

Governance and bank valuation [☆]

Gerard Caprio ^{a,*}, Luc Laeven ^{b,c}, Ross Levine ^{d,e}

^a *Williams College, Economics Department, Williamstown, MA, USA*

^b *International Monetary Fund, Washington, DC, USA*

^c *CEPR, UK*

^d *Brown University, Providence, RI, USA*

^e *NBER, USA*

Received 27 June 2005

Available online 5 June 2007

Abstract

This paper assesses the impact of the ownership structure of banks and shareholder protection laws on bank valuations while controlling for differences in bank regulations. Except in a few countries with very strong shareholder protection laws, banks are not widely held. Rather, families or the State control banks. Furthermore, (i) larger cash-flow rights by the controlling owner boost valuations, (ii) stronger shareholder protection laws increase valuations, and (iii) greater cash-flow rights mitigate the adverse effects of weak shareholder protection laws on valuations. These results suggest that ownership structure is an important mechanism for governing banks.

© 2007 Elsevier Inc. All rights reserved.

JEL classification: G21; G34; K22; G28

Keywords: Corporate governance; Securities law; Regulation; Banking; Financial institutions; International finance; Market structure

[☆] This paper's findings, interpretations, and conclusions are entirely those of the authors and do not necessarily represent the views of the International Monetary Fund, its Executive Directors, or the countries they represent.

* Corresponding author.

E-mail addresses: Gerard.Caprio@williams.edu (G. Caprio), llaeven@imf.org (L. Laeven), ross_levine@brown.edu (R. Levine).

1. Introduction

Research suggests that well-functioning banks promote growth.¹ When banks efficiently mobilize and allocate funds, this lowers the cost of capital to firms and accelerates capital accumulation and productivity growth. Furthermore, banks, as major creditors and in some countries as major equity holders, play an important role in governing firms. Thus, if bank managers face sound governance mechanisms, this enhances the likelihood that banks will raise capital inexpensively, allocate society's savings efficiently, and exert sound governance over the firms they fund.

Nevertheless, little is known about which laws and regulations enhance the governance of banks. One standard rationale for heavy government regulation of banks is that shareholders and creditors lack sufficient mechanisms for exerting sound governance over extraordinarily complex, opaque banks, especially in the presence of deposit insurance. But, as Fama (1985) famously asked, are banks different? Or, do the same corporate control mechanisms that work in non-financial corporations also work in banks? Research indicates that strong shareholder protection laws enhance the governance of non-financial corporations (La Porta et al., 2002), but there exists no evidence on shareholder protection laws and the governance of banks.

This paper assesses the impact of shareholder protection laws and ownership structure on bank valuations while controlling for international differences in bank regulations. By examining valuations, we directly analyze banks' cost of capital and indirectly assess the market's assessment of the governance of banks. That is, holding other things constant, we assess whether governance mechanisms that both reduce the ability of insiders to expropriate bank resources and promote bank efficiency tend to boost the market value of banks.

Research suggests that strong shareholder protection laws increase firm valuations (Claessens et al., 2000; La Porta et al., 2002). In short, investors pay more for equity when legal institutions effectively protect their rights. From this perspective, investor protection laws may provide the tools for small shareholders to stop large shareholders from expropriating bank resources. We define expropriation broadly to include theft, transfer pricing, asset stripping, the preferential hiring of family members, the allocation of credit in a manner that enriches bank insiders but hurts the bank, and other "perquisites" that benefit bank insiders but hurt the bank.

In the particular case of banks, however, not everyone agrees that shareholder protection laws will effectively thwart expropriation. Many argue that banks are extraordinarily complex and opaque (Morgan, 2002). From this perspective, investor protection laws alone may not provide a sufficiently powerful corporate governance mechanism to small shareholders. Put differently, even with strong investor protection laws, small stakeholders may lack the means to monitor and govern complex banks. Furthermore, bank regulations may be sufficiently pervasive that they render shareholder protection laws superfluous, or bank regulations may supersede standard investor protection laws. Thus, the impact of investor protection laws on banks may differ from their impact on non-bank corporations. We provide the first examination of the impact of shareholder protection laws on bank valuations under different bank regulatory regimes.

Official bank regulations may arise in part to stop bank insiders from expropriating or misallocating bank resources as argued in Caprio and Levine (2002). Thus, effective regulation may increase investor confidence regarding expropriation and boost market valuations. Of course, bank regulations arise for reasons other than reducing expropriation. Especially in the presence

¹ For example, Levine and Zervos (1998), Beck et al. (2000), Levine et al. (2000), Claessens and Laeven (2003), among others, provide evidence that bank operations affect economic growth. Levine (2006) reviews this literature.

of deposit insurance, regulation may arise to reduce excessive risk-taking by bank owners and protect depositors. In this context, regulation could actually reduce bank valuations by forcing bank risk below what equity holders would choose in the presence of government insurance. We test for these effects. Nevertheless, this discussion highlights a key limitation of our analysis. Unlike [Barth et al. \(2006\)](#), we do not provide an assessment of bank regulation that involves assessing the impact of regulations on bank efficiency, credit allocation, fragility, and corruption. Rather, we provide a much narrower assessment of the relationships among the market's valuation of banks, shareholder protection laws, official bank regulations, and the ownership structure of banks.

To draw precise inferences regarding the impact of shareholder protection laws and bank regulations on bank valuations, we simultaneously study the ownership structure of banks. Ownership structure is an additional, and perhaps interrelated, mechanism for exerting corporate control. A crucial agency problem is the ability of controlling owners to expropriate—often legally—corporate resources as first modeled by [Jensen and Meckling \(1976\)](#). The incentives of the controlling shareholders to expropriate resources from the corporation, however, depend on their cash-flow rights. As their cash-flow rights rise, expropriation involves a greater reduction in their own cash flow. Since expropriation is costly, increases in the cash-flow rights of the controlling owner will reduce incentives to expropriate resources from the corporation, holding other factors constant ([Burkart et al., 1997](#)). Besides the direct impact of concentrated ownership on bank values, concentration may also influence the impact of legal protection on bank valuations.² The model by [Shleifer and Wolfenzon \(2002\)](#) predicts that a marginal improvement in legal protection may have less of an impact on bank valuations when there is a controlling shareholder. Or, put differently, it predicts that with effective legal protection of minority shareholders, having a controlling shareholder is less important for stemming the expropriation of the minority shareholders' wealth. [La Porta et al. \(2002\)](#) provide evidence consistent with this prediction.

One contribution of this paper is to assemble and analyze detailed data on the ownership of banks around the world. Are banks widely held, or do they tend to have controlling owners? If they have a controlling owner, who tends to control banks? [La Porta et al. \(1999\)](#) show that the widely held corporation is the exception rather than the norm internationally. Rather, they show that families or the State typically control firms. While there are financial institutions in [La Porta et al.'s \(1999\)](#) sample, they do not focus on detailing the ownership structure of banks in each country and their coverage of commercial banks is limited. Similarly, while [Barth et al. \(2001, 2004\)](#) provides cross-country statistics on the degree of state ownership of the banking industry, they do not provide detailed information on the ownership structure of banks. In this paper, we construct a new database covering 244 banks across 44 countries and trace the ownership of banks to identify the ultimate owners of bank capital and the degree of voting rights and cash-flow rights concentration. As defined in greater detail below, an owner's voting rights will exceed the owner's cash-flow rights when the owner controls votes through various affiliated parties without having the rights to all cash flows received by those affiliated parties.

We provide information on three questions concerning ownership. First, are banks widely held or do they have a controlling owner with significant control and cash-flow rights? We find that banks are generally not widely held. In our average country, only about 25 percent of the banks

² Empirically, researchers examine the impact of managerial ownership on corporate valuations ([Demsetz and Lehn, 1985](#); [Morck et al., 1988](#); [McConnell and Servaes, 1990](#); and [Holderness et al., 1999](#)). Work also finds that weaker shareholder protection increases the premium associated with corporate control ([Lease et al., 1983](#); [DeAngelo and DeAngelo, 1985](#)).

are widely held, i.e., they do not have a shareholder that owns at least 10 percent of the voting rights. Second, who owns banks? For banks with a controlling shareholder, we find that the controlling owner is a family more than half of the time in the average country, while we identify the State as the controlling owner of banks 19 percent of the time. Finally, are laws regarding the protection of minority shareholders associated with the degree of control rights and cash-flow rights concentration? The data indicate that stronger legal protection of shareholders is positively connected with countries having more widely held banks.

