

The Microeconomic Effects of Different Approaches to Bank Supervision

James R. Barth
Gerard Caprio
Ross Levine*

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I. Introduction

A large and growing body of research finds that cross-country differences in banking sector development influence national rates of long-run economic growth (Levine, 1997, 2005). Banks mobilize savings and allocate those resources to productive ends. If banks conduct this intermediation task efficiently and allocate capital effectively, this enhances opportunities for economic development. These findings highlight the substantial social welfare benefits of developing public policies that enhance bank operations. These findings also stress that banking system stability is not the only criterion for defining bank operations: The efficiency of intermediation and the effectiveness with which banks identify, fund, and monitor firms are critical for fostering long-run economic growth.

Yet, it is only with the creation of a new international database on bank regulatory and supervisory policies that researchers have begun to assess which banking sector policies promote sound financial intermediation around the world (Barth, et al 2001a, b, 2004, 2005). This new database includes detailed data on over 300 regulatory and supervisory practices in over 100 countries. Thus, these data permit researchers to examine individual regulatory and supervisory powers. These data also allow researchers to aggregate information on individual regulations and statutes and thereby assess broad approaches to bank regulation and supervision.

This paper reviews and presents microeconomic evidence on the impact of two broad government approaches to bank regulation and supervision on both the efficiency with which banks intermediate savings and the degree to which corruption distorts bank lending decisions (Demirguc-Kunt et al. 2004; Beck et al. 2005a). Strategically, we follow Barth et al. (2004, 2005), who show that national approaches to bank supervision fall along a spectrum. Some countries adopt an overall approach to bank supervision that focuses on direct official

supervision of banks, while other countries place comparatively greater emphasis on adopting regulations that empower private sector monitoring of banks. Countries do not select individual regulations and statutes in isolation; rather, individual policies reflect broad public policy approaches to bank supervision. By adopting this strategy of aggregating individual regulatory and supervisory powers into conglomerate indexes, we lose the specificity associated with examining individual laws. The advantage of this aggregate approach is that it provides evidence regarding which broad regulatory and supervisory strategies boost bank operations and therefore provides a framework for assessing the likely impact of individual policies.

The public interest approach to bank regulation and supervision stresses that market failures – information and contract enforcement costs – and government policies interfere with the incentives and abilities of private agents to monitor and discipline banks effectively.¹ From this perspective, therefore, a powerful supervisory agency that directly monitors and disciplines banks can (a) reduce corruption in lending and thereby enhance the efficiency of capital allocation and (b) encourage a sufficient degree of competition to boost the efficiency of intermediation. The public interest approach assumes that (i) there are market failures, (ii) official supervisors have the capabilities to ameliorate those market failures by directly overseeing, regulating, and disciplining banks, and (iii) official supervisors have the incentives to fix market failures and promote the formation of banks that foster national economic prosperity (Stigler, 1971, 1975).

The private interest view, however, questions whether official supervisory agencies have the incentives and ability to fix market failures and enhance the socially efficient operation of banks. While market failures, such as information and enforcement costs, may impede private monitoring, government failures may be so large that empowering official supervisors produces

socially counterproductive results (Hamilton et al. 1788; Shleifer and Vishny, 1998; Haber et al. 2003).² From this perspective, politicians and government supervisors do not maximize social welfare; they maximize their own welfare. Thus, official supervisors may not have the incentives to fix market failures. Indeed, supervisors may use their positions of power to funnel credit to connected firms, or banks may capture supervisory agencies and use the agencies to protect and enrich bankers. Thus, strengthening official oversight of banks may reduce banking efficiency and intensify corruption in lending.

According to the private interest view, the most efficacious approach to bank supervision relies on using government regulations and institutions to empower private monitoring of banks. Specifically, the private monitoring approach advocates effective information disclosure rules and sound contract enforcement systems so that private investors can exert sound corporate governance over banks with positive ramifications on bank efficiency and the integrity of lending. This is not *laissez-faire*. The private interest approach stresses that strong legal and regulatory institutions are necessary for reducing information and contract enforcement costs.

Extensions and mergers of the public and private interest views stress that the impact of strengthening official supervisory power or promoting information disclosure depends critically on legal and political institutions.³ For instance, one can partially define “sound” political and legal systems in terms of the degree to which they induce politicians and government officials to

¹ See Barth et al. (2005) for references.

² Some policy analysts reject the notion that there are serious market failures in banking. In a world with (i) no information or transactions costs, (ii) governments that maximize social welfare, and (iii) well-defined and efficiently enforced property rights, markets will achieve efficient outcomes (Coase, 1960). If the prerequisites for this *laissez-faire* – invisible hand – theory hold, government supervision of banks would be at best irrelevant and potentially harmful to social welfare. Considerable research, however, suggests that there are non-trivial information and transactions costs in the banking industry. Indeed, the mere existence of banks may reflect information and transactions costs in credit markets. More importantly for the purposes of this paper, the empirical work below suggests that *laissez faire* is not the most successful approach to bank supervision around the world.

³ See Barth et al. (2005) for a broader discussion and review.

act in the best interests of society. From this perspective, empowering official supervisors will have a greater chance of boosting banking performance and lowering corruption in sound institutional environments than in political and legal environments that do not hold politicians and public officials accountable to society at large. Furthermore, more information transparency – which is a key component of the private interest view of bank regulation – is unlikely to materially improve bank operations if legal and political institutions do not allow private investors to use this information to exert effective governance over banks. Similarly, if deposit insurance and other policies reduce incentives for private investors to monitor banks rigorously, then information disclosure is less likely to boost bank operations. From this perspective, bank regulatory and supervisory practices – whether based on public or private interest foundations – depend on the operation of other national institutions. Research is beginning to shed cross-country empirical evidence on different approaches to bank regulation and supervision, including analyses of the role of legal and political institutions in determining the effectiveness of different banking sector policies.

To assess empirically the impact of the public and private interest approaches to supervision on bank operations, we use two microeconomic measures of the efficient operation of banks. First, across a broad cross-section of countries, we use bank-level data of the ratio of each bank's overhead costs to its total assets. While imperfect, high overhead costs can signal excessive managerial perquisites and market power that contradict the notions of sound governance of banks and efficient intermediation. As a second measure of bank efficiency, we use firm-level survey data across a large number of countries regarding the degree to which firms need corrupt ties with banks to obtain loans. Again, while imperfect, the need for corrupt ties with bank officials to obtain funds may signal a socially inefficient form of allocating bank

credit. Using these measures, this paper provides empirical evidence on which broad approaches to bank supervision promote the efficient functioning of banks. Although we discuss recent evidence concerning the extent to which legal and political institutions affect the impact of regulations on bank performance, we focus on examining the first-order effect of different approaches to banking policies on bank operations and leave further analyses of possible nonlinear effects to future research.

To measure policies that empower official supervisors, we use the Barth, et al. (2004) indicator of official power, which aggregates information on whether bank supervisors can take specific actions against bank management, bank owners, and bank auditors both in normal times and times of distress. Supervisory agencies can use these powers to improve the governance of banks as emphasized by the public interest view. Alternatively, the supervisory authority can use these powers to induce banks to funnel credit to favored ends as emphasized by the private interest view. Thus, the degree to which – and the institutional conditions under which -- empowering the supervisory authority improves the functioning of banks is an empirical question.

To measure policies that empower private monitoring of banks, we use the Barth, et al. (2004) indicator of private monitoring, which includes information on the degree to which bank regulations force banks to disclose accurate information to the public. The private interest view holds that regulations, laws, and enforcement mechanisms that improve private governance of banks will boost the functioning of banks. In contrast, the public interest view holds that market imperfections in banking are so substantive and pervasive that strengthening information disclosure laws will not materially improve banking operations. Again, sound theories bolster both sides of the debate. By assessing empirically the impact of the official supervisory power

and the private monitoring indicators on bank efficiency and the integrity of bank-firm relations, we provide evidence on which supervisory approach is associated with better functioning banks.

While we have stressed differences between the public and private interest approaches, there may be complementarities at the level of individual regulations and statutes. Countries could adopt regulations that force banks to disclose accurate information to the public, while also creating official supervisory agencies that directly oversee bank activities. Conceptually, however, these approaches reflect different attitudes toward the role of government in monitoring banks. Indeed, differences in the degree of emphasis on empowering private monitoring of banks may represent a particularly useful litmus test of different national attitudes toward the role of government in the economy. Empirically, if the official power and private monitoring indicators are highly correlated, then we will observe multicollinearity in the regressions. Alternatively, if it is useful to classify bank supervisory approaches in terms of official empowerment versus private empowerment, then we will not observe multicollinearity and will instead observe that the official power and private monitoring indicators yield distinct results.

