a mean value of 2.4 ranging from 1 to 24. Finally, there is a set of macroeconomic variables related to a country's GDP, which indicates a wide dispersion of values among the borrowers' countries.

In general, our sample of countries offers variability in the different variables high enough for conducting an econometric analysis. Table 2 presents the mean values of bank regulations variables for each lender country in our sample, while Table 3 shows country mean values of variables describing macroeconomics as well as creditors' rights conditions of borrower countries.

Insert Tables 2 and 3 about here

Initial evidence of the correlation between variables is shown in Table 4. Remarkably the variable of *Capital* requirements stringency shows a slightly negative correlation with the loan *Spread*, which indicates that banks when forced to improve their level of capitalization are more sound and can afford to demand lower rates to borrowing firms. Such decrease in the loan rates seems to give incentives for the arranger lender to reduce his *Share* in the syndicated loan. Similarly, the *Number of Lenders* in a loan is positively correlated with *Capital Requirements* and negatively with *Spread*. Concerning the other variables of bank regulations (*Official* supervisory power and *Private Monitoring*), they are positively related to spread margins, negatively to loan maturity and also negatively related to *Number of Lenders*. Hence, contrary to capital regulatory measures, supervision-monitoring pressure lead banks to transfer such pressure to their loans by increasing the loan rates and decreasing the maturity. Such decrease in the risk born by lenders allows them to have less need of risk diversification by increasing the number of lenders in the syndicate. Note that there is some evidence of substitutability between the mechanisms through which banks respond to regulatory measures: whether they decrease the loan rates or they decrease their stake in the syndicate by

increasing the number of lenders. *Capital* requirements trigger the first mechanism while *Official* supervisory power and *Private Monitoring* trigger the second one. Such substitutability is confirmed once we look at the correlation between *Spread* margin and, on the one hand, lender *Share* (positive correlation) and, on the other hand, the *Number of Lenders* (negative correlation). Such initial substitutability evidence will be confirmed in the regression analysis. Finally, we have found significant high correlations between the frequency of loans made to borrowers in the same country of lenders and the levels of *Official* supervisory power and *Private Monitoring* (respectively 68% and 42%). It suggests that, when the official and private monitoring of banks are stricter, firms tend to be more confident in borrowing money from banks located in their own countries.

Insert Table 4 about here

IV. Methodology and Results

Our sample is structured in individual observations of loan deals originated across a 9-year period. One or more banks participate in each deal, and each bank participates in more than one deal, in each year. Hence, the loan deal is the level of analysis that allows the best use of the information available, regarding each individual loan characteristics.[10] Each loan deal is a unique event that produces the characteristics of a loan contract, and for such it is treated as a separate individual. This invalidates any possibility of using fixed effects techniques across deals.

We concluded that OLS regressions is the method of analysis more suitable to our data sample. We pooled all individual observations distributed across the 1998-2006 period to undertake single regressions. Year dummies were included in all regressions to take into account possible cyclical and time idiosyncratic factors not captured by the explanatory variables. It is assumed that observations are not independent across banks. Hence, robust standard errors clustered by banks are reported in all regressions.

We recognize that many loan characteristics are jointly determined, which raises a concern for possible endogeneity between regressors if those characteristics are used as explanatory variables. We minimize this issue by simply restricting the loan-specific explanatory variables to the deal amount and dummies for most common deal purposes and deal types (see section 3.2.4). We do not use the loan *Spread*, *Maturity* and *Arranger Share* as independent variables, i.e., each one appears only once in each regression, always as a dependent variable. Otherwise, more sophisticated techniques would be required, instead of plain OLS regressions. We also believe that the problem of omitted variables as a source of endogeneity is minimized with the use of many sets of country-level, lender-specific, borrower-specific, and loan-level explanatory variables representing supply and demand side factors affecting loan contract features. Problems of reverse causality are not a concern, as most of our explanatory variables are at country-level, whereas the dependent variables are at a transaction level.

The cross-country characteristic of our sample reveals another source of concern, which is the high dispersion in the number of observations per country. Economic developed lender countries have in general much more observations than less developed ones. For example, banks in the U.S. participate in 39 % of the loans. A problem exists if these banks

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[10] An alternative analysis could be panel regressions on bank-level data across the 1998-2006 period. That would require the aggregation of the information concerning the deals in which a bank participates in each year. Such aggregation, however, would imply losing of information.

drive the overall results by putting more weight on the country explanatory variables. To tackle this problem, we performed a robustness check by running all the regressions excluding U.S. lenders. The (unreported) results are not substantially changed, and validate the conclusions of this paper.

Empirical hypotheses and Results

We propose the following hypotheses to be tested in our sample. We take the public interest view to regulation when deriving them. Such approach implies that the hypotheses proposed are not necessarily the ones mainly expected by theory. Our purpose is not favouring the public interest view. On the contrary, it is to impose an arbitrary impartial discipline able to avoid driving the conclusions to any direction. We believe the evidence obtained is useful as a test to the theoretically well grounded hypotheses. It is also important in shedding a light on the weak or ambiguously theoretically grounded ones.

From a public interest view, the regulations imposed on banks by countries are mechanisms capable to contain risk-taking behaviour of banks and, ultimately, to help assuring banks soundness, financial stability and economic growth. In a context of bank lending across a set of countries, we propose the following three hypotheses to examine whether each of the bank regulations measures is associated with loan priced risk characteristics:

H1: More stringent capital regulations reduce priced risk characteristics of loan contracts. Hence, they reduce loan spreads and increase loan maturities.

H2: Higher official supervisory power reduces priced risk characteristics of loan contracts. Hence, it reduces loan spreads and increase loan maturities.

H3: More private monitoring of banks reduces priced risk characteristics of loan contracts. Hence, it reduces loan spreads and increase loan maturities.

To test these hypotheses we run OLS regressions of loan *Spread* and *Maturity* on bank regulations variables, while controlling for the country, lender, borrower and loan specific factors described in the previous section. In order to enrich our analysis, we also perform a

regression of the *Arranger Share* on the same explanatory variables. The regressions are for the whole period (1998-2006), and encompass the three Barth *et al.* (2001, 2006, 2008) surveys sub-periods of 1998-2000, 2001-2003 and 2004-2006. The results are in Table 5.

Insert Table 5 about here

Regression *R1* of Table 5 shows that *Capital* requirements are negatively related to loan *Spread*. However, the inclusion of a quadratic term in regression *R2* of Table 5 reveals an inversely U-shaped relationship between *Capital* requirements and *Spread*, with the maximum *Spread* occurring at a *Capital* level of 4.9. It means that countries with very low or very high levels of *Capital* stringency are the ones that experience the lower *Spread* margins, whereas intermediate levels of *Capital* stringency are associated with higher loan *Spread* margins.

The results concerning the effect of *Capital* on loan *Maturity* are very similar. Regression *R4* in Table 5 shows a U-shaped relationship between *Capital* requirements and *Maturity*, with the minimum *Spread* at a *Capital* level of 4.2. It means that countries with low or high levels of *Capital* stringency experience the higher loan maturities.

The relationship between maturity and loan spread is explained as the result of two opposite effects. First, the "trade-off" hypothesis (Gottesman and Roberts, 2004) argues that longer maturities mean more risk for the lender and, consequently, lenders will charge larger rates. On the other hand, there is the "signalling hypothesis" (Dennis *et al.*, 2000) where longer maturity is a signal of good credit quality, which should be translated in a reduction in the loan rate. Empirically, Berger *et al.* (2005), among others, find that risky borrowers use short-term debt, whereas higher credit quality firms use longer maturities. Finally, Diamond (1991) synthesizes both views and predicts a non-monotonic, inversely U-shaped relation between borrower risk and debt maturity. While low risk and the very risky borrowers have short maturities, the medium risk borrowers choose long-term finance. Then, depending on the impact of the different explanatory variables on the balance between the previous effects, we find their relationship with maturity, which follows a direct or an inverse pattern compared to the connection between these variables and the loan *Spread* one.

Respectively for loan *Spread* and *Maturity*, the inverse and direct U-shaped relationships with *Capital* stringency found in Regressions *R2* and *R4* in Table 5, reveal a consistency between loan spread and maturity as risk measures. Then, the aforementioned

signalling hypothesis is the dominant and the reduction on spreads signals a decrease in loan risks, which will be translated in an increase in loan maturities.