Given this information on bank ownership, we examine the legal determinants of bank valuations. Specifically, using bank-level data, we evaluate the impact of the legal protection of minority shareholders, bank regulatory policies, and ownership structure on bank valuations. To measure valuation, we use both Tobin's Q and the ratio of the market value of equity to the book value of equity. We also test whether ownership concentration affects the impact of laws on bank valuations.

There are four key results on the governance of banks. First, stronger legal protection of minority shareholders is associated with more highly valued banks. This suggests both that expropriation of minority shareholders is important in many countries and that legal mechanisms can restrict expropriation of bank resources.

Second, after controlling for the cash-flow rights of the controlling owner, bank regulations do not have an independent association with bank valuations. Specifically, empowering the public sector through strong supervisory agencies does not influence bank valuations, nor is official supervisory power associated with the ownership structure of banks. Similarly, regulatory restrictions on bank capital, the entry of new banks, and bank activities in securities markets, insurance, and real estate do not have an independent association with bank valuations. Also, even when we dissect the different channels through which regulation may influence the governance of banks, we find no evidence that regulation has an impact on bank valuations—neither a positive impact by reducing expropriation nor a negative impact by reducing bank risk below the level desired by shareholders.

Third, the degree of cash-flow rights of the largest owner enters the bank valuation equation positively. The evidence is consistent with theoretical predictions that concentrated ownership reduces incentives for insiders to expropriate bank resources, and that this boosts valuations.

Fourth, large cash-flow rights reduce the impact of legal protection on valuations. Thus, a marginal improvement in legal protection has less of an impact on a bank's valuation as the controlling owner's cash-flow rights increases. Put differently, a marginal increase in ownership concentration has a particularly large impact on valuations when legal protection of minority shareholders is weak. These last two findings shed a skeptical light on regulatory strategies that seek to minimize ownership concentration if these strategies also reduce the controlling owner's cash-flow rights, especially in environments with weak legal protection of minority shareholders. Moreover, taken together, these results indicate that bank valuations respond to shareholder protection laws and ownership structure in ways that are very consistent with how non-financial firms respond.

Section 2 discusses the data. Section 3 analyzes bank ownership around the world. Section 4 examines bank valuations. Section 5 provides extensions and robustness tests and Section 6 concludes.

2. Data and variables

2.1. Sample

To conduct our analyses, we build a database on bank ownership, bank valuations, and other bank-specific and country characteristics. As discussed below, information on bank ownership is particularly difficult to construct. Data permitting, we collect data on the 10 largest publicly listed banks (as defined by total assets at the end of 2001) in those countries for which La Porta et al. (2002) assembled data on shareholder rights.³ Since some countries have fewer than 10 publicly listed banks with stock market valuations, this yields 281 banks. Then, we lose 25 banks because of missing information on the book value of assets and 12 banks because of missing ownership data. The final sample consists of 244 banks across 44 countries. The sample accounts for on average 83 percent of total banking system assets across the 44 countries. Our sample covers less than 50 percent of the total banking assets of a country in only five countries (Argentina, Japan, Mexico, Pakistan, and Venezuela). When we eliminate these countries, the results are unchanged.

Focusing on the largest banks enhances comparability across countries. Also, the largest banks tend to have the most liquid shares, reducing concerns that liquidity differences drive the results. As noted by La Porta et al. (2002), focusing on the largest corporations should bias the results against finding a relationship between the formal legal protection of minority shareholders and valuations because larger corporations face alternative governance mechanisms, such as public scrutiny, foreign shareholders, and listings on international exchanges.

2.2. Sources

Banking data come from two major sources. BANKSCOPE, maintained by Bureau Van Dijk, contains financial and ownership information for about 4000 major banks. BANKERS ALMANAC, published since 1847, also contains a wealth of data, including detailed ownership data.

To obtain ownership information of banks, we also use annual reports, 20-F filings for companies with American Depositary Receipts, proxy statements, and country-specific publications. Also, many individual banks and national institutions (e.g., Central Banks, regulatory authorities) maintain websites that we used to compile ownership data.

Since (1) non-financial institutions own bank shares, (2) BANKSCOPE and the BANKERS ALMANAC only have information on financial institutions, and (3) we seek to trace bank ownership through corporations back to individuals, we need information on the ownership of non-financial institutions. WORLDSCOPE contains ownership data of firms. Thus, we use WORLDSCOPE along with 20-F filings, company reports, and filings with national stock exchanges and securities regulations to identify the ultimate owners of corporations that own shares in banks. The ownership data are from 2001 except in a few cases, where we use 2000 data.

³ There are five countries with data on shareholder protection laws but which do not have sufficient information on bank ownership or the market valuation of banks to be included in our analyses (Belgium, Ecuador, New Zealand, Nigeria, and Uruguay). We examine the ownership of the bank holding company, not the bank itself, because bank holding company shares are publicly traded and bank holding companies control virtually all of the shares of their banks. For example, we examine Citigroup, not Citibank. If a bank is cross-listed in more than one exchange, we use market valuations from the exchange where the bank (or bank holding company) is registered.

Because ownership patterns are very stable, this should neither induce problems, nor bias the results.

2.3. Control rights

We classify a bank as having a controlling owner if the shareholder has direct and indirect voting rights that sum to 10 percent or more. If no shareholder holds 10 percent of the voting rights, we classify the bank as widely held. Since 10 percent voting rights is frequently sufficient to exert control, this cut-off is used extensively (e.g., [La Porta et al., 1999, 2002](#)). When we use a 20 percent criterion, however, we obtain the same conclusions as those discussed below.

While direct ownership involves shares registered in the shareholder's name, indirect ownership involves bank shares held by entities that the ultimate shareholder controls. Since the principal shareholders of banks are frequently themselves financial institutions or corporate entities, we find the major shareholders in these financial institutions or corporate entities. Often, we need to trace this indirect ownership chain backwards through numerous corporations to identify the ultimate controllers of the votes. Thus, to construct data on control rights of banks, we follow [La Porta et al.'s \(1999, 2002\)](#) procedure for examining the ownership of firms. [Lang and So \(2002\)](#) also construct data on bank ownership. They do not, however, examine the impact of shareholder protection laws, bank regulation, and cash-flow rights on bank valuations.

Mechanically, we first identify all major shareholders who control over 5 percent of the votes. We use 5 percent because (1) it provides a significant threshold and (2) most countries do not mandate disclosure of ownership shares below 5 percent. Given these major shareholders, we then begin our search for indirect chains of control.

Next, if these major shareholders are themselves (financial or non-financial) corporations, we find the major shareholders of these financial or non-financial corporations. We continue this search until we find the ultimate owners of the votes. For example, a shareholder has x percent indirect control over bank A if she controls directly firm B (i.e., if she holds at least 10 percent of the voting rights of firm B) that, in turn, directly controls x percent of the votes of bank A . As another example, a shareholder has x percent indirect control over bank A if she controls directly firm C that, in turn, controls directly firm B , which directly controls x percent of the votes of bank A . The control chain from bank A to firm C can be a long sequence of firms, each of which has control (greater than 10 percent voting rights) over the next one. If there are several chains of ownership between a shareholder and the bank, we sum the control rights across all of these chains. When multiple shareholders have over 10 percent of the votes, we pick the largest controlling owner. As a sensitivity check, we conducted the analyses while also including an indicator of whether a bank has multiple controlling owners. This does not change this paper's results.

After going through this search process, we divide banks into six categories. First, widely held banks do not have a controlling owner, i.e., no legal entity owns 10 percent or more of the voting rights. Second, we create five distinct categories of controlling owners who own a minimum of 10 percent of the voting rights of the bank: (1) a family (or individual), (2) the State, (3) a voting trust, foundation, etc., (4) a widely held (non-financial) corporation, and (5) a widely held financial institution. We use separate categories for widely held corporations and financial institutions since these two ownership forms may be of separate interest.

It is not entirely clear whether banks controlled by widely held (financial or non-financial) corporations should be classified as having a controlling owner, which is what we do. A bank controlled by a widely held corporation can either be considered as controlled by the corpora-

tion's management or widely held since the management of the corporation is not accountable to an ultimate owner. We follow La Porta et al. (2002) and classify banks as having a controlling owner if the ultimate owner is a widely held financial or non-financial corporation. Moreover, we confirm the results when using alternative classifications of a controlling owner as reported below.

We now define the specific variables associated with control as follows, which are also described in Table 1. Table 2 provides summary statistics.

WIDELY is a dummy variable that equals one if no legal entity owns 10 percent or more of the voting rights, and zero otherwise.

CONTROL equals the fraction of the bank's voting rights, if any, owned by its controlling shareholder.

FAMILY is a dummy variable that equals one if an individual or family is the controlling shareholder, and zero otherwise.

STATE is a dummy variable that equals one if the state (or a foreign state) is the controlling shareholder, and zero otherwise.