Methodologically, we use two distinct datasets, different econometric procedures, and different definitions of “better functioning banks.” First, we use a pooled bank-level, cross-country database and employ a generalized least squares random effects estimator to assess which supervisory strategies lower bank overhead costs. The paper uses microeconomic data to minimize the possibility that reverse causality biases the results. Nevertheless, bank overhead costs are an imprecise measure of bank efficiency. Thus, we (i) control for other bank-specific characteristics and (ii) use alternative measures of bank performance in assessing bank supervisory approaches. Second, we use a pooled firm-level, cross-country database and employ

an ordered probit procedure to assess which supervisory strategies lower the tendency for firms to report that corruption in banking is a big hindrance to obtaining credit. These survey data offer a unique insight into bank-firm relationships. Nevertheless, these survey data reflect each firm's subjective evaluations of constraints on firm growth, which underscores the need to (i) control for potential biases and (ii) use caution in interpreting the results. Since each of these measures of bank performance and corresponding methodologies has strengths and weaknesses, there are advantages to employing both: If these different methodologies produce consistent results regarding the public and private interest approaches to bank supervision, this raises the level of confidence in the overall conclusions.

This paper, unfortunately, does not formally identify a logical chain running from truly exogenous factors, to the political and institutional setting, to bank supervisory approaches, to the functioning of banks, and on to the operation of firms and national rates of economic growth. As we emphasize throughout the paper, bank supervision does not occur in a vacuum. Rather, as documented in great detail for the case of Mexico by Haber, et al. (2003) and as illustrated in a cross-country context by Barth, et al. (2005), bank regulations reflect an array of societal forces. Thus, this paper does not explain how a country could implement an improvement in its supervisory regime, nor does the paper address whether a country's supervisory regime is socially optimal given other political and institutional constraints. In moving to a book level study, Barth et al (2005) provide an assessment of (1) the determinants of different bank supervisory and regulatory policies and (2) the impact of different bank supervisory and regulatory approaches on bank development, efficiency, corruption, fragility, and governance. Nevertheless, this paper does provide information on the impact of different supervisory

strategies on the functioning banks, which is an important prerequisite for understanding what makes financial markets work effectively.

As noted, this paper is closely related to two recent papers. First, Demirguc-Kunt et al. (2004) study the relationship between bank net interest margins and a wide array of bank supervisory and regulatory indicators. Using the same database, we (i) examine overhead costs instead of net interest margins to focus on a broad measure of bank governance and managerial prerequisites and (ii) examine two broad approaches to bank supervision instead of examining many individual measures of bank regulation and supervision (also see Barth et al. (2005). Second, Beck et al. (2005a) examine the impact of different bank regulatory and supervisory practices on corruption in lending. Using a unified set of control variables, we examine the relationship between bank regulatory and supervisory strategies on both overhead costs and corruption in lending.

Furthermore, this paper fits into an emerging body of cross-country evidence on the impact of bank supervision and regulation. Barth et al. (2004) conduct a pure cross-country analysis and find that financial development is (1) positively associated with supervisory approaches that force information disclosure and (2) negatively associated with powerful supervisors that directly monitor and discipline banks. In this paper, we use microeconomic data to examine the relationship between bank supervisory approaches and bank efficiency. Also to assess the links between banking sector policies and the corporate governance of banks, Caprio et al. (2004) examine whether different bank regulations and supervisory practices influence the market valuation of banks. Rather than examining bank valuations, we present microeconomic evidence on the impact of different approaches to bank supervision on the efficiency of bank operations as measured by overhead costs and the integrity of bank-firm relations. Finally,

Barth, et al. (2004) and Beck, et al. (2005b, 2005c) study the impact of different regulations and different approaches to bank supervision on bank fragility. They show that official supervisory power does not reduce the probability that a country suffers a systemic banking crisis. In this paper, we do not consider fragility. We examine the effect of bank supervisory approaches on bank efficiency and the degree of corruption of bank lending.

The remainder of the paper is organized as follows. Section II presents the data. Section III presents the analyses on overhead costs. Section IV provides an examination of the impact of bank supervisory strategies on the degree of corruption in bank lending. Section V concludes.

II. Data

To examine the microeconomic effects of different approaches to bank supervision, we need (i) measures of the different approaches to bank supervision and (ii) microeconomic measures of the functioning of banks. This section presents these data along with various conditioning variables.

A. Approaches to Bank Supervision: Proxy Measures

I use two indicators of approaches to bank supervision from Barth et al. (2004). The underlying data to construct these indexes were collected between late 1998 and early 2000 for 107 countries. Barth et al. (2001a) describe the data and how they were collected.

Official Power is constructed from 14 dummy variables that indicate whether bank supervisors can take specific actions against bank management, bank owners, and bank auditors both in normal times and times of distress. This includes information on whether the supervisory agency can force a bank to change its internal organizational structure, suspend dividends, stop bonuses, halt management fees, force banks to constitute provisions against actual or potential

loses as determined by the supervisory agency, supersede the legal rights of shareholders, remove and replace managers and directors, obtain information from external auditors, and take legal action against auditors for negligence. The exact definition of Official Power is provided in Table 1 and Appendix Table 3 provides the values for each country. We use the first principal component indicator of these variables, which varies between -3.05 (Singapore) and 1.14 (U.S.) with a mean of -0.11 , and higher values indicating wider authority for bank supervisors.

In terms of theory, the public interest view stresses that supervisors will use these official powers to ameliorate market imperfections, improve the governance of banks, and thereby boost bank efficiency and lower the need for firms to have corrupt ties with bank officials to obtain loans. Thus, the public interest view predicts that higher values of Official Power will lower overhead costs and reduce corruption in bank-firm relations.

Alternatively, the private interest view stresses that powerful supervisors do not necessarily have incentives to reduce market imperfections. Rather, powerful supervisors will have the incentives, and tools, to maximize their own welfare, with potentially detrimental implications for overall bank efficiency and the integrity of bank lending. Thus, the private interest view predicts that Official Power will tend to (a) hurt the efficient functioning of banks and (b) increase corruption.

Modified versions of the private interest view would predict a nonlinear relationship between Official Power and bank operations that depends on the political and institutional environment. Specifically, while politicians and government officials maximize their own utility, they do so subject to various constraints. If political and legal institutions constrain the ability of politicians and government officials to extract private rents from their positions of power and instead create incentives for them to maximize social welfare, then increases in Official Power

will tend to improve the efficient operations of banks. In this paper, we focus on assessing the first order impact of banking policies on bank operations and discuss recent work by Beck et al (2005) that tests these nonlinear effects.

Private Monitoring measures the degree to which bank supervision forces banks to disclose accurate information to the public and induces private sector monitoring of banks. Private Monitoring is constructed from nine dummy variables that measure whether bank directors and officials are legally liable for the accuracy of information disclosed to the public, whether banks must publish consolidated accounts, whether banks must be rated and audited, whether banks must be audited by certified international auditors, whether subordinated debt is allowable (which may create a class of private monitors), and whether there is both no explicit deposit insurance and no actual insurance was paid the last time a bank failed (as a measure of the existence of an implicit deposit insurance regime). Private Monitoring is constructed as a principal component indicator, with higher values indicating more tools and incentives for private bank creditors to monitor banks. Again, Table 1 provides a more rigorous definition and Appendix Table 3 lists the values for each country, with values ranging from -1.56 (Ghana) to 1.46 (United Kingdom).

In terms of theory, the private interest view holds that supervisory policies that force accurate information disclosure and give private creditors appropriate incentives can ameliorate market failures without increasing the likelihood of political/regulatory capture. Thus, the private empowerment view holds that Private Monitoring will be negatively associated with (a) overhead costs and (b) the degree to which firms need corrupt ties with banks to obtain credit. As stressed by Beck et al. (2005) the private interest view presupposes the existence of sufficiently sound legal institutions that allow private investors to use greater information

disclosure to improve governance of banks. Thus, the private interest view relies on well-functioning governmental and legal institutions in conjunction with regulatory requirements on the dissemination of accurate, comparable information to improve the operation of banks.

In contrast, the public interest view stresses the importance of market failures and is skeptical that information disclosure rules will substantively improve the governance of banks. Put differently, the public interest view rejects the presumption that many countries have sufficiently well-functioning legal institutions such that greater transparency will allow private investors to improve the governance of banks substantively. Thus, the public interest view holds that Private Monitoring will not be strongly linked with measures of bank efficiency and the integrity of bank-firm relations.