Summing up, these results show an inversely U-shaped relationship between loan risk characteristics and *Capital* requirements stringency: low priced risk terms of loan contracts, represented by low *Spread* margins and higher *Maturity*, are associated with either low or high *Capital* requirements stringency, while higher risk loan contracts characteristics prevail when the stringency of *Capital* regulations is moderate. Although consistent, these results do not unambiguously support Hypothesis 1. For medium to high levels of *Capital* stringency, risk measures behave as proposed by the public interest view, i.e., decreases as stringency grows. Nevertheless, the low risk reflected in loan contracts in countries with low *Capital* stringency and its increasing behaviour up to medium levels of *Capital* stringency threatens this view, although it is well grounded in some theoretical models, notably the ones that emphasize the role of banks as monitors for moral hazard risks. For instance, Besanko and Kanatas (1996) argue that capital requirements decreases loan monitoring incentives as a result of the dilution of insiders' shareholders stake. One of the consequences is higher loan loss probabilities, which reflect in higher spreads.

Regarding the other regulatory measures, we do not find any relationships between loan *Spread* and *Official* supervisory power or *Private Monitoring*. However, *Official* supervisory power shows a significant negative impact on loan *Maturity*. Together, the evidence found is against Hypothesis 2, while Hypothesis 3 is not supported. Concerning the role of bank supervision, it suggests that the private interest view prevails, in the sense that empowered supervisors worsen the terms of bank lending by decreasing the maturities of loans. More conclusions on the effects of the three bank regulatory indices on loan contracts characteristics are given later, when interactions between them are introduced.

Concerning control variables, borrowers with higher (worse) bond *Rating* obtain funds through loans with higher spreads, according to regressions *R1* and *R2* in Table 5. In addition, the most important factor explaining the loan *Spread* in this analysis is when the borrower has no rating (*Spread* increases by 250 basis points when the *Unrated borrower* dummy equals to one). These expected results for *Spread*, contrasts with the opposed ones obtained for loan *Maturity*. However, consistently to Diamond's (1991) model, borrowers may use short loan maturity as a way to improve their ratings. Note that we have found lower spreads for better rated firms, but also shorter maturities, as lenders may want to update such favourable credit conditions for the borrowers in a frequent basis, particularly larger banks, that have less soft information (lower coefficient of *Lender Assets*). Consistently to the signalling hypothesis,

larger loan amounts are lent to better borrowers, which is captured by longer loan maturities. In addition, the reduction in the spreads when information problems are less acute (when borrowers' rating is higher) is confirmed in the lower loan *Spread* for those loans in the same country. Concerning country-specific variables, there is only weak evidence that borrower country's *Creditor Rights* reduces *Spread* margins (regression *R2* in Table 5). As expected, the higher (worse) the *Sovereign Credit Risk*, the higher the loan contract risk measures (higher the *Spread* and shorter the *Maturity*). Variables for the economy size and economic development, respectively *Log(GDP)* and *Log(GDP per capita)* have positive effects on risk measures, which is an unexpected result. The variable *GDP Growth* is associated with low spreads, which confirms that in growth cycles, low interest rates are main driver of borrowers' growth. The lender country level of *Financial Development* does not enter significantly to explain neither loan *Spread* nor *Maturity*. However, further analyses are offered for this variable later.

We extend the discussion of our evidence on loan risk characteristics, by considering complementarities and interactions between both regulatory mechanisms themselves, and other country factors. For such, we propose two more hypotheses to be tested:

H4: *Capital regulation, supervisory power and private monitoring complement themselves to reduce priced risk characteristics of loan contracts.*

H5: *Bank competition, financial development and legal enforcement are complements to bank regulations to reduce the priced risk characteristics of loan contracts.*

Tables 6 to 8 go further in the analysis to examine interactions between bank regulations when affecting loan spreads, maturity and arranger lender share. By looking at regression *R4* in Table 7, we find that official supervisory power interacts with capital requirements to influence loan maturity. Given the quadratic relationship between *Capital* and *Maturity*, we conclude that for low levels of *Capital*, where *Maturity* decreases with *Capital*, the opposite positive sign of the interaction term (*Capital * Official*) means that *Capital* decreases *Maturity* more low levels of *Official*. For higher levels of Capital, where *Maturity* increases with *Capital*, *Official* reinforces *Capital* to increase loan *Maturity*. Summing up, for low levels of capital stringency, official supervisory power counteracts with capital regulation to increase loan maturity, while for high levels of capital stringency, the mechanisms reinforce each other.

The evidence on interactions between capital stringency and private monitoring to influence risk comes both from spread and maturity measures. Regressions *R4* in Table 6 and *R5* in Table 7 convey the same message. For low levels of capital stringency, where *Spread* increases and *Maturity* decreases with *Capital*, *Capital* increases risk more for low levels of *Private Monitoring*. For high levels of capital stringency, *Private Monitoring* helps Capital to reduce risk loan features (decreases spread and increases maturity).

Insert Tables 6, 7 and 8 about here

Results in Tables 9 to 13 provide evidence on interactions between regulations and other country-level factors. Regressions in second, fourth and sixth columns of both Tables 9 and 10 point that capital stringency decreases priced risk loan characteristics (decreases spread and increases maturity) especially in countries with high levels of legal enforcement, financial development and competition. From the regression in third column of Table 9, and first and third columns of Table 10, we conclude that private monitoring increases loan risk characteristics in countries with poor legal and financial systems. Such evidence on private monitoring supports the public interest view of regulation, according to which is not recommended to rely on markets to contain bank-risk taking.

Insert Tables 9 to 13 about here

Now we devote an analysis to another dependent variable, which is the stake of the lead arranger lender in a loan deal. The arranger lender is in a better position to monitor the borrower and alleviate problems of asymmetry of information between the lenders in a syndicated loan and the borrower. Therefore, we believe this variable reflects the arranger lender's incentives to extract rents of a loan by playing such a monitoring role. The high positive correlation between loan *Spread* and arranger *Lender Share* (34%) reinforces our belief. We will extend our conclusions regarding the arranger *Lender Share* to other characteristic of loan contracts, which is the *Number of Lenders*, given the high negative correlation between these variables (Table 4). The larger the number of lenders, the lower the stake of each lender in a syndicated loan, including the arranger's one.

The last column of Table 5 shows that *Capital* requirements stringency lead lenders to reduce their stakes in a syndicated loan. Differently from risk measures, we did not identify

nonlinear effects of *Capital* stringency on *Lender Share*, which complicates a joint analysis of the three loan characteristics. In countries where *Capital* requirements are more stringent, which are also characterized by lower loan risk measures, the arranger *Lender Share* is lower. It suggests that, as banks are on average more sound, the need for a lead arranger that alleviates the problem of asymmetry of information between borrowers and the syndicate is reduced. At the same time, there are fewer opportunities for rent extraction in a context of low risk, which reduces the incentives of the arranger lender to increase its loan share. This explanation is strengthened with the results of regressions in Table 11, which shows that the reduction in arranger lender *Share* as a result of more stringent *Capital* regulations is restricted to lender countries with high levels of *Rule of Law* and *Financial Development*. Now we turn to the case of less *Capital* stringent countries, where arranger lenders tend to increase their share on the loans. These countries also experience low risk loan measures, which reduces the incentives of banks to extract rents from borrowers. However, it seems that the lower stringency of Capital regulation may make banks more fragile and make more powerful arranger lenders necessary. Table 11 also provides the reasonable evidence that less competition among banks increases the arranger lender *Share* of loans.

Contrasting with *Capital*, *Official* supervisory power and *Private Monitoring* increase the arranger lender *Share* of loans. However, regressions *R6* and *R7* in Table 13 show that these increasing effects on arranger lender *Share* are less pronounced when *Competition* among banks is high. Therefore, in a context of low bank *Competition*, lenders seem to have more incentives to monitor and extract rents from borrowers.

V. Conclusions

In this paper we have examined the effect on banks' credit policy of implementing three different types of regulatory measures: the level of stringency of capital restrictions imposed to banks (*Capital* requirements stringency); the degree of the power that the supervisor authority has to oversee and intervene in banks functioning (*Official* supervisory power*)*; and the degree to which banks are exposed to external monitoring, which does not refer to official regulatory and supervisory oversight (*Private Monitoring*).