FIN is a dummy variable that equals one if a widely held financial corporation is the controlling shareholder, and zero otherwise.

CORP is a dummy variable that equals one if a widely held non-financial corporation is the controlling shareholder, and zero otherwise. Note, "widely-held" means that there is no owner with 10 percent or more of the voting rights.

OTHER is a dummy variable that equals one if the controlling owner is a trust, foundation, etc. For example, the largest Dutch bank, ABN AMRO Bank N.V., falls into the category OTHER because the majority of its voting rights are held by a foundation ("Stichting" in Dutch).

2.4. Cash-flow rights

We also compute the direct and indirect cash-flow rights of the controlling shareholder (CF). The shareholder may hold cash-flow rights directly and indirectly. For example, if the controlling shareholder of bank *A* holds the fraction y of cash-flow rights in firm *B* and firm *B* in turn holds the fraction x of the cash-flow rights in bank *A*, then the controlling shareholder's indirect cash-flow rights in bank *A* are equal to the product of x and y . If there is a chain of controlling ownership, then we use the products of the cash-flow rights along the chain. To compute the controlling shareholder's total cash-flow rights we sum direct and all indirect cash-flow rights.

CF equals the fraction of the bank's cash-flow rights owned directly and indirectly by its controlling shareholder. CF equals zero if the bank is widely held.

There can be important differences between cash-flow rights and control rights when there are indirect chains of control. As a simple example, consider a shareholder who owns 10 percent of the voting rights and cash-flow rights of firm *A*, and firm *A* in turn holds 20 percent of the voting rights and cash-flow rights of bank *B*. Assume that this shareholder (i) does not own direct shares in bank *B* and does not have control or cash-flow rights of bank *B* through other indirect chains of control and (ii) is the largest equity holder of firm *A*. In our calculations, this shareholder has 20 percent control rights of bank *B* because the shareholder controls firm *A* and firm *A* has 20 percent of the voting rights of the bank. This shareholder's cash-flow rights, however, equals 2 percent because the shareholder only receives 2 percent of the bank's dividends ($20\% * 10\%$). As a robustness check we also computed the wedge, which equals the difference between control rights and cash-flow rights of the controlling owner. The wedge equals zero if there is no controlling owner. As reported below, when we include the wedge in the regressions, it does not

Table 1
Description of variables

Variable	Description
Rights	Index of anti-director rights for the country. Formed by adding one when: (1) the country allows shareholders to mail their proxy vote, (2) shareholders are not required to deposit their shares prior to the General Shareholders' Meeting, (3) cumulative voting or proportional representation of minorities on the board of directors is allowed, (4) an oppressed minorities mechanism is in place, (5) the minimum percentage of share capital that entitles a shareholder to call for an Extraordinary Shareholders' Meeting is less than or equal to 10 percent (the sample median), or (6) when shareholders have preemptive rights that can only be waived by a shareholders meeting. The range for the index is from zero to six. <i>Source:</i> La Porta et al. (2002).
Market-to-book Tobin's Q	The ratio of the market value of equity to the book value of equity. <i>Source:</i> Bankscope (2003). The ratio of the market value of equity plus the book value of liabilities to the book value of assets. <i>Source:</i> Bankscope (2003).
Control	Fraction of the bank's voting rights, if any, owned by its controlling shareholder. To measure control, we combine a shareholder's <i>direct</i> (i.e., through shares registered in her name) and <i>indirect</i> (i.e., through shares held by entities that, in turn, she controls) <i>voting</i> rights in the banking firm. A shareholder has an x percent indirect control rights over a bank if (i) she controls directly firm A (i.e., she owns more than 10 percent of the voting rights of firm A) which, in turn, directly controls x percent of the votes of the bank; or (ii) she controls directly firm B which in turn controls firm A (or any sequence of firms forming a control chain) which, in turn, controls x percent of the bank. Thus, the control chain can involve a sequence of companies linking the bank with the ultimate owner. A bank in our sample has a controlling shareholder if the sum of her direct and indirect voting rights exceeds 10 percent. When multiple shareholders meet our criteria for control, we assign control to the shareholder with the largest voting stake. <i>Source:</i> Authors' calculations based on Bankscope, Worldscope, the Bankers Almanac, 20-F filings, and company websites.
CF	Fraction of the firm's ultimate cash-flow rights, if any, owned by its controlling shareholder. CF values are computed as the product of all the equity stakes along the control chain. See "Control" for a description of a control chain. The controlling shareholder may hold cash-flow rights directly (i.e., through shares registered in her name) and indirectly (i.e., through shares held by entities that, in turn, she controls). If there is a control chain, then we use the products of the cash-flow rights along the chain. For example, if the controlling shareholder of bank A holds the fraction y of cash-flow rights in firm B and firm B in turn holds the fraction x of the cash-flow rights in bank A , then the controlling shareholder's indirect cash-flow rights in bank A are equal to the product of x and y . To compute the controlling shareholder's total cash-flow rights we sum direct and all indirect cash-flow rights. <i>Source:</i> Authors' calculations based on Bankscope, Worldscope, the Bankers Almanac, 20-F filings, and company websites.
Wedge	The difference between control rights and cash-flow rights. <i>Source:</i> Authors' calculations.
Widely	Equals one if there is no controlling shareholder, and zero otherwise. <i>Source:</i> Authors' calculations.
Family	Equals one if an individual or family is the controlling shareholder, and zero otherwise. <i>Source:</i> Authors' calculations.
State	Equals one if a (foreign or domestic) state is the controlling shareholder, and zero otherwise. <i>Source:</i> Authors' calculations.
Fin	Equals one if a widely held financial corporation is the controlling shareholder, and zero otherwise. <i>Source:</i> Authors' calculations.
Corp	Equals one if a widely held non-financial corporation is the controlling shareholder, and zero otherwise. <i>Source:</i> Authors' calculations.
Other	Other equals one if the controlling owner is not widely held, nor family-owned, nor state-owned, or nor widely held by a financial or non-financial corporation, and zero otherwise. <i>Source:</i> Authors' calculations.
Loan growth	The bank's average net loan growth during the last 3 years. <i>Source:</i> Bankscope.
Too-big-to-fail	Equals one if the bank's share in the country's total deposits exceeds 10% in 2001, and zero otherwise. <i>Source:</i> Bankscope and IFS.

(continued on next page)

Table 1 (continued)

Variable	Description
Capital–asset ratio	Ratio of the bank's equity to total assets in 2001. <i>Source</i> : Bankscope.
Loan loss provision ratio	Ratio of the bank's loan loss provisions to net interest income in 2001. <i>Source</i> : Bankscope.
Cost–income ratio	Ratio of the bank's total operating expenses to total operating income in 2001. <i>Source</i> : Bankscope.
Liquidity ratio	Ratio of the bank's liquid assets to liquid liabilities in 2001. <i>Source</i> : Bankscope.
Total assets	Total assets of the bank in millions of US dollars in 2001. <i>Source</i> : Bankscope.
State	Dummy variable that indicates whether the state is a major shareholder in the bank. <i>Source</i> : Authors' calculations.
Official	Index of official supervisory power. Adds one for an affirmative response to each for the following 14 questions. 1. Does the supervisory agency have the right to meet with external auditors to discuss their report without the approval of the bank? 2. Are auditors required by law to communicate directly to the supervisory agency any presumed involvement of bank directors or senior managers in illicit 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 organizational structure? 5. Are off-balance sheet items disclosed to supervisors? 6. Can the supervisory agency order the bank's directors or management to constitute provisions to cover actual or potential losses? 7. Can the supervisory agency suspend the directors' decision to distribute: (a) Dividends? (b) Bonuses? (c) Management fees? 8. Can the supervisory agency legally declare-such that this declaration supersedes the rights of bank shareholders-that a bank is insolvent? 9. Does the Banking Law give authority to the supervisory agency to intervene that is, suspend some or all ownership rights-a problem bank? 10. Regarding bank restructuring and reorganization, can the supervisory agency or any other government agency do the following: (a) Supersede shareholder rights? (b) Remove and replace management? (c) Remove and replace directors? <i>Source</i> : Barth et al. (2004, 2006).
Restrict	Index of regulatory restrictions on banks ability to engage in securities market activities, the insurance business, conduct real estate activities, or own non-financial firms. <i>Source</i> : Barth et al. (2004).
Independence	The degree to which the supervisory authority is independent from the government and legally protected from the banking system. <i>Source</i> : Barth, et al. (2004, 2006).
Capital	Regulatory restricts on bank capital. Index that includes information on the following questions. 1. Is the minimum capital–asset ratio requirement risk weighted in line with the Basel guidelines? 2. Does the minimum ratio vary as a function of market risk? 3. Are market values of loan losses not realized in accounting books deducted from capital? 4. Are unrealized losses in securities portfolios deducted? 5. Are unrealized foreign exchange losses deducted? 6. What fraction of revaluation gains is allowed as part of capital? 7. Are the sources of funds to be used as capital verified by the regulatory/supervisory authorities? 8. Can the initial disbursement or subsequent injections of capital be done with assets other than cash or government securities? 9. Can initial disbursement of capital be done with borrowed funds? <i>Source</i> : Barth et al. (2004).
Moral hazard	Indicator of the generosity of the deposit insurance regime in the country. <i>Source</i> : Demirgüç-Kunt and Detragiache (2002).
Per capita income	Log of gross domestic product per capita in 2001. <i>Source</i> : World Development Indicators.
Enforce	Index of legal enforcement of contracts in the country from Levine (1999).
Corrupt	Index of corruption in the country from Levine (1999).
Law	Measure of law and order tradition in the country from Levine (1999).
ROE	Ratio of bank-level pre-tax profits to the book value of equity in 2001. <i>Source</i> : Bankscope.
Tobin's Q of firms	Country-median Tobin's Q of non-financial firms in 2000. Tobin's Q is calculated as the market value of equity plus the book value of debt over the book value of equity and debt. <i>Source</i> : Worldscope.
Country-average ROA	Return on assets averaged across all banks in the country in 2001. Return on assets is calculated as pre-tax profits over total assets. <i>Source</i> : Bankscope.
Country-average ROE	Return on equity averaged across all banks in the country in 2001. <i>Source</i> : Bankscope.
M&A activity	Percentage of traded companies listed on the country's stock exchange that have been targeted in completed mergers or acquisitions deals during the 1990s. <i>Source</i> : Rossi and Volpin (2005).