B. Bank Efficiency: Overhead costs and control variables

Overhead Costs equals bank overhead costs divided by total assets. We average the data over the period 1995-1999 to abstract from business-cycle influences. However, we obtain the same results when using Overhead Costs in 1999. Overhead Costs may reflect cost inefficiency as well as market power. Thus, we use Overhead Costs to assess the microeconomic efficiency effects of different approaches to bank supervision, where lower levels of Overhead Costs signal greater efficiency. In robustness tests, rather than examining Overhead Costs, we studied Net Interest Margin, which equals interest income minus interest expense divided by total interest earning assets. This alternative measure of bank efficiency produced the same results.

In terms of theory, the official supervision approach stresses that powerful official supervisors will improve the governance of banks, promote competition, and therefore lower overhead costs. In contrast, the private monitoring approach to bank supervision holds that power official supervision may actually breed bank inefficiencies as supervisors and bankers

collude to achieve their goals to the detriment of overall bank efficiency. The private monitoring approach instead argues that stronger private monitoring will be more effective at reducing excessive overhead costs.

As listed in Appendix Table 1, the sample includes overhead cost data on over 1400 banks across 75 countries. Nigeria has the highest average overhead costs across its banks, while Singapore has the lowest. There is considerable cross-bank variation in overhead costs such that the sample mean is 3.00 and the sample standard deviation is 1.64.

In the Overhead Cost analyses, we use a number of bank-level controls. **Market Share** equals the bank's assets divided by total commercial bank assets in the economy. A bank that dominates the national market may enjoy larger overhead costs than a bank that does not control much of the market. **Bank Size** equals the logarithm of total bank assets in millions of US dollars. Size may be an important determinant of overhead costs if there are increasing returns to scale in banking. In particular, larger banks may require lower overhead expenditures as a share of total assets. **Liquidity** equals the liquid assets of the bank divided by total assets. We use this indicator to control for differences in bank assets. In some cases, banks with considerable market power may hold a high ratio of liquid government assets and also enjoy high overhead costs. **Bank Equity** equals the book value of equity divided by total assets. Some theories suggest that well-capitalized banks face lower expected bankruptcy costs and hence lower funding costs. Thus, higher bank equity implies greater opportunities for larger overhead costs when loan rates do not vary much with bank equity. We obtained all of the bank-level data, including overhead cost data, from Demirguc-Kunt et al. (2004), who constructed the indexes from the Bankscope Database. Appendix Table 1 lists the values for these bank-level control variables.

C. Bank Efficiency: Corruption in lending and control variables

To examine the relationship between bank supervisory strategies and the degree of corruption bank lending, we use data from the World Business Environment Survey (WBES). The WBES contains information on almost 2300 firms across 33 countries for which we also have data on bank supervision from Barth, et al. (2004). The WBES surveyed firms of all sizes; small firms (between 5 and 50 employees) represent 40% of the sample, medium-sized (between 51 and 500 employees) firms are 40% of the sample, and the remaining 20% are large firms (more than 500 employees).

In this paper, we focus on one question from the WBES that measures the degree to which firms need corrupt ties with banks to obtain bank credit.

Bank Corruption equals the response to the question: “Is the corruption of bank officials an obstacle for the operation and growth of your business: (1) no obstacle, (2) a minor obstacle, (3) a moderate obstacle, or (4) a major obstacle?” Thus, bigger numbers imply that corruption of bank officials is a bigger obstacle to obtaining financing. Appendix Table 2 lists the average values of Bank Corruption across the firms in each of 48 countries in the sample. As shown, the sample includes about 4700 firms. There is considerable cross-firm variation. The average firm has a value of Bank Corruption of 1.62, and the standard deviation is 0.97.

Again, in terms of theory, the public interest approach holds that powerful supervisors will improve the oversight of banks and reduce the need for corruption with beneficial effects on overall bank efficiency. The private interest approach instead stresses government failures: Official power will increase corrupt ties between supervisory officials and banks and thereby increase the need for firms to have corrupt ties with banks to obtain credit. Rather than official

supervisory power, the private interest approach emphasizes that private monitoring will reduce bank corruption.

In analyzing the relationship between Bank Corruption and different approaches to bank supervision, we control for a number of firm-level traits. Specifically, the WBES comprises firms from the manufacturing, construction and services sectors, so we include dummy variables for each firm's sector. The WBES also provides information on whether each firm is government-owned, foreign-owned, or privately-owned, and whether the firm is an exporter. Again, we include zero-one dummy variables for whether each firm is a government firm, or a foreign firm, where private-firms are the omitted category. We also include a dummy variable of whether the firm is an exporter. Finally, we include data on each firm's and the number of competitors that each firm reports it faces. Appendix Table 2 lists averages across firms in each country of these firm-level control variables.

Using data based on self-reporting by firms may produce concerns that a firm facing the same obstacles will respond to questions differently in different institutional and cultural environments. If this were pure measurement error, it would bias the results against finding a relationship between bank supervision and bank corruption.

While problems with survey data may bias the results against this paper's conclusions, we (a) control for different institutional and cultural environments and (b) control for the firm's response to another question regarding external financing. Thus, we assess the link between bank supervision and the integrity of the bank-firm relationship while controlling for the individual firm's view of external financing obstacles. Specifically, we control for the firm's response to the following question: "How problematic is financing for the operation and growth of your business?" Answers vary between 1 (no obstacle), 2 (minor obstacle), 3 (moderate

obstacle), and 4 (major obstacle). Controlling for this general question about firm financing obstacles reduces the likelihood that reporting biases or interpretation differences drive the results on the relationship between bank supervisory approaches and corruption in bank lending.

D. Country-level control variables

In examining the microeconomic effects of different approaches to bank supervision across many countries, we control for an assortment of country-specific factors. Table 1 provides detailed definitions of these country-specific control variables. Here we simply define the variables and note why they are included.

Activity Restrictions is an index of regulatory restrictions on bank activities in the areas of security underwriting, insurance, real estate, and owning nonfinancial firms (Barth et al. 20001b). We include this because we want to assess the links between broad approaches to bank supervision and bank efficiency while controlling for specific regulatory differences. Appendix Table 3 lists values for each country. Barth et al. (2004) provide a rigorous definition of this variable.

GDP Growth equals the growth rate of the economy over the period 1995-1999. GDP Growth is included to control for business-cycle forces that may influence overhead costs and bank corruption. **GDP per Capita** equals real per capita Gross Domestic Product (GDP) averaged over the 1995-1999 period. We include this to control for the overall level of economic development. GDP per Capita is a summary measure of the impact of natural resources, capital accumulation, human capital accumulation, and institutional factors on economic development.

Political Violence is an indicator of political stability and the absence of violence, so that bigger values imply LESS violence. **Political Voice and Accountability** is an indicator of the

degree to which the average citizen has a voice in the political process and the extent to which politicians can be held accountable for their actions through elections. We include these to control for differences in the political environment. Appendix Table 3 presents values for each country. **Corruption** is an index of the overall level of corruption in the country's government. Lower values imply that government officials are more likely to demand illegal payments. We include this for two reasons. In the Overhead Costs regressions, we include Corruption to control for the overall institutional environment in assessing the link between approaches to supervision and bank efficiency. In the Bank Corruption regression, we use Corruption to control for overall corruption and thereby provide a particularly rigorous test of whether there is link between supervisory strategies and corruption in bank-firm relations.

Government Banks equals the fraction of the banking system's assets that is held by banks that are more than 50 percent owned by the government. Since government ownership may distort the application of different supervisory approaches, it is important to control for the degree of state-owned banks.