The results found indicate that *Capital* requirements stringency has an inverse-U relationship with priced risk characteristics of loan contracts. It means an inverse-U relationship between capital regulation stringency and loan spreads, and a direct-U relationship between capital stringency and loan maturities. Another finding shows that, at medium to high levels of capital stringency, official supervisory power and private monitoring of banks are complements to capital stringency to reduce risk characteristics of loans. Together, this evidence reveals that at high levels of capital regulation stringency priced risk features of loan contracts are low, as a consequence of the superior financial soundness of better-capitalized banks and the complementary roles of supervision and market discipline in containing bank risk-taking. Such banks can bear larger credit risks by offering better financial conditions to borrowers. However, these banks balance such increase in risks transferred from their borrowers through low-spread-large-maturity loans by decreasing their individual loan shares in the syndicated loan (risk diversification in the lenders' side). Further evidence shows that at low levels of capital stringency, official supervisory power and private monitoring arise as substitute mechanisms to capital stringency when reducing risk features of loan contracts. As a consequence, risk at low levels of capital stringency is reduced.

Evidence on interactions between regulations and other country-level factors points that capital stringency decreases priced risk loan characteristics (decreases spread and increases maturity) especially in countries with high levels of legal enforcement, financial development and competition. We also find that private monitoring increases loan risk characteristics in countries with poor legal and financial systems, although it reduces spreads in countries with low competition.

Our paper opens avenues in future directions. The analysis shown in this paper is cross-sectional given that we only have three waves of data concerning the regulatory index used. If more data become available in the form of another survey of bank regulation and supervision, we can incorporate them to enhance our estimation techniques. A new survey

will open the possibility for conducting a longitudinal analysis of how variation in regulatory measures affecting each bank produce changes in the credit policy followed by each individual bank (fixed effect estimation). Such longitudinal approach will help tackling endogeneity issues of reverse causality related to the changes in regulation triggered by certain condition in the credit market. Finally, issues of simultaneous implementation versus sequential implementation of capital requirement regulatory measures and monitoring regulatory measures will be properly addressed in a longitudinal study. These issues will be the subject of future research.

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TABLES AND FIGURES

Table 1 – Descriptive Statistics

Variable	Obs	Mean	Std. Deviation	Minimum	Maximum	Percentile 10%	Percentile 25%	Median	Percentile 75%	Percentile 90%
Spread Margin (basis points)	32,354	188.80	172.98	-295	15,000	40	75	155	250	350
Log of Maturity (months)	41,965	3.66	0.82	0	10.09	2.48	3.18	4.01	4.09	4.43
Arranger Lender Share (%)	24,541	15.84	16.51	0	100	3.03	5	9.09	20	40
Number of Lenders	46,453	7.05	7.47	1	290	1	2	5	9	16
Loans in Same Country (%)	2,433	60.73	39.04	0	100	0	21.38	73.17	100	100
Capital	46,453	6.38	1.25	2	10	5	6	6	7	7
Official	46,453	11.14	2.36	4	14	7	9	12	13	13
Private Monitoring	46,453	8.79	1.36	5	11	7	8	9	10	10
Log of Deal Amount	46,453	18.76	1.47	0	24.61	16.86	17.81	18.81	19.74	20.61
Lender Size (Log of Assets)	46,453	20.03	1.06	13.09	21.40	18.75	19.62	20.27	20.81	21.10
Lender Leverage	46,453	0.94	0.03	0.51	1.25	0.91	0.92	0.94	0.96	0.97
Borrower Rating Score*	46,453	1.22	2.13	0	6	0	0	0	3	5
Creditor Rights	46,453	1.49	1.00	0	4	1	1	1	2	3
Financial Development	46,453	0.84	0.42	0	2.01	0.48	0.52	0.85	1.10	1.45
Log of GDP	46,453	8.06	1.56	1.05	9.49	5.70	7.03	9.08	9.26	9.43
Log of GDP per capita	46,453	10.19	0.75	5.95	11.41	9.51	10.22	10.46	10.54	10.64
GDP growth	46,453	3.06	1.81	-13.13	30.55	0.88	1.99	3.04	3.85	4.53
Sovereign Rating Score	46,453	2.43	2.87	1	24	1	1	1	3	6
Same Country	46,453	0.63	0.48	0	1	0	0	1	1	1

* Zero if unrated.

Table 2 – Lender Country Descriptive Statistics (Mean of country-specific variables for the 1998-2006 period)

	Country	Capital	Official	Private Monitoring	Financial Development
1	ARGENTINA	7.5	9.8	8.3	0.17
2	AUSTRALIA	6.4	11.5	9.8	0.88
3	AUSTRIA	7.8	12.1	6.0	1.03
4	BELGIUM	6.6	11.1	7.0	0.75
5	BRAZIL	6.6	13.7	8.7	0.30
6	CANADA	4.0	7.5	9.0	1.02
7	CHILE	5.6	10.6	7.3	0.59
8	DENMARK	7.1	8.9	9.3	1.10
9	EGYPT	5.0	13.2	9.0	0.48
10	FINLAND	4.7	7.7	9.1	0.59
11	FRANCE	6.0	7.3	6.2	0.86
12	GERMANY	6.3	8.8	7.5	1.13
13	GREECE	4.9	10.6	7.2	0.57
14	HONG KONG	6.0	11.0	8.5	1.53
15	INDIA	7.6	9.2	6.9	0.29
16	INDONESIA	5.9	12.3	8.4	0.28
17	IRELAND	4.9	10.5	9.2	1.09
18	ISRAEL	5.5	8.3	9.6	0.80
19	ITALY	5.4	6.6	7.2	0.74
20	JAPAN	6.4	12.0	9.4	1.44
21	JORDAN	7.7	10.1	7.4	0.72
22	KOREA (South)	4.5	10.5	10.0	0.79
23	MALAYSIA	3.9	11.6	9.3	1.28
24	MEXICO	7.4	9.5	7.9	0.17
25	NETHERLANDS	5.3	7.1	8.2	1.55
26	NORWAY	7.5	8.7	7.5	0.70
27	PAKISTAN	8.5	13.3	8.5	0.24
28	PHILIPPINES	5.6	11.3	8.5	0.35
29	PORTUGAL	6.8	13.6	7.5	1.22
30	SINGAPORE	7.2	9.6	8.9	1.03
31	SOUTH AFRICA	8.3	6.4	9.2	0.65
32	SPAIN	9.6	9.6	8.3	1.03
33	SWEDEN	2.9	6.3	6.9	0.74
34	SWITZERLAND	6.2	13.6	8.1	1.61
35	TAIWAN	5.8	11.3	8.3	.
36	THAILAND	5.6	9.7	8.3	1.14
37	UNITED KINGDOM	6.7	10.1	9.6	1.34
38	USA	6.7	13.0	9.2	0.51
39	VENEZUELA	3.9	12.1	5.6	0.10

Table 3 – Borrower Country Descriptive Statistics (Number of loans and mean of variables across the 1998-2006 period)