enter significantly, nor does it change the other findings reported below. Similarly, we included the ratio of cash-flow rights to control rights (rather than the difference) and again confirm the robustness of the results below.

2.5. Bank valuations and loan growth

We use two indicators of bank valuation. Table 2 provides summary statistics and Table 3 lists the averages for each country's banks.

TOBIN'S Q is the traditional measure of valuation and is calculated as the ratio of the market value of equity plus the book value of liabilities to the book value of assets.

MARKET-TO-BOOK equals the ratio of the market value of equity to the book value of equity. We use this valuation measure because banks are highly leveraged.

LOAN GROWTH equals the growth rate of the bank's loan portfolio over the last three years. As discussed below, we use this to control for cross-bank differences in growth, which may influence bank valuations. As robustness checks, we also include contemporaneous loan growth,

Table 2
Summary statistics

Variable	Mean	Standard deviation	Minimum	Maximum	Number of observations
Market-to-book	1.341	0.760	0.216	3.946	244
Tobin's Q	1.020	0.060	0.859	1.373	244
Control	0.326	0.308	0.000	1.000	244
CF	0.260	0.274	0.000	1.000	244
Widely	0.303	0.461	0.000	1.000	244
Family	0.344	0.476	0.000	1.000	244
State	0.180	0.385	0.000	1.000	244
Fin	0.070	0.255	0.000	1.000	244
Corp	0.012	0.110	0.000	1.000	244
Other	0.094	0.293	0.000	1.000	244
Rights	3.156	1.251	1.000	5.000	244
Official	9.833	2.472	3.000	14.000	216
Restrict	9.277	2.404	5.000	14.000	223
Independence	2.579	1.101	1.000	4.000	216
Capital	3.067	1.230	0.000	5.000	223
Size	16.404	1.991	11.161	20.773	244
Loan growth	0.055	0.138	−0.436	0.988	213

Note. This table reports summary statistics for the main variables. Market-to-book is the market-to-book value of the bank's equity. Tobin's Q is the bank's Tobin's Q . Control is the fraction of the bank's voting rights, if any, owned by its controlling shareholder. CF is the fraction of the bank's ultimate cash-flow rights held by the controlling owners and zero if there is no controlling owner. Widely held is a dummy variable that equals one if there is no controlling shareholder. Family is a dummy variable that equals one if an individual or family is the controlling shareholder. State is a dummy variable that indicates whether the state is the controlling shareholder in the bank. Widely held financial is a dummy variable that equals one if a widely held financial corporation is the controlling shareholder. Widely held non-financial is a dummy variable that equals one if a widely held non-financial corporation is the controlling shareholder. Other is a dummy variable that equals one if the bank has another controlling owner. Rights is an index of anti-director rights for the country. Official is an index of official supervisory power. Restrict is an index of regulatory restrictions on banks' ability to engage in non-banking activities or own non-financial firms. Independence is a measure of the degree to which the supervisory authority is independent from the government and legally protected from the banking system. Capital is a measure of regulatory restrictions on capital. Size is the logarithm of the bank's total assets. Loan growth is the bank's average net loan growth during the last 3 years. Current loan growth is the bank's net loan growth during the current year. Table 1 defines and gives the sources of the variables.

as well as lagged and contemporaneous growth of assets and revenues. We also include alternative proxies for growth opportunities based on the bank's financial performance (return on equity).

2.6. Shareholder rights, supervision, and regulation

This paper examines the impact of the legal protection of shareholders and official bank regulatory practices on bank valuations.

RIGHTS is the La Porta et al.'s (2002) index of the legal protection of shareholders across countries. This index ranges from zero to six, where larger values indicate greater legal protection of shareholder rights. Table 1 gives a detailed definition and Table 2 provides summary statistics.

To study the regulatory environment, we use an assortment of indicators from Barth et al. (2001, 2004, 2006). A growing number of papers use the information contained in this dataset to examine the impact of bank supervision and regulatory policies on bank performance, stability, and corporate finance (e.g., Demirgüç-Kunt et al., 2004; Beck et al., 2006, and citations therein). Table 2 gives summary statistics and the values for each country are reported in Table 3.

OFFICIAL is an index of the power of the commercial bank supervisory agency. As specified in Table 1, OFFICIAL includes information on the rights of the supervisory agency to meet with, demand information from, and take legal action against auditors; to force a bank to change its internal organizational structure, management, directors, etc.; to oblige the bank to provision against potential losses and suspend dividends, bonuses, and management fees; and to supersede the rights of shareholders and intervene in a bank and/or declare a bank insolvent. We include this variable since greater bank regulatory power may inhibit insiders from exploiting minority investors in the bank.⁴

RESTRICT is an index of regulatory restrictions on the activities of banks. This index measures regulatory impediments to banks engaging in (1) securities market activities (e.g., underwriting, brokering, dealing, and all aspects of the mutual fund industry), (2) insurance activities (e.g., insurance underwriting and selling), (3) real estate activities (e.g., real estate investment, development, and management), and (4) the ownership of non-financial firms. Boyd et al. (1998) argue that limiting the range of activities in which banks can participate is one potential mechanism for limiting the ability of insiders to expropriate bank resources.

CAPITAL is an index of regulatory oversight of bank capital. As described in Table 1, this index includes information on whether the source of funds that count as regulatory capital can include assets other than cash, government securities, or borrowed funds, and whether the authorities verify the sources of capital. CAPITAL also includes information on the extent of regulatory requirements regarding the amount of capital banks must hold. One rationale for imposing strict capital regulations is to improve governance.

INDEPENDENCE is an index of the independence of the supervisory authority. Beck et al. (2006) find that an independent supervisory agency reduces political capture of the regulatory authority. This may enhance the governance of banks. We assess this hypothesis below.

⁴ We also conduct the analyses using the components of OFFICIAL that focus only on the disciplinary powers of the supervisory agency. That is, we include information on the power of the supervisory agency to force a bank to change its internal organizational structure, management, directors, etc.; to oblige the bank to provision against potential losses, and suspend dividends, bonuses, and management fees; and to supersede the rights of shareholders and intervene in a bank and/or declare a bank insolvent. We confirm all of our findings with this alternative indicator.

3. Bank ownership around the world

3.1. Ownership of publicly traded banks

Table 3 provides information on (1) the extent to which banks are widely held and (2) the identity of the controlling owner if the bank is not widely held. Panel A provides country averages. Thus, the data indicate that although more than 90 percent of the banks in Canada, Ireland, and the United States (in our sample) are widely held, 21 out of 44 countries do not have a single widely held bank (among their largest banks). Overall, the cross-country average for widely held is only 25 percent; so that in the average country, 75 percent of the largest, listed banks have a controlling shareholder.

Besides indicating that widely held banks are the exception rather than the rule, the data also suggest that family ownership of banks is very important across countries (Table 3). In the average country, a family is the controlling owner in 52 percent of those banks with a controlling owner. In 17 countries, families (FAMILY) control 50 percent or more of the banks in our sample.