III. Overhead Costs and Bank Supervisory Approaches

A. Methodology

To assess the impact of bank supervisory approaches on bank efficiency while controlling bank-specific and country-specific factors, we estimate regressions of the following form:

$$\text{Overhead Costs}_{i,k} = \alpha + \beta_1 S_i + \beta_2 B_{i,k} + \beta_3 C_i + \epsilon_{i,k} \quad (1)$$

Where i indexes country i , and k indexes bank k ; S_i represents the two measures of bank supervision -- Official Power and Private Monitoring -- in country i ; $B_{i,k}$ is a vector of bank-specific characteristics for bank k in country i ; C_i is a vector of country-specific control

variables; and $\varepsilon_{i,k}$ is the residual. Thus, the unit of observation is an individual bank k in country i . Since the model includes country-specific variables, we use a generalized least squares estimator with random effects.⁴

B. Results

Table 2 presents regression results that indicate that Private Monitoring tends to exert a negative influence on Overhead Costs. There exists no statistical connection between Official Power and Overhead Costs. Table 2 provides regressions of Overhead Costs on the supervisory indexes, plus bank-specific controls, while also controlling for various country-level variables. Official Power does not enter any of the regression significantly. Private Monitoring enters all of the regressions significantly and negatively, except the regression including all of the country control variables including GDP Per Capita. There is a high correlation between the level of economic development and countries with approaches to bank supervision that rely on information disclosure and facilitating private monitoring. Thus, even when controlling for bank-level factors, regulatory restrictions on bank activities, economic growth, the degree of political violence, the extent of voice and accountability in the political process, the level corruption in the government, and the extent of state ownership of banks, Private Monitoring enters negatively and significantly in the Overhead Costs regression.

The economic size of the relationship is not inconsequential. For instance, the regression coefficients (from regression (1)) suggest that if Mexico had the same level of Private Monitoring as the United States (0.97 instead of -0.43) that this would reduce the average value of Overhead Costs of Mexican banks from 6 to about 5. This would substantively reduce the difference in average Overhead Costs between Mexico and the United States, where Overhead

⁴ Since the dependent variable in the regressions is an individual bank's Overhead Costs, it seems unlikely that an individual bank's efficiency drives national approaches to bank supervision. Nevertheless, as a robustness check,

Costs average a little over 3. It is important to be cautious about these types of conceptual experiments: They do not incorporate information on the source of reform in Mexico's approach to bank supervision and this experiment involves a non-marginal change in Private Monitoring. Nevertheless, the regression coefficient suggests that successful changes in a country's approach to bank supervision may have non-trivial implications on bank efficiency as measured by bank overhead costs.

The finding that the negative relationship between Private Monitoring and Overhead Costs becomes insignificant when controlling for GDP per Capita indicates that GDP per Capita summarizes features of the economy associated with the country's approach to bank supervision. Apparently, bank supervision does not occur in isolation and reflects deep political and institutional characteristics that also influence the overall level of economic development. Note, however, that even when controlling for an array of country-specific factors, the link between Private Monitoring and Overhead Costs holds. It is only when including a particularly broad summary index of the country's economic success, GDP per Capita, that the relationship between bank supervision and bank efficiency loses significance. Moreover, contrary to the predictions of the public interest view, there is no evidence to support the contention that official supervisory power enhances bank efficiency.

In sum, Table 2 provides no support for the public interest approach to bank supervision. In contrast, the analyses suggest that regulations and that facilitate private monitoring of banks tends to increase bank efficiency. This relationship between private monitoring and bank efficiency holds when controlling for an array of bank-specific and country-level controls. At the same time, the results indicate a private monitoring approach to bank supervision is closely associated with the overall level of GDP per capita.

we used instrumental variables and confirmed this paper's findings.

These results are also robust to using different measures of bank efficiency. Barth et al (2005) show that an approach to bank supervision that stresses stronger private monitoring tends to reduce bank net interest margins, but public policies that instead focus on official supervisory power do not boost bank efficiency. Observers may note, however, that the goal of strengthening official supervisory power may be to reduce banking system fragility, not to increase efficiency. Research by Barth et al (2004, 2005) and Beck et al (2005b, c), however, shows that official supervisory power does not reduce bank fragility. Thus, the data tend favor the private interest approach to bank supervision over the public interest view.

IV. Bank Corruption and Bank Supervisory Approaches

A. Methodology

To assess the impact of bank supervisory approaches on the degree of corruption in bank-firm relations while controlling bank-specific and country-specific factors, we estimate regressions of the following form:

$$\text{Bank Corruption}_{j,i} = \alpha + \beta_1 S_i + \beta_2 F_{j,i} + \beta_9 C_i + \varepsilon_{j,i}. \quad (2)$$

The j and i subscripts indicate firm and country respectively. S_i represents the two measures of bank supervision -- Official Power and Private Monitoring -- in country i ; $F_{j,i}$ is a vector of firm-specific control variables; C_i is a vector of country-specific control variables; and $\varepsilon_{i,k}$ is the residual. Thus, the unit of observation is an individual firm j in country i .

Unlike the underlying assessment of bank corruption, the observed variable Bank Corruption is a polychotomous dependent variable with a natural order. Specifically, each firm chooses Bank Corruption as 1, 2, 3, or 4 if the underlying assessment of bank corruption falls between α_{k-1} and α_{k+1} , with the α -vector being estimated together with the coefficient vector β .

We therefore use the ordered probit model to estimate equation (2). We employ a standard maximum likelihood estimator with heteroskedasticity-robust standard errors. When the estimation is done using clustering at the country-level, the results do not change as shown in Barth et al (2005). The coefficients, however, cannot be interpreted as marginal effects of a one-unit increase in the independent variable on the dependent variable, given the non-linear structure of the model. Rather, the marginal effect is calculated as $\phi(\beta'x)\beta$, where ϕ is the standard normal density at $\beta'x$.

B. Results

The Table 3 regression results strongly reject the public interest view. Besides the bank supervisory indicators, the regressions include an array of firm-specific traits and country-specific factors. Official Power never enters the Bank Corruption regressions with a significant and negative coefficient. Indeed, Official Power enters positively and significantly in all eight regressions. These results directly contradict the public interest view, which predicts that powerful supervisory agencies will reduce market failures with positive implications for the integrity of bank-firm relations.

The economic magnitude of Official Power is substantial. As noted above, the coefficients in Table 3 on Official Power from an ordered probit do not yield information on the impact of a change in Official Power on the probability that a firm reports that Bank Corruption is 1, 2, 3, or 4, where higher values signify a greater need for corrupt ties with bankers to obtain loans. We computed the impact of a change in Official Power from one standard deviation below the sample mean to one standard deviation above the mean. The estimates from regression (8) in Table 3 indicate that this would almost double the probability that a firm reports that the corruption of bank officials is a major obstacle for the operation of the business, i.e., it almost

doubles the probability that a firm reports a value of Bank Corruption of four. Similarly the estimates indicate that this change in Official Power would reduce the probability that a firm reports that the corruption of bank officials is a no obstacle by 15 percent of the value when Official Power is one standard deviation below the sample mean. While this type of experiment is subject to the same qualifications noted above, the coefficients suggest an economically relevant impact of official supervisory power on Bank Corruption.

Two results from Table 3 support the private interest view. First, as predicted by the private monitoring view, Official Power always enters the Bank Corruption regressions positively. These results are consistent with fears that powerful supervisors further their own interests by inducing banks to lend to politically-connected with firms, so that empowering official supervisors tends to increase corruption in bank lending. Importantly, these results hold even when controlling for the overall level of corruption in society. Thus, Official Power positively influences Bank Corruption even when controlling aggregate corruption, which suggests that there is a strong, positive, independent link between official supervisory power and bank corruption.

The second result from Table 3 supporting the private interest view is that Private Monitoring enters negatively and significantly in all of the regressions. Thus, firms in countries with stronger private monitoring tend to have less of a need for corrupt ties to obtain bank loans. This is consistent with the hypothesis that laws that enhance private monitoring will improve corporate governance of banks with positive implications for the integrity of bank-firm relations. Again, these results hold when controlling for (1) firm-specific traits and a range of country-level controls, including GDP per Capita, (2) aggregate corruption, and (3) the firm's answer to the question regarding how hard it is to obtain financing. Thus, even when controlling for general

financing obstacles, the aggregate level of corruption, the level of economic development, the political system, and firm traits, the data still indicate a strong, negative link between Private Monitoring and Bank Corruption.

The economic impact of Private Monitoring on Bank Corruption is substantial. We calculated the impact of a change in Private Monitoring from one standard deviation below the sample mean to one standard deviation above the mean using the estimates from regression (8) in Table 3. The results indicate that this would cut in half the probability that a firm reports that the corruption of bank officials is a major obstacle for the operation of the business, i.e., it reduces by 50 percent the probability that a firm reports a value of Bank Corruption of four. Similarly the estimates indicate that this change in Private Monitoring would increase the probability that a firm reports that the corruption of bank officials is a no obstacle by more than 25 percent of the value when Private Monitoring is one standard deviation below the sample mean. To give a specific country example, the estimates suggest that if Mexico had the same level of Private Monitoring as the United States this would reduce by 40 percent the probability that a firm reports that the corruption of bank officials is a major obstacle (Bank Corruption = 4) and increase by 17 percent the probability that a firm reports that corruption is a no obstacle to firm growth (Bank Corruption = 1) from the current estimates for Mexico.