	Country	Loans	Creditor Rights	GDP	GDP per capita	GDP growth	Sovereign Score		Country	Loans	Creditor Rights	GDP	GDP per capita	GDP growth	Sovereign Score
1	Argentina	178	1	220	5,939	2.80	18.89	43	Kuwait	15	-	48	18,479	5.80	4.78
2	Australia	1,218	1	500	25,346	3.55	2.56	44	Latvia	4	-	11	4,551	7.75	8.22
3	Austria	42	3	241	29,761	2.26	1.00	45	Lithuania	11	-	17	4,799	6.54	9.22
4	Azerbaijan	5	-	8	970	12.28	12.25	46	Luxembourg	51	-	27	59,068	5.40	1.00
5	Bahrain	19	-	9	13,444	6.51	8.00	47	Malaysia	412	4	107	4,401	4.42	8.67
6	Belgium	128	2	292	28,156	2.33	3.11	48	Mali	3	-	4	330	5.09	16.00
7	Bolivia	4	-	9	994	3.26	16.00	49	Malta	3	-	5	11,753	1.29	6.00
8	Brazil	356	1	718	4,096	2.57	13.67	50	Mexico	381	0	608	6,089	3.62	10.56
9	Bulgaria	19	-	18	2,311	3.89	11.71	51	Netherlands	558	2	488	30,389	2.59	1.00
10	Cameroon	2	-	13	766	4.05	15.00	52	New Zealand	129	3	73	18,396	3.04	2.20
11	Canada	1,490	1	837	26,670	3.46	2.00	53	Nigeria	3	4	67	518	7.32	13.00
12	Chile	213	2	88	5,653	3.94	6.78	54	Norway	197	2	213	46,757	2.70	1.00
13	China	293	-	1,549	1,205	9.21	6.89	55	Panama	32	-	13	4,226	5.08	11.00
14	Colombia	51	0	97	2,241	2.64	11.22	56	Papua New Guinea	8	-	4	747	0.82	14.57
15	Costa Rica	8	-	17	4,256	5.34	12.00	57	Peru	39	0	64	2,447	3.88	12.38
16	Croatia	38	-	27	6,054	4.00	10.22	58	Philippines	190	0	83	1,051	4.18	11.50
17	Cyprus	5	-	12	16,970	3.75	4.50	59	Poland	100	-	217	5,669	4.26	8.11
18	Czech Republic	67	-	84	8,233	2.87	7.56	60	Portugal	53	1	143	13,761	2.25	3.00
19	Denmark	64	3	201	37,423	2.17	1.67	61	Romania	57	-	59	2,706	2.66	13.11
20	Dominican Rep.	1	-	21	2,548	6.00	14.00	62	Russia	288	-	456	3,147	5.06	12.67
21	Ecuador	4	4	27	2,082	3.37	16.67	63	Saudi Arabia	19	-	216	10,023	3.35	5.50
22	Egypt	46	4	89	1,350	5.03	10.56	64	Serbia	1	-	20	2,475	2.30	13.00
23	El Salvador	9	-	14	2,209	2.91	11.00	65	Singapore	398	4	99	24,010	5.39	1.56
24	Estonia	7	-	9	6,445	7.81	7.50	66	Slovakia	30	-	31	5,731	4.37	9.75
25	Finland	140	1	153	29,366	3.77	1.11	67	Slovenia	13	-	29	14,317	4.21	5.44
26	France	1,225	0	1,675	27,987	2.31	1.00	68	South Africa	66	3	166	3,655	3.45	9.78
27	Germany	770	3	2,323	28,212	1.44	1.00	69	Spain	757	2	797	19,083	3.83	1.78
28	Ghana	8	-	8	406	4.89	14.50	70	Sri Lanka	1	3	18	973	4.87	13.00
29	Greece	195	1	175	15,898	4.09	6.56	71	Sweden	250	2	291	32,532	3.22	2.22
30	Hong Kong	580	4	170	25,265	3.74	4.33	72	Switzerland	209	1	304	42,144	1.92	1.00
31	Hungary	51	-	72	7,074	4.42	7.67	73	Taiwan	1,039	2	315	14,037	4.38	5.00
32	Iceland	19	-	11	36,989	4.60	4.00	74	Thailand	366	3	144	2,270	2.79	9.44
33	India	239	4	559	538	6.53	11.14	75	Tunisia	15	-	23	2,393	4.88	9.33
34	Indonesia	109	4	216	1,019	2.69	14.89	76	Turkey	79	2	316	4,907	4.44	14.00
35	Iran	39	-	134	2,042	4.71	13.75	77	Turkmenistan	1	-	9	1,934	12.24	15.00
36	Ireland	94	1	135	34,184	7.24	1.11	78	USA	23,432	1	10,501	36,553	3.12	1.00
37	Israel	24	4	118	18,274	3.58	7.00	79	Ukraine	30	-	54	1,134	4.65	14.17
38	Italy	406	2	1,393	24,257	1.50	3.44	80	United Kingdom	2,167	4	1,737	29,236	2.85	1.00
39	Jamaica	2	-	8	3,133	0.92	14.00	81	Uruguay	10	2	18	5,350	1.84	10.00
40	Japan	6,069	2	4,299	33,819	1.12	2.44	82	Venezuela	53	-	113	4,536	3.01	14.00
41	Kazakhstan	31	-	34	2,249	7.48	11.44	83	Vietnam	16	-	38	476	7.12	13.00
42	Korea (South)	699	3	583	12,286	4.37	7.22		Total	46,453					

Table 4 – Correlation Matrix
(Sample: 46,453 loans made by 278 banks of 39 countries, for the 1998-2006 period)

	Spread Margin	Matur.	Lender Share	Numb. Lenders	Same Countr.	Capital	Official	Private Monit.	Deal amount	Lender Size	Lender Lever.	Borr. Score	Credit. Rights	Fin. Devel.	Log of GDP pc	GDP Growth
Spread Margin	1															
Log of Maturity	0.15	1														
Arranger Lender Share	0.34	-0.06	1													
Number of Lenders	-0.18	0.04	-0.65	1												
Loans in Same Country	0.08	-0.07	0.06	-0.16	1											
Capital	-0.04	0.10	-0.04	0.05	0.13	1										
Official	0.03	-0.11	0.04	-0.06	0.68	0.26	1									
Private Monitoring	0.05	-0.03	-0.03	-0.05	0.42	0.12	0.43	1								
Log of Deal Amount	-0.17	0.06	-0.44	0.49	-0.23	0.08	-0.13	-0.03	1							
Lender Size	0.00	-0.05	-0.04	0.13	-0.23	0.19	-0.01	0.09	0.20	1						
Lender Leverage	-0.08	0.03	-0.07	0.13	-0.69	-0.14	-0.56	-0.39	0.11	0.24	1					
Borrower Rating Score	0.04	0.01	-0.21	0.26	0.00*	0.06	0.05	0.01	0.38	0.17	-0.04	1				
(borrower) Cred. Rights	-0.06	0.06	0.00*	-0.02	-0.16	-0.07	-0.09	0.03	-0.04	-0.12	0.16	-0.21	1			
(lender) Fin. Develop.	-0.03	0.03	-0.01	0.11	-0.55	-0.09	-0.33	0.10	0.12	0.23	0.50	-0.04	0.27	1		
(borrower) Log GDP pc	0.02	-0.09	0.00	0.01	0.18	0.08	0.17	0.17	0.07	0.32	-0.10	0.17	-0.13	-0.05	1	
(borrower) GDP growth	-0.04	0.13	0.02	-0.01	-0.03	0.14	-0.06	-0.12	0.02	-0.15	-0.05	-0.02	0.00*	-0.09	-0.33	1
(borrower) Sov. Score	0.01	0.06	0.01	-0.03	-0.15	-0.08	-0.12	-0.10	-0.13	-0.23	0.12	-0.20	0.11	0.07	-0.88	0.20

* Not Significant (at the 5% level).

Table 5 – Relationship between Bank Regulations and Loan Contracts Characteristics
Dependent variables in columns. Pooled OLS regressions[+] over the period 1998-2006. Robust
standard errors clustered by banks are in parentheses. Constant, year dummies and other loan-specific
controls (industry sector, loan purpose and loan type) are omitted.

	Explanatory Variables	*Spread Margin*		*Log of Maturity* [a]		*Arranger Share*
		R1	*R2*	*R3*	*R4*	
	Lender Country's Bank Regulations					
1	Capital	-6.05 ***	21.04 **	3.76 ***	-7.44 **	-0.51 ***
		(1.90)	(9.53)	(0.95)	(3.30)	(0.14)
2	Capital ^2		-2.14 ***		0.88 ***	
			(0.73)		(0.27)	
3	Official	0.21	-0.55	-1.83 ***	-1.46 ***	0.36 **
		(2.40)	(2.49)	(0.56)	(0.53)	(0.16)
4	Private Monitoring	1.78	0.30	-0.22	0.33	0.65 ***
		(3.00)	(2.86)	(0.93)	(0.88)	(0.17)
	Lender, borrower and loan specific					
5	Lender Log (Assets)	0.68	-0.68	-2.06 **	-1.50	1.32 ***
		(3.23)	(3.12)	(1.01)	(1.05)	(0.23)
6	Lender Leverage	-204.66	-172.90	-62.28	-67.98	0.66
		(237.73)	(237.10)	(76.98)	(76.46)	(16.06)
7	Borrower Rating	53.08 ***	53.11 ***	8.18 ***	8.15 ***	-0.96 ***
		(1.70)	(1.72)	(1.31)	(1.31)	(0.18)
8	Unrated borrower	249.43 ***	249.80 ***	29.96 ***	29.81 ***	-3.61 ***
		(9.81)	(9.88)	(7.15)	(7.19)	(0.99)
9	Log (Deal Amount)	-14.71 ***	-14.77 ***	6.87 ***	6.81 ***	-5.34 ***
		(1.08)	(1.09)	(1.22)	(1.22)	(0.29)
10	Same Country	-13.24 ***	-13.29 ***	-1.06	-0.76	5.99 ***
		(4.72)	(4.59)	(3.30)	(3.27)	(0.74)
	Borrower Country Specific (except [b])					
11	Creditor Rights	-2.47	-2.95 *	-0.92	-0.67	-0.52 **
		(1.77)	(1.72)	(0.98)	(0.93)	(0.22)
12	Creditor Rights missing	-0.12	-3.20	-6.15	-4.80	-1.63 *
		(10.34)	(10.09)	(4.86)	(4.76)	(0.94)
13	Log (GDP)	18.37 ***	17.98 ***	-4.40 ***	-4.23 ***	0.65 *
		(1.85)	(1.80)	(0.83)	(0.81)	(0.34)
14	Log (GDP per capita)	10.01 **	9.72 **	-15.17 ***	-14.94 ***	1.49 ***
		(4.78)	(4.73)	(2.44)	(2.41)	(0.47)
15	GDP growth	-3.87 ***	-3.75 ***	0.50	0.43	-0.19 **
		(1.04)	(1.03)	(0.45)	(0.46)	(0.08)
16	Sovereign Credit Risk	8.63 ***	8.51 ***	-5.97 ***	-5.89 ***	0.34 **
		(1.23)	(1.20)	(0.94)	(0.94)	(0.17)
17	Lender Country Fin. Develop. [b]	-10.10	-12.12	3.27	4.21	-1.50 *
		(10.24)	(10.25)	(3.25)	(3.39)	(0.84)
	Observations	32,364	32,364	41,965	41,965	24,541
	R-squared	0.24	0.24	0.35	0.35	0.48

[+] Significance levels: *** 1%, ** 5%; * 10%
[a] Coefficients and standard errors of Log (Maturity) regression are multiplied by 100.