Further, note that the State is an important owner of banks in some countries. While the State is not a controlling owner in any bank in 29 countries, the State is the controlling owner in more than half of the sampled banks in Egypt, Greece, India, Indonesia, and Thailand. Given the potentially enormous impact of state ownership, we examine this specifically below.

Panels B and C of Table 3 provide information on the ownership patterns of banks across national differences in (i) the legal protection of shareholders and (ii) bank regulation. Specifically, for shareholder rights, we split the sample into countries with above-median shareholder rights (high rights) and below-median shareholder rights (low rights). Then, for both the high and low rights countries, panel B provides information on the fraction of banks that are widely held, the identity of the controlling owner if the bank is not widely held, and the voting and cash-flow rights of controlling owners. Panel C tests whether the ownership patterns differ significantly between high and low shareholder rights countries. We follow the same pattern for the regulatory variables: we first split the sample according to each regulatory variable's median and then test for cross-median differences in bank ownership patterns.

The panels B and C results in Table 3 indicate that countries with below-median legal protection of shareholders have a significantly lower fraction of widely held banks than countries with above-median legal protection. Specifically, from panel B, 17% of the banks in low rights countries are widely held, while 52% of the banks are widely held in high rights countries. As shown in panel C, this difference is significant at the 1% level. This is consistent with the view that greater legal protection of shareholders makes potential investors confident that insiders will not exploit them and hence facilitates more dispersed ownership of banks. These same patterns emerge when using a 20 percent cut-off for classifying a bank as having a controlling owner.

The results also indicate that countries with above-median official supervisory power and capital restrictions do not have a larger fraction of widely-held banks. This does not support the notion that greater supervisory power and stricter capital regulations make small investors confident that insiders will not exploit them.

3.2. Control and cash-flow rights of banks

Table 3 also provides summary statistics on the control and cash-flow rights of banks around the world. The control rights variable (CONTROL) equals the percentage of voting rights held by the controlling owner. Cash-flow rights equals the cash-flow rights of the controlling owner.

Panel A of Table 3 advertises the importance of incorporating the degree of ownership concentration in our analyses of the governance of banks. There is enormous cross-country variation in the average degree of control rights and cash-flow rights in our sample of 244 banks. In 14 out of 44 countries, the controlling owner averages more than 50 percent of the voting shares. But,

Table 3
Ownership and control of banks

Country	Control	CF	Widely	Family	State	Fin	Corp	Other	N
<i>Panel A: Means</i>									
Argentina	94.00	47.00	0.00	1.00	0.00	0.00	0.00	0.00	1
Australia	1.11	1.11	0.89	0.11	0.00	0.00	0.00	0.00	9
Austria	55.33	40.00	0.00	0.00	0.00	0.33	0.00	0.67	3
Brazil	82.86	41.86	0.00	0.57	0.29	0.00	0.00	0.14	7
Canada	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	8
Chile	53.00	24.00	0.00	1.00	0.00	0.00	0.00	0.00	4
Colombia	45.50	40.50	0.25	0.50	0.00	0.00	0.25	0.00	4
Denmark	20.22	17.11	0.22	0.11	0.00	0.22	0.00	0.44	9
Egypt	27.00	17.25	0.00	0.25	0.75	0.00	0.00	0.00	4
Finland	57.00	57.00	0.00	0.00	0.00	0.00	0.00	1.00	1
France	40.33	40.33	0.50	0.00	0.00	0.50	0.00	0.00	6
Germany	12.00	8.68	0.33	0.33	0.00	0.33	0.00	0.00	3
Greece	33.00	33.00	0.13	0.38	0.50	0.00	0.00	0.00	8
Hong Kong	52.33	39.50	0.00	0.67	0.33	0.00	0.00	0.00	6
India	66.33	62.33	0.00	0.00	1.00	0.00	0.00	0.00	9
Indonesia	72.63	72.63	0.00	0.25	0.63	0.13	0.00	0.00	8
Ireland	0.00	0.00	1.00	0.00	0.00	0.00	0.20	0.00	5
Israel	43.00	43.00	0.00	0.63	0.25	0.00	0.00	0.13	8
Italy	15.56	14.44	0.33	0.11	0.00	0.22	0.00	0.33	9
Japan	11.20	11.20	0.80	0.00	0.00	0.20	0.00	0.00	5
Jordan	25.29	23.00	0.00	0.71	0.29	0.00	0.00	0.00	7
Kenya	18.00	18.00	0.25	0.25	0.25	0.00	0.00	0.25	4
Korea, Republic of	28.63	27.13	0.25	0.13	0.25	0.25	0.00	0.13	8
Malaysia	39.00	30.60	0.00	1.00	0.00	0.00	0.00	0.00	5
Mexico	60.00	58.00	0.00	1.00	0.00	0.00	0.00	0.00	1
Netherlands	56.00	16.50	0.00	0.00	0.00	0.00	0.00	1.00	2
Norway	5.33	5.33	0.89	0.00	0.11	0.00	0.00	0.00	9
Pakistan	40.00	40.00	0.00	1.00	0.00	0.00	0.00	0.00	1
Peru	61.33	55.00	0.33	0.33	0.00	0.00	0.33	0.00	3
Philippines	40.60	29.10	0.10	0.80	0.00	0.10	0.00	0.00	10
Portugal	43.50	17.67	0.17	0.83	0.00	0.00	0.00	0.00	6
Singapore	27.00	27.00	0.00	1.00	0.00	0.00	0.00	0.00	2
South Africa	28.00	9.00	0.00	0.75	0.00	0.25	0.00	0.00	4
Spain	31.60	17.90	0.20	0.40	0.10	0.00	0.00	0.30	10
Sri Lanka	18.60	13.80	0.40	0.00	0.40	0.20	0.00	0.00	5
Sweden	17.67	8.67	0.00	0.33	0.00	0.00	0.00	0.67	3
Switzerland	55.00	31.50	0.25	0.50	0.00	0.25	0.00	0.00	4
Taiwan	24.60	22.50	0.40	0.20	0.40	0.00	0.00	0.00	10
Thailand	52.00	52.00	0.00	0.43	0.57	0.00	0.00	0.00	7
Turkey	62.29	58.71	0.00	0.86	0.00	0.00	0.00	0.14	7
United Kingdom	1.67	0.17	0.83	0.17	0.00	0.00	0.00	0.00	6
United States	1.10	0.40	0.90	0.10	0.00	0.00	0.00	0.00	10
Venezuela	29.00	29.00	0.50	0.50	0.00	0.00	0.00	0.00	2
Zimbabwe	26.00	6.00	0.00	0.00	0.00	0.00	0.00	1.00	1
Country mean	35.79	27.45	0.25	0.39	0.14	0.07	0.02	0.14	244

Table 3 (continued)

Country	Control	CF	Widely	Family	State	Fin	Corp	Other	N
<i>Panel B: Group means</i>									
Low rights	39.13	32.20	0.17	0.38	0.21	0.10	0.01	0.13	150
High rights	22.01	16.19	0.52	0.29	0.14	0.02	0.01	0.03	94
Low official	30.94	26.21	0.26	0.27	0.22	0.09	0.01	0.15	117
High official	34.08	25.87	0.34	0.41	0.14	0.05	0.02	0.05	127
Low restrict	28.17	21.03	0.35	0.31	0.11	0.11	0.02	0.12	123
High restrict	37.05	31.12	0.26	0.38	0.26	0.03	0.01	0.07	121
Low independence	39.27	31.94	0.15	0.37	0.24	0.10	0.00	0.13	107
High independence	27.34	21.42	0.42	0.32	0.13	0.04	0.02	0.07	137
Low capital	33.42	26.96	0.27	0.37	0.19	0.08	0.01	0.08	139
High capital	31.45	24.80	0.34	0.30	0.17	0.06	0.01	0.11	105
<i>Panel C: Test of means</i>									
Low versus high rights	4.45***	4.83***	−5.90***	1.51	1.40	2.74***	0.19	3.05***	244
Low versus high official	−0.80	0.09	−1.25	−2.26**	1.62	1.42	−0.51	2.60***	244
Low versus high restrict	−2.27**	−2.91***	1.59	−1.17	−3.10***	2.25**	0.57	1.50	244
Low versus high independence	3.07***	3.02***	−5.00***	0.85	2.20***	1.72*	−1.74*	1.67*	244
Low versus high capital	0.49	0.60	−1.16	1.13	0.31	0.68	0.35	−0.91	244

Note. This table reports statistics on the ownership and control of publicly traded banks. Panel A presents country-averages for each ownership variable. We use 10 percent as the criteria for control for a sample of the ten largest publicly traded banks in terms of total assets in each country at the end of December 2001, when available. Control is the fraction of the bank's voting rights, if any, owned by its controlling shareholder. CF is the fraction of the bank's ultimate cash-flow rights held by the controlling owners and zero if there is no controlling owner. We use 10 percent as the criteria for control. Widely held equals one if there is no controlling shareholder, and zero otherwise. Family equals one if an individual or family is the controlling shareholder, and zero otherwise. State equals one if the state is the controlling shareholder, and zero otherwise. Fin equals one if a widely held financial corporation is the controlling shareholder, and zero otherwise. Corp equals one if a widely held non-financial corporation is the controlling shareholder, and zero otherwise. Other equals one if the bank has another controlling owner, and zero otherwise. *N* indicates for each country the number of banks in our sample. The sample includes the ten largest publicly traded banks in terms of total assets in each country at the end of December 2001, when available. Panel B classifies countries according to their ranking in shareholder rights or the bank supervision variables (above or below the sample median). Panel C reports test of means for low versus high values for shareholder rights and the bank regulatory variables. Table 1 defines the variables.