V. Conclusions

The emerging microeconomic evidence is inconsistent with the public interest approach to bank regulation and supervision and broadly consistent with the private interest view (Demirguc-Kunt et al. 2004; Barth et al. 2005; and Beck et al. 2005). The data do not suggest that strengthening the ability of official supervisors to monitor and discipline banks directly improves bank efficiency or the integrity of bank-firm relations. Rather, there is a positive

association between empowering official supervisors and corruption in lending. In extensions, Beck et al. (2005) test whether official supervisory power reduces corruption in bank lending in countries with well functioning legal and political institutions. They find that sufficiently well-functioning institutions reduce the adverse effects of powerful supervisor, but they never find a positive impact of supervisory power on the integrity of bank lending, regardless of the level of institutional development. The data further indicate that empowering official supervisors has little impact on the efficiency of intermediation as measured by bank overhead costs.

In contrast, the results support the view that empowering private monitoring of banks tends to enhance the efficiency of intermediation and enhance the integrity of bank-firm relations. Thus, regulations that focus on information transparency are positively associated with improved bank operations. Beck et al. (2005) also examine whether empowering this private interest approach requires sound legal institutions. They show that information transparency works best in countries with efficient legal systems. For the bottom third of their sample as ranked by the efficiency of the legal system, they find that information has not significant effect on corruption. For the remaining two-thirds of the sample, greater information transparency implies lower corruption in lending. In sum, the data provide strong support for the private interest view of bank regulation.

Without ignoring methodological and measurement concerns, the results have clear policy implications. As discussed in Barth et al. (2005), international institutions, including the Basel Committee on Banking Supervision, the International Monetary Fund, and the World Bank have increasingly stressed the importance of strengthening official supervisory oversight of banks. The evidence presented in this paper, however, provides cautionary evidence regarding this approach. Not only is strengthening government oversight of banks ineffective in reducing

bank overhead costs, but strengthening official supervisory powers is generally associated with an increase corruption in bank lending. Rather, emerging microeconomic evidence on bank overhead costs and corruption in lending highlights the benefits effectiveness of supervisory policies that promote information disclosure that facilitates private sector monitoring of banks. Simply forcing information disclosure is certainly not a panacea for all the complications and problems associated with overseeing banking systems and merely disseminating information will not necessarily work in countries with dysfunctional legal and political systems. Nevertheless, these early efforts at exploiting the Barth et al (2004, 2005) database on banking policies around the world, provide no support for strengthening direct official oversight of banks and instead suggest that regulatory, legal, and political reforms that foster private monitoring of banks work better.

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Table 1: Variable Definitions and Sources

Variable Name	Variable Definition	Source
<i>Dependent variables:</i>		
Bank Development	For each country, measures bank credit to the private sector as share of GDP, 2000-1. Specifically, it equals $\{(0.5)*[F(t)/P_e(t) + F(t-1)/P_e(t-1)]\}/[GDP(t)/P_a(t)]$, where F is credit by deposit money banks to the private sector (lines 22d), GDP is line 99b, P_e is end-of period CPI (line 64) and P_a is the average CPI for the year.	International Financial Statistics (IMF)
Overhead Costs	For each bank, this equals overhead costs divided by total assets, 1995-9	Bankscope Database
Bank Corruption	For each firm, this equals the response to the question: "Is the corruption of bank officials an obstacle for the operation and growth of your business: (1) no obstacle, (2) a minor obstacle, (3) a moderate obstacle, or (4) a major obstacle?" Thus, bigger numbers imply the corruption of bank officials is a bigger obstacle to obtaining financing. (2000)	World Business Environment Survey (WBES)
<i>Supervisory variables:</i>		
Official Power	Measure of legal power of the supervisory agency. Principal component indicator of 14 variables: 1.Does the supervisory agency have the right to meet with external auditors? 2.Are auditors legally required to communicate directly to the supervisory agency any elicited activities, fraud, or insider abuse? 3.Can supervisors take legal action against external auditors for negligence? 4.Can the supervisory authority force a bank to change its internal organization? 5.Are off-balance sheet items disclosed to supervisors? 6. Can the supervisory agency order the bank's directors/managers to constitute provisions to cover actual/potential losses? 7. Can the supervisory agency suspend: a) Dividends? b) Bonuses? c) Management fees? 8.Can the supervisory agency legally supersede the rights of shareholders and declare a bank insolvent? 9.Does the Banking Law give authority to the supervisory agency to intervene a problem bank? 10.Regarding restructuring, can the supervisory agency: a) Supersede shareholder rights? b) Remove and replace management? c) Remove and replace directors? (1999)	Barth, Caprio and Levine (2004)
Private Monitoring	Measures regulations that empower private monitoring of banks. Principal component indicator of nine variables of whether (1) bank directors and officials are legally liable for the accuracy of information disclosed to the public, (2) banks must publish consolidated accounts, (3) banks must be audited by certified international auditors, (4) 100% of the largest 10 banks are rated by international rating agencies, (5) off-balance sheet items are disclosed to the public, (6) banks must disclose their risk management procedures to the public, (7) accrued, though unpaid interest/principal enter the income statement while the loan is still non-performing (8) subordinated debt is allowable, and (9) there is no explicit deposit insurance system and no insurance was paid the last time a bank failed. (1999)	Barth, Caprio and Levine (2004)

Table 1: Variable Definitions and Sources (Continued)

Variable Name	Variable Definition	Source
<i>Country level control variables:</i>		
Activity Restrictions	Index of regulatory restrictions on the ability of banks to own nonfinancial corporations and to engage in securities market, insurance, and real estate activities.	Barth, Caprio and Levine (2004)
Capital Index	An index of the stringency of capital regulations based on the following questions: Is the minimum capital-asset ratio requirement risk weighted in line with the Basel guidelines? Does the minimum ratio vary as a function of market risk? Is market value of loan losses not realized in accounting books deducted? Are unrealized losses in securities portfolios deducted? Are unrealized foreign exchange losses deducted? What fraction of revaluation gains is allowed as part of capital? Are the sources of funds to be used as capital verified by the regulatory/supervisory authorities? Can the initial disbursement or subsequent injections of capital be done with assets other than cash or government securities? Can initial disbursement of capital be done with borrowed funds? (1999)	Barth, Caprio and Levine (2004)
Corruption	Corruption in government index. Low ratings indicate that government officials are likely to demand special, illegal payments. (1995).	Political Risk Services
Deposit Insurance	An aggregate index of the generosity of the deposit insurance regime. Specifically, it is the first principal component based on the following deposit insurance design features: existence of co-insurance, coverage of foreign currency and interbank deposits, type of funding (unfunded, callable or funded), source of funding (banks only, banks and government, or government only), management (private, joint or public), membership (compulsory or voluntary) and the level of explicit coverage (coverage limit divided by deposits per capita).	Demirguc-Kunt and Detragiache (2002)
Entry Index	Extent of legal submissions required to obtain a banking license. (1999)	Barth, Caprio and Levine (2004)
Foreign Banks	A measure of the degree of government ownership of banks, measured as the fraction of the banking system's assets that is in banks that are 50% or more foreign owned. (1999)	Barth, Caprio and Levine (2004)
GDP Growth	Growth rate of GDP, average 1995-99.	World Development Indicators
GDP per Capita	Real GDP per capita, averaged over 1995-1999.	World Development Indicators

Table 1: Variable Definitions and Sources (Continued)

Variable Name	Variable Definition	Source
<i>Country level control variables (continued):</i>		
Government Banks	A measure of the degree of government ownership of banks, measured as the fraction of the banking system's assets that is in banks that are 50% or more government owned. (1999)	Barth, Caprio and Levine (2004)
Political Violence	Indicator of the degree of political stability and absence of violence, which is constructed from numerous survey indicators.	Kaufman, Kraay and Zoido-Lobaton (1999)
Political Voice and Accountability	Indicator of the degree of the degree to which citizen have a voice in the political process and the extent to which politicians can be held accountable for their actions. This is constructed from numerous survey indicators.	Kaufman, Kraay and Zoido-Lobaton (1999)
<i>Firm-level controls:</i>		
Competitors	Equals the logarithm of the number of competitors that the firm faces.	World Business Environment Survey
Exporter	Takes on the value one if the firm exports good or services.	World Business Environment Survey
Firm Obstacles	Equals the response to the question: "How problematic is financing for the operation and growth of your business?" Answers vary between 1 (no obstacle), 2 (minor obstacle), 3 (moderate obstacle), and 4 (major obstacle).	World Business Environment Survey
Foreign Firm	Takes on the value one if a foreign entity owns any percentage of the firm.	World Business Environment Survey
Government Firm	Takes on the value one if the government owns any percentage of the firm.	World Business Environment Survey
Manufacturing	Takes on the value one if the firm is in the manufacturing sector.	World Business Environment Survey
Sales	Equals the log of sales in United States dollars as indicator of size.	World Business Environment Survey
Services	Takes on the value one if the firm is in the service sector.	World Business Environment Survey