Table 6 –Effect of Interactions between Bank Regulations on Spread Margin

Dependent variable: Spread Margin. Pooled OLS regressions[+] over the period 1998-2006. Robust standard errors clustered by banks are in parentheses. Constant, year dummies and other loan-specific controls (industry sector, loan purpose and loan type) are omitted.

	Explanatory Variables	*R1*	*R2*	*R3*	*R4*
	Lender Country's Bank Regulations				
1	Capital	1.29	26.13 ***	-6.61 ***	46.43 ***
		(7.94)	(8.65)	(1.95)	(10.91)
2	Capital^2				-1.83 **
					(0.75)
3	Official	5.61	-0.37	7.82	-0.96
		(5.00)	(2.00)	(6.82)	(2.10)
4	Private Monitoring	1.10	24.37 ***	10.78 *	21.10 ***
		(2.76)	(5.47)	(6.47)	(5.77)
5	Capital x Official	-0.84			
		(0.90)			
6	Capital x Private Monitoring		-4.04 ***		-3.68 ***
			(1.15)		(1.23)
7	Official x Private Monitoring			-0.94	
				(0.71)	
	Lender, borrower and loan specific				
8	Lender Log (Assets)	0.71	2.55	1.60	1.22
		(3.19)	(3.26)	(3.30)	(3.20)
9	Lender Leverage	-226.87	-327.80	-261.09	-289.70
		(245.09)	(247.17)	(230.44)	(246.58)
10	Borrower Rating	53.14 ***	52.90 ***	53.12 ***	52.95 ***
		(1.71)	(1.75)	(1.72)	(1.75)
11	Unrated borrower	249.51 ***	248.79 ***	249.71 ***	249.17 ***
		(9.83)	(9.85)	(9.84)	(9.90)
12	Log (Deal Amount)	-14.78 ***	-14.59 ***	-14.73 ***	-14.65 ***
		(1.08)	(1.07)	(1.09)	(1.08)
13	Same Country	-13.02 ***	-11.84 **	-13.32 ***	-12.01 ***
		(4.65)	(4.73)	(4.76)	(4.65)
	Borrower Country Specific (except [a])				
14	Creditor Rights	-2.67	-2.73	-2.50	-3.12 *
		(1.79)	(1.79)	(1.78)	(1.75)
15	Creditor Rights missing	-0.70	-1.60	-0.55	-4.11
		(10.08)	(10.10)	(10.43)	(10.10)
16	Log (GDP)	18.30 ***	18.08 ***	18.40 ***	17.77 ***
		(1.84)	(1.79)	(1.86)	(1.77)
17	Log (GDP per capita)	9.83 **	9.03 *	9.71 **	8.87 *
		(4.67)	(4.80)	(4.81)	(4.80)
18	GDP growth	-3.88 ***	-4.14 ***	-3.98 ***	-4.01 ***
		(1.03)	(1.05)	(1.02)	(1.04)
19	Sovereign Credit Risk	8.55 ***	8.39 ***	8.60 ***	8.30 ***
		(1.22)	(1.23)	(1.23)	(1.20)
20	Lender Country Fin. Develop. [a]	-9.38	-9.08	-12.30	-10.91
		(10.29)	(9.22)	(9.46)	(9.49)
	Observations	32,354	32,354	32,354	32,354
	R-squared	0.24	0.24	0.24	0.24

[+] Significance levels: *** 1%, ** 5%; * 10%

Table 7 –Effect of Interactions between Bank Regulations on Loan Maturity

Dependent variable: Log of Loan Maturity. Pooled OLS regressions[+] over the period 1998-2006. Robust standard errors clustered by banks are in parentheses. Constant, year dummies and other loan-specific controls (industry sector, loan purpose and loan type) are omitted. All coefficients and standard errors are multiplied by 100.

	Explanatory Variables	R1	R2	R3	R4	R5
	Lender Country's Bank Regulations					
1	Capital	-3.84	-5.83	3.79 ***	-11.97 ***	-15.18 ***
		(2.59)	(4.10)	(0.96)	(4.19)	(4.21)
2	Capital^2				0.73 ***	0.81 ***
					(0.27)	(0.29)
3	Official	-7.18 ***	-1.65 ***	-2.19	-6.11 ***	-1.33 **
		(2.29)	(0.56)	(2.13)	(2.15)	(0.54)
4	Private Monitoring	0.37	-6.93 **	-0.64	0.73	-5.74 **
		(0.90)	(2.85)	(2.45)	(0.90)	(2.52)
5	Capital x Official	0.85 ***			0.72 **	
		(0.31)			(0.29)	
6	Capital x Private Monitoring		1.19 **			1.07 **
			(0.52)			(0.47)
7	Official x Private Monitoring			0.04		
				(0.24)		
	Lender, borrower and loan specific					
8	Lender Log (Assets)	-2.14 **	-2.57 **	-2.10 **	-1.67	-2.00 *
		(1.04)	(1.05)	(1.05)	(1.06)	(1.11)
9	Lender Leverage	-30.62	-26.48	-60.04	-39.87	-35.40
		(71.49)	(71.31)	(77.06)	(71.74)	(72.10)
10	Borrower Rating	8.08 ***	8.24 ***	8.18 ***	8.08 ***	8.21 ***
		(1.32)	(1.29)	(1.31)	(1.32)	(1.30)
11	Unrated borrower	29.77 ***	30.18 ***	29.95 ***	29.67 ***	30.01 ***
		(7.17)	(7.09)	(7.14)	(7.20)	(7.13)
12	Log (Deal Amount)	6.82 ***	6.81 ***	6.87 ***	6.78 ***	6.76 ***
		(1.23)	(1.23)	(1.22)	(1.22)	(1.23)
13	Same Country	-1.04	-1.21	-1.06	-0.80	-0.91
		(3.30)	(3.32)	(3.30)	(3.27)	(3.29)
	Borrower Country Specific (except [a])					
14	Creditor Rights	-0.65	-0.85	-0.92	-0.48	-0.63
		(0.91)	(0.94)	(0.97)	(0.89)	(0.91)
15	Creditor Rights missing	-5.62	-5.77	-6.12	-4.58	-4.56
		(4.74)	(4.83)	(4.85)	(4.68)	(4.77)
16	Log (GDP)	-4.36 ***	-4.35 ***	-4.40 ***	-4.22 ***	-4.19 ***
		(0.80)	(0.82)	(0.83)	(0.80)	(0.82)
17	Log (GDP per capita)	-14.86 ***	-14.86 ***	-15.16 ***	-14.71 ***	-14.68 ***
		(2.39)	(2.40)	(2.43)	(2.37)	(2.37)
18	GDP growth	0.45	0.55	0.50	0.40	0.48
		(0.46)	(0.45)	(0.46)	(0.46)	(0.46)
19	Sovereign Credit Risk	-5.85 ***	-5.87 ***	-5.97 ***	-5.80 ***	-5.81 ***
		(0.92)	(0.93)	(0.94)	(0.91)	(0.92)
20	Lender Country Fin. Develop. [a]	2.61	3.22	3.39	3.48	4.09
		(3.13)	(3.36)	(3.21)	(3.25)	(3.46)
	Observations	41,965	41,965	41,965	41,965	41,965
	R-squared	0.35	0.35	0.35	0.35	0.35

[+] Significance levels: *** 1%, ** 5%; * 10%

Table 8 –Effect of Interactions between Bank Regulations on Arranger Share

Dependent variable: Arranger Lender Share. Pooled OLS regressions[+] over the period 1998-2006. Robust standard errors clustered by banks are in parentheses. Constant, year dummies and other loan-specific controls (industry sector, loan purpose and loan type) are omitted.