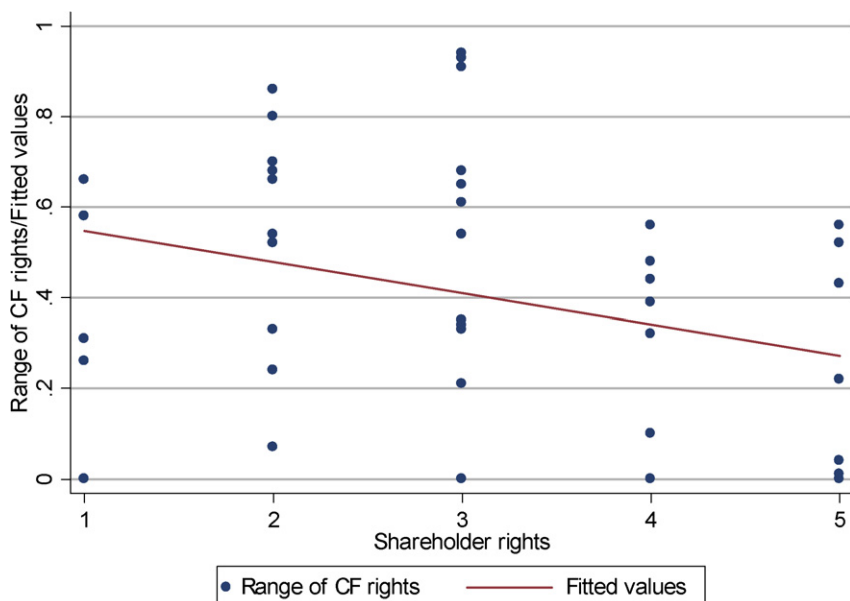
* Significant at the 10% level.

** Idem, 5%.

*** Idem, 1%.

in Australia, Canada, Ireland, the United Kingdom, and the United States, there is either no bank with a controlling owner or the average degree of voting rights control is less than five percent. In terms of cash-flow rights, half of the countries have bank systems where the controlling owner, if any, holds 25 percent or more on average of the bank's cash-flow rights.

Panels B and C of Table 3 provide information on the how control rights and cash-flow rights differ across different legal regimes. The results indicate that countries with below-median legal protection of shareholders (low rights) have banks where, on average, the controlling owner holds a significantly larger fraction of the voting and the cash-flow rights than in countries with above-median legal protection of shareholders (high rights). Indeed, the voting rights of the controlling owners in countries with low rights is, on average, 39%, while the voting rights of controlling owners in countries with high rights is only 22%. This is consistent with the view that weak legal



Note. This figure displays the maximum minus the minimum value of within-country CF rights—denoted as the range of CF rights—versus country-level shareholder rights. We also present the fitted regression line of the range of CF rights on Rights.

Fig. 1. Rights versus Max-min range of CF.

protection of shareholders makes potential small investors insecure about their rights and hence fosters more concentrated ownership of banks. Figure 1 illustrates the within-country dispersion of CF and how this varies by RIGHTS. For each country, we compute the range of CF values, i.e., we compute the difference between the maximum and minimum value of CF for banks in each country. We then plot the value of each country's level of shareholder rights (RIGHTS) in increasing order. As shown, countries with higher values of RIGHTS tend to have less dispersion of CF observations across banks.

The results in panels B and C of Table 3 further show that countries with above-median official supervisory power and capital restrictions do not have lower control and cash-flow rights. For example, in countries with above-median official supervisory power, controlling owners hold, on average, 26% of bank cash-flow rights. This is almost identical to the average cash-flow rights held by controlling owners in countries with below-median official supervisory power. The data do, however, indicate that regulatory restrictions on banks and low supervisory independence are associated with greater control and cash-flow rights. In countries with comparatively independent bank supervisory agencies, more banks tend to be widely held and controlling owners hold a smaller percentage of bank cash-flow rights than in countries with below-median supervisory independence.

4. Legal protection, supervision, ownership and bank valuation

4.1. Preliminary results on bank valuation

Before turning to the regression results, we first summarize the association between measures of the market valuation of banks and indicators of (i) the legal protection of minority shareholders

and (ii) bank regulation. Table 4 panel A presents country averages of these key variables. Panels B and C provide information on how the valuation measures differ across different legal and regulatory regimes. As discussed above, we split the sample into countries with above-median

Table 4
Valuation, shareholder rights, and bank supervision

Country	Rights	Official	Restrict	Independence	Capital	Market-to-book	Tobin's Q
<i>Panel A: Medians</i>							
Argentina	4	11	9	1	3	0.94	0.99
Australia	4	11	8	4	3	2.04	1.08
Austria	2	13	5	1	5	1.34	1.02
Brazil	3	14	10	1	5	1.53	1.04
Canada	5	6	7	4	4	1.44	1.02
Chile	5	10	11	1	3	2.28	1.10
Colombia	3					0.97	1.00
Denmark	2	8	8	1	2	0.98	1.00
Egypt	2	12	13	4	3	0.73	0.98
Finland	3	8	7	1	4	1.06	1.00
France	3	7	6	3	2	1.19	1.01
Germany	1	10	5	4	1	0.73	0.99
Greece	2	10	9	1	3	1.84	1.07
Hong Kong	5					0.92	0.99
India	5	8	10	3	3	0.49	0.97
Indonesia	2	12	14	2	5	0.88	0.99
Ireland	4	9	8	4	1	1.69	1.04
Israel	3	8	13	2	3	0.75	0.99
Italy	1	6	10	2	4	1.15	1.01
Japan	4	12	13	3	4	1.30	1.01
Jordan	1		11		5	1.07	1.01
Kenya	3	14	10	2	4	0.51	0.90
Korea, Republic of	2	9	9	2	3	1.04	1.00
Malaysia	4	11	10	3	3	1.24	1.03
Mexico	1	9	12	1	4	0.97	1.00
Netherlands	2	8	6	4	3	1.73	1.03
Norway	4					0.67	0.97
Pakistan	5					0.66	0.98
Peru	3	12	8	3	3	0.54	0.96
Philippines	3	11	7	1	1	0.73	0.95
Portugal	3	13	9	4	3	1.38	1.02
Singapore	4	3	8	3	1	1.56	1.06
South Africa	5	4	8	2	4	1.62	1.04
Spain	4	9	7	3	4	2.21	1.07
Sri Lanka	3	11	7	2	0	0.39	0.97
Sweden	3	6	9	3	3	1.70	1.03
Switzerland	2	13	5	3	3	2.39	1.05
Taiwan	3	8	12	2	2	0.89	0.99
Thailand	2	10	9	2	4	1.24	1.01
Turkey	2	11	12	4	1	1.49	1.03
United Kingdom	5	11	5	4	3	2.34	1.06
United States	5	13	12	4	4	2.14	1.09
Venezuela	1	13	10	3	3	0.86	0.98
Zimbabwe	3					3.60	1.18
Country mean	3.09	9.84	9.03	2.55	3.05	1.30	1.02

(continued on next page)

Table 4 (continued)

Country	Rights	Official	Restrict	Independence	Capital	Market-to-book	Tobin's <i>Q</i>
<i>Panel B: Group medians</i>							
Low rights	2					1.00	1.00
High rights	5					1.47	1.03
Low official		8				1.22	1.01
High official		12				1.18	1.01
Low restrict			8			1.43	1.02
High restrict			12			0.98	1.00
Low independence				2		1.00	1.00
High independence				4		1.41	1.02
Low capital					3	1.10	1.01
High capital					4	1.24	1.02
<i>Panel C: Test of Medians (z-statistic)</i>							
Low versus high rights	−13.49***					−3.86***	−4.31***
Low versus high official		−12.78***				−0.15	0.23
Low versus high restrict			−12.94***			3.71***	3.14***
Low versus high independence				−13.14***		−3.29***	−3.13***
Low versus high capital					−12.99***	−0.94	−1.01

Note. This table classifies countries according to their ranking in shareholder rights. Panel A presents medians by country of the index of shareholder rights, the bank regulatory variables, market-to-book value and Tobin's *Q* ratio. The sample includes the ten largest publicly traded banks in terms of total assets in each country at the end of December 2001, when available. The number of banks is 244. Panel B reports group medians for low and high values for shareholder rights and the bank regulatory variables. Panel C reports test of medians for low versus high values for shareholder rights and the bank supervision variables. Table 1 defines the variables.