Table 1: Variable Definitions and Sources (Continued)

Variable Name	Variable Definition	Source
<i>Bank-level controls:</i>		
Bank Equity	Bank equity divided by total assets, year 1995.	Bankscope Database
Bank Size	Logarithm of total individual bank assets in millions of U.S. dollars, year 1995.	Bankscope Database
Liquidity	Liquid bank assets divided by total bank assets, year 1995.	Bankscope Database
Market Share	Individual bank assets over total commercial bank assets, year 1995.	Bankscope Database
<i>Instrumental variables:</i>		
Independence	Percentage of years since 1776 that the country has been independent.	Easterly and Levine (1997).
Initial Political Openness	Measures the openness, competitiveness, and democracy in the first year of independence or 1800, whichever comes first. Specifically, it is the first principal component of five indicators: (1) Polity measures the degree of democracy-autocracy, e.g., institutions through which citizens express preferences, constraints on executive, the guarantee of civil liberties, the lack of suppression of political participation, the openness to nonelites. (-10 to +10). (2) XROPEN measures the openness of executive recruitment and ranges from hereditary succession (0) to competitive election (4). (3) XRCOMP measures the degree of competitiveness of executive recruitment and ranges from unopposed elections (0) to multi-party, competitive elections (3). (4) XCONST measures institutional constraints on executive decisions and ranges from unlimited authority (1) to institutional arrangements where a legislature has equal/greater authority (7). (5) PARCOMP measures the competitiveness of political groups and ranges from (i) repressed (no significant opposition outside ruling party) (1) to (ii) highly competitive (enduring groups regularly compete for influence) (5).	Marshall and Jaggers (Polity IV Project)
Latitude	Absolute value of the latitude of the country.	Beck, et al. (2003).
Religion	Percentage of the population of each country that belongs to the following religions: (1) Roman Catholic, (2) Protestant, (3) Muslim, (4) Other Religion.	Beck, et al (2003).

Table 2: Overhead Costs and Supervisory Strategy: Bank-Level Evidence

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Overhead Costs	Overhead Costs	Overhead Costs	Overhead Costs	Overhead Costs	Overhead Costs	Overhead Costs
Official Power	-0.121 (0.442)	-0.203 (0.185)	-0.148 (0.355)	-0.151 (0.364)	-0.084 (0.611)	-0.123 (0.510)	-0.117 (0.534)
Private Monitoring	-0.713 (0.001)***	-0.743 (0.002)***	-0.631 (0.004)***	-0.744 (0.009)***	-0.576 (0.013)**	-0.642 (0.046)**	-0.554 (0.107)
Market Share	0.748 (0.136)	0.787 (0.120)	0.704 (0.162)	0.436 (0.494)	0.730 (0.173)	0.170 (0.798)	0.119 (0.859)
Bank Size	-0.135 (0.000)***	-0.134 (0.000)***	-0.133 (0.000)***	-0.118 (0.000)***	-0.117 (0.000)***	-0.090 (0.001)***	-0.089 (0.001)***
Liquidity	0.006 (0.022)**	0.006 (0.031)**	0.006 (0.029)**	0.008 (0.007)***	0.005 (0.050)*	0.006 (0.029)**	0.006 (0.031)**
Bank Equity	0.025 (0.000)***	0.025 (0.000)***	0.025 (0.000)***	0.026 (0.000)***	0.029 (0.000)***	0.030 (0.000)***	0.030 (0.000)***
Activity Restrictions	0.154 (0.573)	-0.187 (0.517)	-0.006 (0.984)	0.473 (0.137)	0.207 (0.503)	0.539 (0.152)	0.577 (0.131)
GDP Growth	-0.166 (0.019)**	-0.131 (0.118)	-0.162 (0.024)**	-0.215 (0.046)**	-0.160 (0.044)**	-0.248 (0.068)*	-0.268 (0.055)*
Political Violence		-0.591 (0.017)**				-0.933 (0.034)**	-0.677 (0.212)
Political Voice Accountability			-0.281 (0.242)			0.108 (0.851)	0.142 (0.807)
Corruption				-0.030 (0.878)		0.338 (0.273)	0.461 (0.181)
Government Banks					0.553 (0.523)	-0.360 (0.731)	-0.552 (0.611)
GDP per Capita							-0.295 (0.409)
Constant	4.281 (0.000)***	5.272 (0.000)***	4.792 (0.000)***	3.701 (0.008)***	3.815 (0.000)***	2.298 (0.179)	2.157 (0.214)
Number of banks	1383	1376	1383	1214	1208	1063	1063
Number of countries	70	67	70	48	62	42	42

P-values are in parentheses.

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

Estimated using Generalized Least Squares with random effects.

Variables are defined in Table 1.

Table 3: Bank Supervisory Strategy and Corrupt Firm-Bank Relations, Firm-Level Evidence

	(1) Bank Corruption	(2) Bank Corruption	(3) Bank Corruption	(4) Bank Corruption	(5) Bank Corruption	(6) Bank Corruption	(7) Bank Corruption	(8) Bank Corruption
Official Power	0.144 (0.000)***	0.131 (0.000)***	0.161 (0.000)***	0.076 (0.005)***	0.172 (0.000)***	0.143 (0.000)***	0.117 (0.006)***	0.144 (0.002)***
Private Monitoring	-0.271 (0.000)***	-0.231 (0.000)***	-0.106 (0.013)**	-0.174 (0.000)***	-0.298 (0.000)***	-0.232 (0.000)***	-0.136 (0.002)***	-0.295 (0.000)***
Government Firm	-0.044 (0.684)	-0.052 (0.640)	-0.079 (0.493)	-0.109 (0.333)	-0.031 (0.779)	-0.005 (0.963)	-0.086 (0.464)	-0.072 (0.540)
Foreign Firm	-0.192 (0.003)***	-0.191 (0.003)***	-0.188 (0.004)***	-0.204 (0.002)***	-0.207 (0.002)***	-0.121 (0.070)*	-0.152 (0.031)**	-0.138 (0.049)**
Exporter	-0.085 (0.149)	-0.095 (0.109)	-0.079 (0.185)	-0.105 (0.074)*	-0.046 (0.449)	-0.092 (0.123)	-0.038 (0.535)	-0.036 (0.564)
Manufacturing	0.075 (0.350)	0.077 (0.337)	0.100 (0.215)	0.082 (0.304)	0.022 (0.792)	0.127 (0.113)	0.137 (0.113)	0.113 (0.194)
Services	0.148 (0.063)*	0.159 (0.046)**	0.179 (0.026)**	0.182 (0.023)**	0.117 (0.159)	0.221 (0.006)***	0.248 (0.004)***	0.210 (0.015)**
Sales	-0.039 (0.000)***	-0.030 (0.000)***	-0.017 (0.003)***	-0.022 (0.000)***	-0.037 (0.000)***	-0.031 (0.000)***	-0.019 (0.003)***	-0.019 (0.005)***
Competitors	0.241 (0.016)**	0.198 (0.053)*	0.113 (0.265)	0.073 (0.472)	0.220 (0.036)**	0.234 (0.023)**	0.021 (0.850)	0.077 (0.492)
GDP Growth	-12.052 (0.000)***	-8.183 (0.001)***	-0.582 (0.794)	-4.153 (0.038)**	-13.104 (0.000)***	-9.854 (0.000)***	-5.402 (0.026)**	-4.181 (0.084)*
Political Violence		-0.137 (0.012)**					0.674 (0.000)***	0.632 (0.000)***
Political Voice/Accountability			-0.403 (0.000)***				-0.674 (0.000)***	-0.735 (0.000)***
Corruption				-0.245 (0.000)***			-0.165 (0.001)***	-0.179 (0.000)***
Government Banks					0.226 (0.066)*		0.320 (0.029)**	0.499 (0.002)***
Firm Obstacles						0.262 (0.000)***	0.230 (0.000)***	0.225 (0.000)***
GDP per Capita								0.160 (0.001)***
Number of firms	2259	2259	2259	2259	2124	2259	2124	2124
Number of countries	33	33	33	33	31	33	31	31

P-values are in parentheses.