	Explanatory Variables	*R1*	*R2*	*R3*	*R4*
	Lender Country's Bank Regulations				
1	Capital	1.13 **	1.05 *	-0.48 ***	1.66 **
		(0.57)	(0.61)	(0.14)	(0.69)
2	Official	1.40 ***	0.34 **	-0.60	-1.10 **
		(0.47)	(0.16)	(0.51)	(0.55)
3	Private Monitoring	0.59 ***	1.67 ***	-0.41	0.47
		(0.17)	(0.47)	(0.58)	(0.60)
4	Capital x Official	-0.18 **			
		(0.07)			
5	Capital x Private Monitoring		-0.19 **		-0.26 ***
			(0.08)		(0.09)
6	Official x Private Monitoring			0.12 *	0.17 **
				(0.07)	(0.07)
	Lender, borrower and loan specific				
7	Lender Log (Assets)	1.33 ***	1.37 ***	1.27 ***	1.32 ***
		(0.23)	(0.23)	(0.23)	(0.23)
8	Lender Leverage	-4.98	-3.20	4.07	0.49
		(15.89)	(16.30)	(16.72)	(16.76)
9	Borrower Rating	-0.98 ***	-0.95 ***	-0.96 ***	-0.94 ***
		(0.18)	(0.18)	(0.18)	(0.18)
10	Unrated borrower	-3.76 ***	-3.57 ***	-3.60 ***	-3.54 ***
		(0.98)	(1.00)	(0.99)	(1.00)
11	Log (Deal Amount)	-5.35 ***	-5.34 ***	-5.33 ***	-5.33 ***
		(0.29)	(0.29)	(0.29)	(0.29)
12	Same Country	5.96 ***	6.05 ***	5.96 ***	6.02 ***
		(0.73)	(0.74)	(0.74)	(0.74)
	Borrower Country Specific (except [a])				
13	Creditor Rights	-0.53 **	-0.53 **	-0.53 **	-0.54 **
		(0.22)	(0.22)	(0.22)	(0.22)
14	Creditor Rights missing	-1.75 *	-1.70 *	-1.62 *	-1.72 *
		(0.95)	(0.93)	(0.94)	(0.93)
15	Log (GDP)	0.62 *	0.63 *	0.64 *	0.60 *
		(0.34)	(0.34)	(0.34)	(0.34)
16	Log (GDP per capita)	1.39 ***	1.44 ***	1.48 ***	1.42 ***
		(0.48)	(0.47)	(0.48)	(0.47)
17	GDP growth	-0.21 ***	-0.20 **	-0.19 **	-0.20 **
		(0.08)	(0.08)	(0.08)	(0.08)
18	Sovereign Credit Risk	0.31 *	0.32 *	0.34 **	0.32 *
		(0.17)	(0.17)	(0.17)	(0.17)
19	Lender Country Fin. Develop. [a]	-1.50 *	-1.52 *	-1.20	-1.09
		(0.82)	(0.82)	(0.85)	(0.82)
	Observations	24,541	24,541	24,541	24,541
	R-squared	0.48	0.48	0.48	0.48

[+] Significance levels: *** 1%, ** 5%; * 10%

Table 9 –Bank Regulations and Loan Spread Margins: sub-samples of high and low lender country Rule of Law, Financial Development and Competition.

Dependent variable: Spread Margin. Pooled OLS regressions[+] over the period 1998-2006. Robust standard errors clustered by banks are in parentheses. Constant, year dummies and other loan-specific controls (industry sector, loan purpose and loan type) are omitted.

	Explanatory Variables	Rule of Law		Financial Development		Competition	
		Low	High	Low	High	Low	High
	Lender Country's Bank Regulations						
1	Capital	-0.63	-5.31 **	-0.54	-6.19 ***	-6.50 **	-5.38 **
		(5.85)	(2.10)	(3.94)	(1.66)	(2.99)	(2.25)
2	Official	11.10 **	0.47	-6.81 **	-1.66	0.09	1.36
		(4.81)	(2.66)	(2.95)	(2.09)	(2.63)	(3.15)
3	Private Monitoring	-5.17	1.62	9.48 **	-1.87	-12.61 **	2.71
		(7.30)	(3.03)	(4.01)	(2.50)	(5.93)	(3.95)
	Lender, borrower and loan specific						
4	Lender Log (Assets)	-18.72 **	0.56	-2.73	-8.94 *	-10.68 **	-2.49
		(9.26)	(3.96)	(6.02)	(4.66)	(5.14)	(4.18)
5	Lender Leverage	430.41 **	-254.42	-408.01	455.86 **	466.68 ***	-163.17
		(188.94)	(283.84)	(402.97)	(182.42)	(168.56)	(266.93)
6	Borrower Rating	36.73 **	52.66 ***	57.91 ***	50.73 ***	52.01 ***	52.88 ***
		(18.31)	(1.75)	(1.89)	(3.00)	(9.43)	(1.86)
7	Unrated borrower	146.92 *	248.62 ***	283.82 ***	224.33 ***	228.62 ***	250.46 ***
		(81.61)	(9.93)	(11.51)	(13.06)	(50.44)	(10.23)
8	Log (Deal Amount)	-5.00	-15.19 ***	-15.54 ***	-11.84 ***	-12.86 ***	-14.41 ***
		(4.82)	(1.11)	(1.26)	(1.85)	(3.48)	(1.10)
9	Same Country	-3.66	-14.79 ***	-32.69 ***	-17.76 ***	10.61	-16.60 ***
		(15.36)	(5.00)	(8.78)	(5.88)	(10.50)	(5.61)
	Borrower Country Specific (except [a])						
10	Creditor Rights	-11.71	-3.06	-6.19	0.31	-3.11	-3.84 *
		(7.31)	(2.05)	(4.14)	(1.76)	(5.47)	(2.06)
11	Creditor Rights missing	-86.72 ***	6.72	-8.75	-7.30	-72.33 ***	2.41
		(32.91)	(10.46)	(12.79)	(12.40)	(25.36)	(10.27)
12	Log (GDP)	11.44 *	17.34 ***	20.85 ***	12.58 ***	24.60 ***	16.40 ***
		(5.93)	(1.75)	(3.04)	(1.78)	(3.38)	(1.82)
13	Log (GDP per capita)	8.41	15.91 ***	7.96	12.92 ***	-6.42	15.10 ***
		(12.63)	(5.08)	(8.11)	(4.65)	(13.32)	(4.99)
14	GDP growth	2.71	-3.90 ***	-5.84 ***	-0.95	2.00	-3.77 ***
		(2.46)	(1.03)	(1.67)	(1.15)	(1.82)	(1.08)
15	Sovereign Credit Risk	13.46 ***	8.90 ***	6.08 ***	8.90 ***	12.59 ***	8.48 ***
		(4.38)	(1.35)	(1.00)	(1.58)	(3.68)	(1.35)
16	Lender Country Fin. Develop. [a]	104.00 **	-9.04	-50.55	23.15 **	46.98	-11.18
		(47.62)	(10.58)	(74.41)	(10.86)	(34.03)	(11.95)
	Observations	1,674	30,514	16,531	14,028	2,638	29,666
	R-squared	0.23	0.24	0.21	0.29	0.24	0.24

[+] Significance levels: *** 1%, ** 5%; * 10%

Table 10 –Lender Country Bank Regulations and Loan Maturity: sub-samples of high and low lender country Rule of Law, Financial Development and Competition.

Dependent variable: Log of Maturity. Pooled OLS regressions[+] over the period 1998-2006. Robust standard errors clustered by banks are in parentheses. Constant, year dummies and other loan-specific controls (industry sector, loan purpose and loan type) are omitted. All coefficients and standard errors are multiplied by 100.