*** Significant at the 1% level.

shareholder rights and below-median shareholder rights and analyze bank valuations. Similarly, for each bank regulatory and supervisory indicator, we split the sample into countries with above-median values and below-median values for these indicators. Panel B provides summary statistics and Panel C tests whether bank valuation differs significantly across these legal and regulatory characteristics.

Countries with low levels of shareholder rights have significantly lower bank valuations as measured by both market-to-book value and by Tobin's *Q* (Table 4 panel C). This is consistent with the view that investors in countries with weak shareholder rights are willing to pay less for banks than potential shareholders in countries with strong shareholder rights.

The tests in Table 4 panel C further indicate that bank valuations do not differ significantly across high and low levels of both official supervisory power and capital restrictions. These summary statistics do not indicate that investors in countries with powerful supervisory agencies or stringent capital requirements are willing to pay more for banks than countries with weaker supervisory agencies and less stringent capital requirements. This initial look at the data also does not support the view that powerful official supervision increases fears that the government will expropriate bank resources with adverse implications on bank valuations. Interestingly, countries with fewer restrictions on bank activities tend to have higher bank valuations than countries that impose greater regulatory restrictions on bank activities. Also, supervisory independence is

positively associated with bank valuations. Finally, in unreported, reduced form regressions of bank valuations on shareholder rights and the bank regulatory variables we find a strong positive relationship between bank valuations and shareholder rights, but no link between bank valuations and the regulatory indicators.

4.2. Regression results

To assess the impact of governance mechanisms on bank valuations, we regress bank valuation on the legal protection of minority shareholders, bank regulation policies, the cash flow and control rights of controlling shareholders, bank-specific traits, and various interaction terms.

We estimate all regressions using country random effects. Fixed effects are not feasible in our setup given that there is no within-country variation in the shareholder rights and bank regulation variables. Below, however, we control for an array of country-specific characteristics such as the level of economic and institutional development, differences in legal system design, the level of corruption, and differences in deposit insurance policies. The random effects specification is supported by Breusch and Pagan's (1979) Lagrange multiplier tests, which strongly reject the null hypothesis that errors are independent within countries. The random effects estimator does not treat banks within a country as independent observations and therefore adjusts the standard errors to reflect the cross-correlation produced by common country components.

We control for net loan growth (LOAN GROWTH), the degree of state ownership of banks, and a wide-array of other variables in the regressions. LOAN GROWTH proxies for a bank's growth opportunities. Below, we consider additional measures of growth opportunities. If the state controls the bank, it may exert different influences over the bank from those exerted by a private controlling owner. We therefore add a dummy variable that equals one if the state is the controlling owner of the bank, and zero otherwise. In robustness tests, we also control for the competitiveness of the banking market by using measures of regulatory impediments to new bank entry from the Barth et al. (2004) database. Specifically, we include (i) an index of the number of regulatory procedures required to obtain a banking license and (ii) an indicator of the fraction of bank entry applications that the country's regulatory agency denies. Including these variables does not alter any of this paper's findings. Furthermore, as described below, we include an assortment of other bank-specific and country-specific controls.

Table 5 examines the relationship between bank valuation (MARKET-TO-BOOK) and shareholder rights (RIGHTS), cash-flow rights (CF), and the interaction between shareholder rights and cash-flow rights (CF * RIGHTS), while controlling for net loan growth (LOAN GROWTH) and whether the state is the controlling shareholder (STATE).⁵ It is important to control for whether the state is the controlling owner because banks where the state is the controlling owner also tend to have concentrated cash-flow rights as shown in panel B of Table 5. Thus, we evaluate the independent relationship between CF and valuations conditional on state ownership. Due to missing observations on LOAN GROWTH, we have a maximum of 42 countries and 213 banks in the regressions.

The Table 5 regressions provide three key results on the link between bank valuation, ownership, and the legal protection of minority shareholders. First, higher levels of cash-flow rights by a controlling shareholder boost bank valuations. This is consistent with theories predicting that the incentives for controlling owners to exploit the benefits of control diminish as cash-flow

⁵ Another work by Barth et al. (2004) assumes that the State controls banks when the State owns more than 50 percent of the shares. Using this definition does not change the results.

Table 5
Investor protection and valuation of banking firms

	(1)	(2)	(3)	(4)	(5)	(6)
Loan growth	0.266 (0.379)	0.269 (0.364)	0.086 (0.325)	0.076 (0.326)	0.062 (0.328)	0.045 (0.329)
Rights	0.308*** (0.055)	0.304*** (0.056)	0.218*** (0.085)	0.217** (0.085)	0.219*** (0.081)	0.214*** (0.082)
CF	2.267*** (0.596)	2.318*** (0.602)	1.515*** (0.566)	1.553*** (0.572)	1.605*** (0.570)	1.633*** (0.574)
CF * Rights	−0.889*** (0.153)	−0.864*** (0.164)	−0.580*** (0.182)	−0.577*** (0.182)	−0.596*** (0.182)	−0.584*** (0.182)
State		−0.165 (0.125)		−0.070 (0.137)		−0.093 (0.138)
Wedge					0.307 (0.861)	0.228 (0.868)
Wedge * Rights					0.091 (0.258)	0.116 (0.261)
Breusch–Pagan test: χ^2 -statistic			47.25	45.50	38.74	38.11
Breusch–Pagan test: p -value			0.000	0.000	0.000	0.000
Observations	213	213	213	213	213	213
R-squared	0.20	0.21	0.20	0.20	0.20	0.20
Number of countries	42	42	42	42	42	42

Correlation matrix

	Market-to-book	Loan growth	State	CF	Wedge	Rights	CF * Rights	Wedge * Rights
Market-to-book	1							
Loan growth	0.054	1						
State	−0.187***	−0.034	1					
CF	−0.180***	−0.110	0.490***	1				
Wedge	0.165***	−0.028	−0.066	−0.096	1			
Rights	0.164**	0.152**	−0.041	−0.204***	0.043	1		
CF * Rights	−0.242***	−0.017	0.504***	0.876***	−0.043	0.131**	1	
Wedge * Rights	0.190***	0.007	−0.041	−0.086	0.950***	0.148**	−0.010	1

Note. Sample of 10 largest listed banks in the country in terms of total assets, if available. Dependent variable is market-to-book value of the bank's equity of a bank. Loan growth is the bank's average net loan growth during the last 3 years. Rights is an index of anti-director rights for the country. CF is the fraction of the bank's ultimate cash-flow rights held by the controlling owners and zero if there is no controlling owner. State is a dummy variable that indicates whether the state is the controlling shareholder in the bank. Wedge is the difference between the control rights and the cash-flow rights held by the controlling owners of the bank and zero if there is no controlling owner. We use 10 percent as the criteria for control. All bank-level data are for the year 2001. Columns (1)–(2) are estimated using OLS. Columns (3)–(6) are estimated using random country-effects. Robust standard errors are in parentheses. The Breusch–Pagan (1979) test is a Lagrange multiplier test of independent errors within countries.

** Significant at the 5% level.

*** Idem, 1%.

rights increase. Second, greater legal protection of minority shareholders rights improves the valuation of banks. This is consistent with the view that weak protection of minority shareholders induces the marginal investor to pay less for bank equity. Third, greater cash-flow rights by a controlling shareholder is particularly positive for the valuation of banks in countries with weak legal protection of minority shareholder rights. Thus, the interaction term (CF * RIGHTS) enters negatively and highly significantly. Put differently, high levels of cash-flow rights are less im-

portant for the valuation of banks in countries with strong minority shareholder rights. While the first two results are consistent with La Porta et al.'s (2002) finding on non-financial corporations, the strong, robust results on the interaction term are consistent with the theory in La Porta et al. (2002) but more robust than their empirical findings for non-financial corporations. The loan growth and state ownership variables do not enter significantly, and we obtain similar results if we exclude them from the regressions. Furthermore, we control for the difference between a controlling owner's control and cash-flow rights. Large values of this "wedge" may reflect both an owner's ability (large voting rights) and incentives (small cash-flow rights) to expropriate bank resources. Nonetheless, as reported in columns (5) and (6) of Table 5, controlling for WEDGE and the interaction of WEDGE with RIGHTS does not alter the paper's findings.