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

Estimated using an ordered probit.

Variables are defined in Table 1.

Appendix Table 1: Summary of Bank-Level Statistics Across Countries

Country	Overhead Costs	Market Share	Bank Size	Liquidity	Bank Equity
AUSTRALIA	2.94	0.07	9.09	12.54	7.17
AUSTRIA	2.51	0.01	6.62	16.09	7.73
BAHRAIN	1.93	0.16	7.06	11.82	14.67
BANGLADESH	2.07	0.08	4.72	44.51	6.30
BELARUS	5.82	0.18	5.18	37.29	1.12
BELGIUM	2.55	0.02	7.07	23.08	6.47
BOLIVIA	3.85	0.09	4.50	19.85	14.90
BOTSWANA	4.31	0.25	5.48	11.46	10.44
BURUNDI	5.20	0.50	4.16	20.74	10.12
CANADA	1.93	0.00	6.59	22.46	7.12
CAYMAN ISLANDS	1.21	0.21	4.72	22.47	25.45
CHILE	3.04	0.07	6.72	26.16	12.48
CHINA	1.40	0.07	8.65	40.44	8.70
CROATIA	5.48	0.05	5.12	24.56	19.64
CYPRUS	2.39	0.36	7.66	21.80	7.13
CZECH REPUBLIC	2.41	0.07	7.11	13.12	7.84
DENMARK	3.87	0.02	5.98	19.58	10.78
EGYPT	1.89	0.02	6.90	.	7.74
ESTONIA	5.24	0.50	5.58	6.88	9.14
FINLAND	1.90	0.23	9.38	14.14	5.20
FRANCE	3.10	0.00	7.11	12.05	7.38
GERMANY	2.89	0.00	6.76	30.25	9.04
GHANA	7.68	0.31	5.52	49.18	11.59
GREECE	3.22	0.11	8.04	32.16	6.15
GUATEMALA	5.84	0.04	4.50	23.72	10.33

HONDURAS	5.14	0.10	4.71	32.68	9.76
HUNGARY	4.26	0.06	6.26	9.25	9.18
ICELAND	4.07	0.32	6.95	9.83	7.16
INDIA	2.58	0.02	6.81	39.38	7.30
INDONESIA	2.89	0.00	5.47	22.47	11.92
IRELAND	2.73	0.25	9.49	29.44	6.51
ISRAEL	3.16	0.08	7.53	12.27	10.36
ITALY	3.64	0.01	7.57	29.76	8.22
JAMAICA	7.04	0.27	5.37	32.91	9.25
JAPAN	1.56	0.01	9.80	11.80	3.76
JORDAN	2.61	0.16	6.86	41.29	7.95
KENYA	4.79	0.07	4.58	35.57	10.08
KOREA	2.66	0.06	9.69	11.03	5.84
LATVIA	7.03	0.07	3.44	11.75	14.14
LEBANON	2.83	0.02	5.02	54.26	8.86
LIECHTENSTEIN	1.87	0.56	8.94	59.50	7.44
LITHUANIA	6.73	0.98	5.66	8.48	-0.77
LUXEMBOURG	1.38	0.01	6.92	45.02	5.54
MACAU	2.03	0.14	6.41	48.19	6.20
MACEDONIA	5.33	0.44	5.67	52.57	10.90
MALTA	1.71	0.23	6.33	13.37	6.30
MAURITIUS	2.31	0.19	5.35	34.77	11.41
MEXICO	5.98	0.04	4.38	38.26	31.84
MOLDOVA	6.96	0.18	2.55	50.69	11.07
MOROCCO	2.09	0.17	7.82	28.60	10.36
NAMIBIA	4.26	0.25	5.95	15.08	5.91
NEPAL	2.45	0.25	4.39	37.21	8.08
NETHERLANDS	1.95	0.04	7.51	34.01	6.83
NEW ZEALAND	2.49	0.19	8.53	9.08	6.09
NIGERIA	7.79	0.12	6.31	64.46	7.60
NORWAY	1.87	0.09	7.94	5.96	6.48

PANAMA	1.95	0.02	5.55	21.93	9.15
PERU	5.79	0.10	5.83	26.89	10.58
PHILIPPINES	3.61	0.05	7.19	26.37	14.41
POLAND	3.89	0.03	5.63	13.08	14.65
PUERTO RICO	2.90	0.18	7.69	7.10	8.51
ROMANIA	5.82	0.05	4.09	34.13	20.77
RUSSIA	6.61	0.07	5.54	53.78	12.94
RWANDA	4.61	0.44	4.27	43.61	3.33
SINGAPORE	1.18	0.19	8.78	13.36	15.23
SLOVENIA	4.23	0.08	5.61	16.10	13.29
SOUTH AFRICA	4.90	0.08	6.05	19.37	14.30
SPAIN	2.98	0.02	7.70	23.97	8.88
SRI LANKA	3.05	0.25	5.66	27.75	13.28
SWEDEN	2.29	0.15	10.11	50.37	7.32
SWITZERLAND	2.41	0.01	6.02	25.82	12.99
TAIWAN	1.39	0.03	8.91	13.25	9.09
THAILAND	2.22	0.21	9.36	8.53	7.49
TRINIDAD AND TOBAGO	3.93	0.20	6.26	37.15	7.60
UNITED KINGDOM	2.57	0.02	7.53	30.52	12.08
USA	3.17	0.00	7.32	12.61	8.71
Average Across Banks	3.00	0.04	7.05	22.14	9.20
Standard Deviation	1.64	0.10	2.02	16.53	6.97
Number of Banks	1457	1457	1457	1402	1456

Variables are defined in Table 1

Appendix Table 2: Summary of Firm-Level Statistics Across Countries

Country	Bank Corruption	Government Firm	Foreign Firm	Exporter	Sales (log of sales in US dollars)	Competitors (logarithm of number of competitors)
Argentina	1.57	0.03	0.34	0.29	16.93	0.61
Belarus	1.26	0.30	0.07	0.27	0.46	1.03
Bolivia	1.64	0.00	0.23	0.38	14.63	0.61
Botswana	1.19	0.18	0.43	0.52	15.01	0.90
Brazil	1.26	0.02	0.27	0.32	16.75	0.58
Canada	1.03	0.03	0.26	0.49	16.98	0.63
Chile	1.20	0.02	0.35	0.46	16.94	0.66
Croatia	1.81	0.47	0.13	0.67	1.61	0.90
Czech Republic	1.88	0.16	0.17	0.33	0.77	0.96
Egypt	2.59	0.00	0.30	0.65	14.25	1.00
El Salvador	1.64	0.03	0.21	0.36	15.92	0.63
Estonia	1.35	0.21	0.21	0.57	1.20	0.93
France	1.27	0.06	0.30	0.44	16.73	0.57
Germany	1.52	0.08	0.30	0.35	17.47	0.57
Ghana	1.81	0.13	0.40	0.57	15.24	1.02
Guatemala	1.48	0.00	0.20	0.33	16.65	0.64
Honduras	2.05	0.00	0.21	0.41	18.60	0.63
Hungary	1.48	0.19	0.07	0.32	1.12	1.00
India	1.58	0.13	0.30	0.65	6.00	1.03
Indonesia	2.47	0.06	0.17	0.26	18.22	1.01
Italy	1.16	0.11	0.36	0.36	20.69	0.64
Kenya	1.45	0.10	0.41	0.88	15.23	0.97
Lithuania	2.24	0.07	0.06	0.29	0.83	0.96
Malawi	1.37	0.07	0.37	0.52	15.18	0.96

Malaysia	1.88	0.05	0.14	0.27	17.95	0.59
Mexico	2.18	0.00	0.19	0.44	15.55	0.65
Moldova	2.03	0.26	0.02	0.23	0.30	0.92
Namibia	1.11	0.17	0.29	0.69	15.25	0.90
Nigeria	1.92	0.03	0.17	0.38	15.32	1.02
Panama	1.45	0.05	0.18	0.46	17.08	0.58
Peru	2.23	0.01	0.24	0.28	16.27	0.60
Philippines	2.18	0.02	0.23	0.32	15.45	0.66
Poland	1.38	0.20	0.08	0.42	1.23	1.05
Portugal	1.47	0.06	0.29	0.23	19.67	0.75
Romania	1.96	0.22	0.16	0.20	0.62	0.90
Russia	1.88	0.14	0.02	0.08	0.56	0.98
Singapore	1.26	0.04	0.36	0.48	17.62	0.62
Slovenia	1.23	0.40	0.14	0.74	1.61	0.87
South Africa	1.14	0.08	0.35	0.86	18.25	0.98
Spain	1.27	0.08	0.23	0.39	15.55	0.62
Sweden	1.06	0.06	0.23	0.53	15.91	0.64
Thailand	3.14	0.01	0.20	0.38	18.96	1.05
Trinidad & Tobago	1.77	0.07	0.19	0.59	14.59	0.57
Turkey	2.31	0.18	0.09	0.41	1.59	0.95
United Kingdom	1.03	0.01	0.16	0.30	16.34	0.69
United States	1.45	0.04	0.10	0.31	16.99	0.65
Venezuela	1.48	0.06	0.31	0.46	17.25	0.55
Zambia	1.39	0.15	0.38	0.35	14.46	0.89
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Average Across Firms	1.62	0.12	0.19	0.38	10.03	0.83
Standard Deviation	0.97	0.32	0.39	0.49	8.20	0.32
Number of Firms	4712	4712	4712	4712	4712	4712

Variables are defined in Table 1.