	Explanatory Variables	*Rule of Law*		*Financial Development*		*Competition*	
		Low	*High*	*Low*	*High*	*Low*	*High*
	Lender Country's Bank Regulations						
1	Capital	-0.95	4.31 ***	0.54	3.60 ***	-0.25	4.52 ***
		(1.74)	(1.25)	(1.49)	(0.58)	(0.99)	(1.42)
2	Official	-0.91	-2.24 ***	0.43	-2.81 ***	-4.55 ***	-2.16 ***
		(1.44)	(0.62)	(0.91)	(0.85)	(1.25)	(0.72)
3	Private Monitoring	-7.50 ***	0.13	-7.29 ***	-1.23	-1.44	-0.15
		(2.00)	(0.94)	(1.70)	(0.92)	(1.87)	(1.14)
	Lender, borrower and loan specific						
4	Lender Log (Assets)	3.41	-0.09	-2.51 *	-3.58 ***	-1.64	0.36
		(2.89)	(1.59)	(1.48)	(1.23)	(2.09)	(1.58)
5	Lender Leverage	91.73	-108.14	-117.40	232.83 ***	258.90 ***	-136.11
		(58.71)	(96.77)	(85.84)	(87.19)	(90.81)	(91.97)
6	Borrower Rating	16.27 *	8.10 ***	10.21 ***	4.96 ***	6.51 **	8.40 ***
		(9.18)	(1.33)	(1.37)	(1.26)	(3.24)	(1.32)
7	Unrated borrower	84.38 *	30.05 ***	46.92 ***	13.61 **	26.22	31.46 ***
		(45.22)	(7.11)	(7.29)	(6.52)	(17.07)	(7.17)
8	Log (Deal Amount)	9.26 ***	6.42 ***	11.10 ***	3.12 ***	7.98 ***	6.57 ***
		(1.52)	(1.28)	(1.40)	(0.70)	(1.50)	(1.30)
9	Same Country	22.62 ***	-4.41	8.34 ***	-7.02 *	9.90	-3.52
		(5.47)	(3.46)	(3.06)	(4.22)	(7.20)	(3.73)
	Borrower Country Specific (except [a])						
10	Creditor Rights	-5.65 **	-1.01	-1.55	0.29	-0.58	-1.21
		(2.30)	(1.04)	(1.21)	(0.87)	(2.19)	(0.95)
11	Creditor Rights missing	-17.93	-1.46	-2.75	-9.05 *	-2.44	-3.11
		(10.88)	(5.23)	(8.60)	(4.65)	(12.08)	(5.00)
12	Log (GDP)	-7.88 ***	-4.04 ***	-5.18 ***	-5.01 ***	1.15	-4.70 ***
		(2.31)	(0.76)	(0.94)	(0.91)	(2.31)	(0.70)
13	Log (GDP per capita)	-10.08 **	-13.56 ***	-13.72 ***	-13.44 ***	-15.25 **	-13.53 ***
		(4.31)	(2.27)	(2.50)	(2.66)	(6.38)	(2.25)
14	GDP growth	-1.99 *	0.76	0.41	-0.28	-0.49	0.44
		(1.15)	(0.49)	(0.63)	(0.52)	(0.68)	(0.54)
15	Sovereign Credit Risk	-3.44 **	-6.12 ***	-4.16 ***	-6.50 ***	-2.98	-6.12 ***
		(1.56)	(0.97)	(0.73)	(0.90)	(2.15)	(0.95)
16	Lender Country Fin. Develop. [a]	23.49 *	2.84	14.74	18.51 ***	8.29	3.59
		(12.08)	(3.76)	(22.82)	(6.36)	(13.02)	(3.79)
	Observations	2,186	39,578	17,180	23,403	3,520	38,306
	R-squared	0.24	0.36	0.38	0.39	0.23	0.37

[+] Significance levels: *** 1%, ** 5%; * 10%

Table 11 –Bank Regulations and Arranger Lender Share: sub-samples of high and low lender country Rule of Law, Financial Development and Competition.

Dependent variable: Arranger Lender Share. Pooled OLS regressions[+] over the period 1998-2006. Robust standard errors clustered by banks are in parentheses. Constant, year dummies and other loan-specific controls (industry sector, loan purpose and loan type) are omitted.

	Explanatory Variables	Rule of Law		Financial Development		Competition	
		Low	High	Low	High	Low	High
	Lender Country's Bank Regulations						
1	Capital	0.00	-0.38 **	0.25	-0.53 ***	0.61 **	-0.15
		(0.35)	(0.15)	(0.25)	(0.14)	(0.27)	(0.12)
2	Official	0.91 **	0.39 **	-0.19	0.55 ***	0.56 *	0.31 *
		(0.36)	(0.18)	(0.16)	(0.21)	(0.34)	(0.16)
3	Private Monitoring	1.38 ***	0.72 ***	0.31	0.94 ***	-0.20	0.17
		(0.39)	(0.21)	(0.33)	(0.20)	(0.44)	(0.17)
	Lender, borrower and loan specific						
4	Lender Log (Assets)	2.42 ***	0.99 ***	1.17 ***	1.34 ***	2.77 ***	1.63 ***
		(0.46)	(0.31)	(0.27)	(0.27)	(0.58)	(0.28)
5	Lender Leverage	-31.38 **	12.34	-44.64 ***	0.60	-22.44	-2.75
		(13.24)	(21.44)	(16.50)	(16.19)	(21.28)	(21.28)
6	Borrower Rating	-0.70	-1.00 ***	-0.93 **	-0.81 ***	-0.91	-1.06 ***
		(0.56)	(0.20)	(0.40)	(0.21)	(0.65)	(0.19)
7	Unrated borrower	-4.43 **	-3.74 ***	-3.57 **	-3.27 ***	-1.71	-4.57 ***
		(2.14)	(1.10)	(1.47)	(1.14)	(2.60)	(1.09)
8	Log (Deal Amount)	-4.75 ***	-5.45 ***	-5.00 ***	-5.28 ***	-5.74 ***	-5.46 ***
		(0.39)	(0.33)	(0.30)	(0.33)	(0.37)	(0.37)
9	Same Country	8.07 ***	5.66 ***	4.69 ***	6.03 ***	10.10 ***	4.28 ***
		(0.80)	(0.88)	(0.78)	(0.81)	(1.00)	(0.76)
	Borrower Country Specific (except [a])						
10	Creditor Rights	0.23	-0.62 ***	-0.10	-0.62 ***	-0.10	-0.10
		(0.23)	(0.23)	(0.19)	(0.24)	(0.27)	(0.10)
11	Creditor Rights missing	-0.19	-1.94 *	0.33	-2.34 **	-0.82	0.03
		(1.80)	(1.06)	(1.05)	(1.09)	(1.72)	(0.68)
12	Log (GDP)	0.64 *	0.63 *	0.70 **	0.39	0.53	1.26 ***
		(0.37)	(0.37)	(0.35)	(0.40)	(0.54)	(0.22)
13	Log (GDP per capita)	1.27 **	1.25 **	2.09 ***	0.94 *	0.43	1.67 ***
		(0.60)	(0.54)	(0.50)	(0.56)	(0.96)	(0.48)
14	GDP growth	-0.04	-0.20 **	-0.17	-0.23 ***	-0.48 **	-0.20 **
		(0.17)	(0.09)	(0.12)	(0.09)	(0.19)	(0.09)
15	Sovereign Credit Risk	0.24	0.29	0.22	0.30	-0.09	0.48 ***
		(0.20)	(0.18)	(0.13)	(0.19)	(0.32)	(0.13)
16	Lender Country Fin. Develop. [a]	7.43 **	-2.22 **	2.53	-4.77 ***	4.23	0.04
		(3.44)	(1.02)	(3.28)	(1.24)	(2.75)	(0.75)
	Observations	3,808	20,401	4,636	19,447	5,120	19,127
	R-squared	0.33	0.51	0.33	0.51	0.34	0.55

[+] Significance levels: *** 1%, ** 5%; * 10%

Table 12 – Effects of Interactions between Bank Regulations, Rule of Law and Lender Country Financial Development on Loan Characteristics

Dependent variables: in columns. Pooled OLS regressions[+] over the period 1998-2006. Robust standard errors clustered by banks are in parentheses. Constant, year dummies and other loan-specific controls (industry sector, loan purpose and loan type) are omitted.

	Explanatory Variables	*Spread* *Margin*	*Log of Maturity*[a] *R2*	*R3*	*Arranger Share* *R4*	*R5*
	Lender Country's Bank Regulations					
1	Capital	-18.66 *** (5.28)	-4.61 ** (2.24)	-14.79 *** (4.58)	-1.47 *** (0.44)	-1.11 *** (0.28)
2	Capital^2			0.79 *** (0.30)		
3	Official	-0.57 (1.69)	-2.11 *** (0.58)	-1.79 *** (0.53)	0.34 ** (0.15)	0.36 ** (0.16)
4	Private Monitoring	1.63 (2.32)	0.32 (0.86)	0.75 (0.86)	0.60 *** (0.16)	0.70 *** (0.17)
5	Rule of Law	-22.57 (23.87)	-43.78 *** (9.55)	-42.55 *** (9.63)	-2.64 (2.33)	
6	Lender Country Fin. Develop.	-15.28 ** (7.68)	3.12 (3.35)	3.79 (3.43)	-2.02 ** (0.98)	-5.44 *** (1.91)
7	Capital x Rule of Law	9.62 ** (4.17)	6.16 *** (1.71)	6.25 *** (1.67)	0.74 ** (0.30)	
8	Capital x Fin. Development					0.61 ** (0.27)
	Lender, borrower and loan specific					
9	Lender Log (Assets)	-2.87 (3.13)	-1.47 (1.04)	-1.13 (1.06)	1.15 *** (0.24)	1.28 *** (0.23)
10	Lender Leverage	-172.76 (233.27)	-62.35 (73.68)	-65.52 (73.27)	3.81 (15.12)	3.01 (16.11)
11	Borrower Rating	52.59 *** (1.89)	8.33 *** (1.30)	8.28 *** (1.31)	-1.03 *** (0.19)	-0.97 *** (0.18)
12	Unrated borrower	247.46 *** (10.46)	30.88 *** (7.09)	30.62 *** (7.15)	-3.92 *** (0.96)	-3.62 *** (0.99)
13	Log (Deal Amount)	-14.65 *** (1.07)	6.78 *** (1.23)	6.72 *** (1.23)	-5.34 *** (0.29)	-5.34 *** (0.29)
14	Same Country	-11.58 ** (4.70)	-1.70 (3.03)	-1.26 (2.97)	6.21 *** (0.77)	5.96 *** (0.74)
	Borrower Country Specific					
15	Creditor Rights	-2.48 (1.80)	-1.43 (0.93)	-1.16 (0.86)	-0.50 ** (0.20)	-0.51 ** (0.22)
16	Creditor Rights missing	-7.27 (10.93)	-5.38 (5.17)	-4.43 (5.03)	-1.76 * (0.95)	-1.63 * (0.94)
17	Log (GDP)	18.40 *** (1.90)	-4.66 *** (0.78)	-4.47 *** (0.77)	0.68 ** (0.32)	0.65 * (0.34)
18	Log (GDP per capita)	7.18 (5.01)	-14.69 *** (2.42)	-14.57 *** (2.38)	1.34 *** (0.49)	1.50 *** (0.48)
19	GDP growth	-3.74 *** (1.03)	0.53 (0.45)	0.47 (0.45)	-0.21 *** (0.08)	-0.18 ** (0.08)
20	Sovereign Credit Risk	8.88 *** (1.22)	-6.17 *** (0.91)	-6.06 *** (0.89)	0.35 ** (0.15)	0.35 ** (0.17)
	Observations	32,354	41,965	41,965	24,541	24,541
	R-squared	0.24	0.35	0.35	0.48	0.48

[+] Significance levels: *** 1%, ** 5%; * 10%

[a] Coefficients and standard errors of Log (Maturity) regression are multiplied by 100.

Table 13 – Effects of Interactions of Bank Regulations and Competition on Loan Characteristics

Dependent variables: in columns. Pooled OLS regressions[+] over the period 1998-2006. Robust standard errors clustered by banks are in parentheses. Constant, year dummies and other loan-specific controls (industry sector, loan purpose and loan type) are omitted.

| | *Explanatory* | *Spread* | *Log of Maturity*[a] | | | | *Arranger Share* | |
	Variables	*Margin*	*R2*	*R3*	*R4*	*R5*	*R6*	*R7*
	Lender Country's Bank Regulations							
1	Capital	-5.89 ***	-8.63 **	-20.04 ***	3.31 ***	-14.27 ***	-0.39 ***	-0.32 ***
		(2.02)	(3.45)	(5.31)	(0.78)	(3.92)	(0.12)	(0.11)
2	Capital^2			1.06 ***		1.37 ***		
				(0.28)		(0.31)		
3	Official	-25.61 ***	-2.33 ***	-1.92 ***	-2.05 ***	-1.57 ***	1.40 ***	0.40 **
		(5.75)	(0.64)	(0.59)	(0.60)	(0.52)	(0.51)	(0.17)
4	Private Monitoring	-0.96	-0.55	0.20	-6.44 **	-6.32 **	0.58 ***	2.18 ***
		(3.18)	(0.93)	(0.85)	(3.21)	(3.11)	(0.18)	(0.58)
5	Competition	-36.32 ***	-11.18 ***	-7.81 **	-6.19	-6.30	0.87	1.56 *
		(12.95)	(3.88)	(3.60)	(4.54)	(4.36)	(0.77)	(0.80)
6	Capital x Competition		2.29 ***	1.87 ***				
			(0.71)	(0.64)				
7	Official x Competition	4.19 ***					-0.19 **	
		(1.13)					(0.08)	
8	Priv. Monit. x Competition				1.03 *	1.15 **		-0.32 ***
					(0.58)	(0.55)		(0.10)
	Lender, borrower and loan specific							
9	Lender Log (Assets)	-9.19 **	-3.96 ***	-3.91 ***	-4.61 ***	-4.49 ***	1.97 ***	1.99 ***
		(3.74)	(1.21)	(1.19)	(1.26)	(1.20)	(0.27)	(0.27)
10	Lender Leverage	97.04	27.36	39.37	46.77	67.37	-16.09	-18.01
		(208.21)	(64.45)	(64.02)	(64.92)	(64.42)	(14.60)	(15.17)
11	Borrower Rating	53.07 ***	8.11 ***	8.12 ***	8.19 ***	8.16 ***	-0.86 ***	-0.87 ***
		(1.86)	(1.28)	(1.28)	(1.30)	(1.31)	(0.19)	(0.18)
12	Unrated borrower	250.63 ***	30.24 ***	30.31 ***	30.45 ***	30.41 ***	-3.46 ***	-3.49 ***
		(10.13)	(6.86)	(6.86)	(6.90)	(6.90)	(0.98)	(0.97)
13	Log (Deal Amount)	-14.10 ***	6.56 ***	6.50 ***	6.73 ***	6.60 ***	-5.29 ***	-5.29 ***
		(1.05)	(1.26)	(1.27)	(1.27)	(1.28)	(0.29)	(0.29)
14	Same Country	-17.57 ***	-0.81	-0.31	-0.59	0.02	5.62 ***	5.62 ***
		(4.77)	(3.23)	(3.18)	(3.24)	(3.20)	(0.70)	(0.71)
	Borrower Country Specific (except [b])							
15	Creditor Rights	-2.57	-0.78	-0.49	-0.78	-0.37	-0.47 **	-0.48 **
		(1.72)	(0.91)	(0.84)	(0.88)	(0.79)	(0.19)	(0.19)
16	Creditor Rights missing	-10.96	-7.11	-6.13	-7.70	-6.17	-1.19	-1.28
		(10.73)	(4.85)	(4.68)	(4.81)	(4.59)	(0.88)	(0.88)
17	Log (GDP)	16.12 ***	-4.79 ***	-4.68 ***	-4.85 ***	-4.71 ***	0.69 **	0.69 **
		(1.69)	(0.77)	(0.74)	(0.79)	(0.75)	(0.32)	(0.32)
18	Log (GDP per capita)	9.95 **	-14.05 ***	-13.67 ***	-13.97 ***	-13.33 ***	1.46 ***	1.38 ***
		(4.80)	(2.13)	(2.14)	(2.11)	(2.09)	(0.46)	(0.47)
19	GDP growth	-3.26 ***	0.48	0.43	0.64	0.56	-0.22 ***	-0.24 ***
		(1.03)	(0.46)	(0.46)	(0.45)	(0.45)	(0.07)	(0.08)
20	Sovereign Credit Risk	8.61 ***	-5.70 ***	-5.57 ***	-5.68 ***	-5.48 ***	0.32 **	0.31 *
		(1.23)	(0.83)	(0.81)	(0.81)	(0.79)	(0.16)	(0.16)
21	Lender Country Fin. Develop.[b]	27.27 **	10.87 **	13.03 ***	10.07 **	13.47 ***	-2.57 ***	-2.25 ***
		(13.04)	(4.37)	(4.32)	(4.05)	(4.10)	(0.89)	(0.79)
	Observations	32,354	41,965	41,965	41,965	41,965	24,541	24,541
	R-squared	0.24	0.35	0.36	0.35	0.36	0.49	0.49

[+] Significance levels: *** 1%, ** 5%; * 10%

[a] Coefficients and standard errors of Log (Maturity) regression are multiplied by 100.