Appendix Table 3: Summary of Country Level Variables

Country	Official Power	Private Monitoring	Activity Restrictions	Political Violence (bigger values signify LESS violence)	Political Voice and Accountability	Corruption	Government Banks
ARGENTINA	-0.30	1.13	7.00	0.51	0.48	2	0.30
AUSTRALIA	0.73	1.04	2.00	1.18	1.63	5	0.00
AUSTRIA	0.90	-0.43	1.25	1.38	1.45	5	0.04
BAHRAIN	1.00	0.77	2.25	-0.08	-1.04	.	0.04
BANGLADESH	0.44	-0.82	3.00	-0.40	-0.01	.	0.70
BELARUS	-2.24	-1.55	3.25	-0.37	-0.52	.	0.67
BELGIUM	0.38	0.69	2.25	0.82	1.44	5	.
BOLIVIA	0.22	0.06	3.00	-0.14	0.39	3	0.00
BOTSWANA	0.82	0.97	2.50	0.74	0.78	4	0.02
BRAZIL	1.00	0.97	10.00	-0.32	0.55	3	0.52
BURUNDI	-0.35	-0.63	3.00	.	-1.29	.	0.63
CANADA	-2.15	1.05	1.75	1.03	1.36	6	0.00
CHILE	0.05	0.29	2.75	0.45	0.62	4	0.12
CHINA	0.28	1.05	3.50	0.48	-1.30	.	.
CROATIA	0.17	0.29	1.75	0.41	-0.32	.	0.37
CYPRUS	1.00	-0.35	2.00	0.38	1.11	5	0.03
CZECH REPUBLIC	1.00	-0.03	2.00	0.81	1.20	.	0.19
DENMARK	-1.80	0.29	2.00	1.29	1.63	6	0.00
EGYPT	0.38	-0.13	3.25	-0.07	-0.67	3	0.67
ESTONIA	0.27	0.29	2.00	0.79	0.79	.	0.00
FINLAND	-1.74	1.46	1.75	1.51	1.60	6	0.22
FRANCE	-1.16	0.69	1.50	0.65	1.15	5	.
GERMANY	-0.91	0.97	1.25	1.32	1.49	6	0.42
GHANA	-0.09	-1.56	3.00	-0.10	-0.43	4	0.38
GREECE	-0.43	0.69	2.25	0.21	1.07	5	0.13
GUATEMALA	-0.42	-1.14	3.25	-0.75	-0.56	3	0.08

HONDURAS	0.82	-0.42	2.25	-0.33	-0.06	2	0.01
HUNGARY	1.00	-0.43	2.25	1.25	1.20	.	0.03
ICELAND	-2.20	0.29	2.75	1.25	1.45	6	0.64
INDIA	-0.36	-0.42	2.50	-0.04	0.50	3	0.80
INDONESIA	0.74	0.25	3.50	-1.29	-1.17	.	0.44
IRELAND	-0.54	0.37	2.00	1.43	1.50	5	.
ISRAEL	-0.35	0.35	3.25	-0.46	1.08	5	.
ITALY	-1.66	1.27	2.50	1.16	1.29	4	0.17
JAMAICA	0.77	-0.69	3.00	-0.34	0.75	3	0.56
JAPAN	1.13	0.97	3.25	1.15	1.16	5	0.01
JORDAN	-1.91	0.29	2.75	-0.06	0.15	4	0.00
KENYA	1.00	-1.00	2.50	-1.10	-0.70	3	.
KOREA	0.38	1.46	2.25	0.16	1.00	4	0.30
KUWAIT	0.22	1.04	2.50	0.68	0.00	.	0.00
LATVIA	-1.04	-0.42	2.00	0.46	0.62	.	.
LEBANON	0.67	1.46	2.75	-0.25	-0.40	3	0.00
LIECHTENSTEIN	.	.	2.25	.	.	.	0.04
LITHUANIA	-0.34	0.29	2.25	0.35	0.77	.	0.44
LUXEMBOURG	0.77	0.29	1.50	1.40	1.46	6	0.05
MACAU	.	.	2.25	.	.	.	0.01
MACEDONIA	.	.	3.25	.	.	.	0.01
MALAWI	-0.10	-1.25	13.00	0.04	0.06	3	0.49
MALAYSIA	-0.25	0.55	10.00	0.55	-0.14	4	0.00
MALTA	-0.30	0.35	2.50	1.32	1.41	4	0.00
MAURITIUS	-1.52	0.29	3.25	1.14	1.01	.	0.00
MEXICO	-0.17	-0.43	3.00	-0.35	-0.11	3	0.25
MOLDOVA	-0.18	-1.83	1.75	-0.20	0.16	.	0.07
MOROCCO	0.59	0.39	3.25	0.09	-0.24	3	0.24
NAMIBIA	-0.54	-0.13	2.75	0.71	0.47	5	.
NEPAL	-0.73	-2.23	2.00	.	0.05	.	0.20
NETHERLANDS	-0.94	0.37	1.50	1.48	1.61	6	0.06

NEW ZEALAND	0.49	1.44	1.00	1.42	1.46	6	0.00
NIGERIA	0.61	0.39	2.25	-1.05	-1.23	.	0.13
NORWAY	.	.	2.50	.	.	6	.
PANAMA	1.14	-0.13	2.00	0.15	0.66	2	0.12
PERU	0.09	0.29	2.00	-0.53	-0.69	3	0.03
PHILIPPINES	0.95	-0.63	1.75	0.27	0.61	3	0.12
POLAND	0.58	0.29	2.50	0.84	1.07	.	0.44
PORTUGAL	1.00	0.97	9.00	1.39	1.48	5	0.21
PUERTO RICO	.	.	3.50	.	.	.	0.00
ROMANIA	-0.71	0.42	3.25	0.02	0.41	.	0.70
RUSSIAN	-0.40	-1.25	2.00	-0.69	-0.31	.	0.68
RWANDA	0.73	-2.95	3.25	.	-1.17	.	0.50
SINGAPORE	-3.05	0.35	2.00	1.39	0.04	4	0.00
SLOVENIA	1.00	-0.43	2.25	1.09	1.07	.	0.40
SOUTH AFRICA	-2.95	0.77	2.00	-0.53	0.99	5	0.00
SPAIN	-0.32	0.97	1.75	0.58	1.34	5	0.00
SRI LANKA	0.61	0.35	1.75	-1.63	-0.16	4	0.55
SWEDEN	-1.55	0.69	2.25	1.41	1.63	6	0.00
SWITZERLAND	0.90	0.77	1.25	1.69	1.69	6	0.15
TAIWAN	-0.66	0.42	3.00	0.94	0.71	4	0.43
THAILAND	0.72	-0.42	2.25	0.25	0.22	3	0.31
TRINIDAD AND TOBAGO	-0.91	-0.43	2.25	0.32	0.95	4	0.15
TURKEY	-0.30	0.69	12.00	-0.94	-0.86	2	0.35
UNITED KINGDOM	0.59	1.46	1.25	0.92	1.49	5	0.00
USA	1.14	0.97	3.00	1.10	1.50	5	0.00
VENEZUELA	1.14	-0.43	10.00	-0.25	0.18	3	0.05
ZAMBIA	0.51	-0.13	13.00	0.00	-0.05	3	0.23

Variables defined in Table 1.