The economic effects can be large. For instance, using regression 4 in Table 5, the direct impact (i.e., excluding the interaction term) of a one-standard deviation increase in shareholder protection laws (1.25) equals 0.27, which is 20 percent of the mean value of the market-to-book value in our sample of banks. Similarly, the direct impact of a one-standard deviation increase in cash-flow rights (0.27) equals 0.42, which is 31 percent of the mean value of the market-to-book value. When accounting for the interaction term, there exist circumstances when a marginal increase in shareholder protection laws or cash-flow rights will decrease the market-to-book value. For example, a one-standard deviation increase in cash-flow rights (0.27) evaluated at the sample mean of shareholder rights (3.16) would induce a drop in market-to-book value of 0.07, which is 5 percent of the mean value of the market-to-book value in our sample of banks. If shareholder protection laws are strong (taking the maximum value of 6), then a one-standard deviation increase in CF will induce an even larger drop in the market-to-book value of 0.52, which is 39 percent of the mean value of the market-to-book value. When we increase both cash-flow rights and shareholder rights by one standard deviation, the impact on the market-to-book value is 0.50, which is 37 percent of the mean value of the market-to-book value.

In Table 6, we also include the regulation variables. This provides information on the relationship between commercial bank regulations and bank valuations. Moreover, by controlling for bank regulation, we test the robustness of the earlier findings on the legal rights of minority shareholders, cash-flow rights, and the interaction between cash-flow rights and shareholder rights.

First, the results of Table 6 indicate that the earlier findings on shareholder rights and cash-flow rights are robust to including indicators of bank regulation. Including regulation indicators does not change the earlier results at all.

Second, the bank regulation variables do not enter significantly. That is, on net, supervisory power, the stringency of capital requirements, regulatory restrictions on bank activities, and independence of the supervisory authority do not influence bank valuations. As noted, it could be that regulations (1) reduce expropriation, with positive ramifications on valuations, but (2) reduce risk-taking below the optimum from the perspective of shareholders, with negative valuation effects. We now provide information on the potential influence of regulation through these two offsetting channels.

5. Extensions and robustness

5.1. Regulation: expropriation, risk reduction, and institutions

This sub-section presents three extensions of the results on the regulation of banks. First, regulation may influence bank valuations through at least two channels. Effective regulation may

Table 6
Investor protection, bank supervision, and valuation of banking firms

	(1)	(2)	(3)	(4)
Loan growth	−0.113 (0.349)	−0.043 (0.335)	−0.143 (0.348)	0.001 (0.336)
State	−0.197 (0.156)	−0.138 (0.147)	−0.200 (0.156)	−0.166 (0.145)
CF	1.929*** (0.624)	1.893*** (0.601)	1.954*** (0.624)	1.734*** (0.603)
Rights	0.296*** (0.085)	0.282*** (0.080)	0.279*** (0.089)	0.283*** (0.077)
CF * Rights	−0.689*** (0.202)	−0.682*** (0.196)	−0.688*** (0.202)	−0.644*** (0.195)
Official	0.018 (0.033)			
Restrict		−0.036 (0.035)		
Independence			0.053 (0.085)	
Capital				0.100 (0.067)
Observations	187	194	187	194
Number of countries	36	37	36	37

Note. Sample of 10 largest listed banks in the country in terms of total assets, if available. Dependent variable is market-to-book value of the bank's equity of a bank. Loan growth is the bank's average net loan growth during the last 3 years. Rights is an index of anti-director rights for the country. CF is the fraction of the bank's ultimate cash-flow rights held by the controlling owners and zero if there is no controlling owner. State is a dummy variable that indicates whether the state is the controlling shareholder in the bank. We use 10 percent as the criteria for control. Official is an index of official supervisory power. Restrict is an index of activity restrictions. Independence is an index of overall supervisory independence. Capital is an index of capital regulation. All bank-level data are for the year 2001. Regressions are estimated using random country-effects. Standard errors in parentheses.

*** Significant at the 1% level.

reduce fears of expropriation and thereby exert a positive influence on bank valuations. However, especially in the presence of deposit insurance, regulation may reduce bank risk below the level desired by shareholders and thereby exert a negative influence on bank valuations. Although we demonstrated that the net impact of regulation on bank values is negligible, the net results may hide the separate impacts of regulation on expropriation and risk taking. Thus, regulation might effectively impede expropriation and reduce risk-taking but empirically we may be aggregating away these positive and negative effects on valuations.

Consequently, we examine an alternative econometric specification that allows regulation to exert a direct positive impact on valuations (to capture the expropriation channel) and an indirect negative impact on bank valuations (to capture the risk-reducing channel). We include an indicator of the generosity of the deposit insurance regime that was constructed by Demirgüç-Kunt and Detragiache (2002) and is termed MORAL HAZARD. Plus, we interact MORAL HAZARD with the regulation variables. If the risk-reducing channel is important, then effective regulation should exert an indirect negative impact on valuations in the presence of a more generous, government-sponsored deposit insurance regime. Thus, if the risk-reducing channel is important, then the interaction term of MORAL HAZARD with the regulation variables should enter

negatively. At the same time, if regulation effectively impedes expropriation, then the regulation variables should enter positively. Thus, we allow for both channels to operate.

Most importantly for this paper's purposes, we continue to obtain the same conclusions on shareholder protection laws, cash-flow rights, and the interaction between shareholder protection laws and cash-flow rights (Table 7). Furthermore, we do not find that regulations operate through either the expropriation or risk-reduction channels. Regulations do not exert a positive

Table 7
Controlling for moral hazard

	(1)	(2)	(3)	(4)	(5)
Loan growth	−0.158 (0.359)	−0.190 (0.351)	−0.185 (0.354)	−0.174 (0.357)	−0.259 (0.350)
State	−0.136 (0.186)	−0.067 (0.187)	−0.139 (0.186)	−0.131 (0.186)	−0.211 (0.186)
CF	1.679*** (0.630)	1.719*** (0.624)	1.711*** (0.627)	1.695*** (0.639)	1.646*** (0.617)
Rights	0.272*** (0.088)	0.238*** (0.092)	0.266*** (0.088)	0.268*** (0.086)	0.271*** (0.083)
CF * Rights	−0.653*** (0.207)	−0.653*** (0.205)	−0.667*** (0.205)	−0.662*** (0.209)	−0.589*** (0.205)
Moral hazard	−0.051 (0.143)	−0.245 (0.182)	−0.093 (0.097)	−0.058 (0.115)	0.003 (0.042)
Official	0.025 (0.034)				
Official * Moral hazard	0.000 (0.014)				
Restrict		−0.059 (0.040)			
Restrict * Moral hazard		0.020 (0.018)			
Independence			−0.009 (0.093)		
Independence * Moral hazard			0.018 (0.034)		
Capital				0.018 (0.090)	
Capital * Moral hazard				0.004 (0.035)	
CF * Moral hazard					−0.201** (0.094)
Observations	155	155	155	155	155
Number of countries	31	31	31	31	31

Note. Sample of 10 largest listed banks in the country in terms of total assets, if available. Dependent variable is market-to-book value of the bank's equity of a bank. Loan growth is the bank's average net loan growth during the last 3 years. Rights is an index of anti-director rights for the country. CF is the fraction of the bank's ultimate cash-flow rights held by the controlling owners and zero if there is no controlling owner. State is a dummy variable that indicates whether the state is the controlling shareholder in the bank. We use 10 percent as the criteria for control. Official is an index of official supervisory power. Restrict is an index of activity restrictions. Independence is an index of overall supervisory independence. Capital is an index of capital regulation. Moral hazard is an index of the generosity of the deposit insurance regime in the country. All bank-level data are for the year 2001. Regressions are estimated using random country-effects. Standard errors in parentheses.

** Significant at the 5% level.

*** Idem, 1%.

impact on bank valuations by reducing expropriation, nor do they exert a negative impact on bank valuations by reducing bank risk below the level desired by shareholders. As an additional robustness test, we include the interaction between CF and MORAL HAZARD in regression 5 of Table 7. We expected generous deposit insurance would be particularly beneficial to bank valuations in banks where owners have the incentives and ability to exploit this insurance, that is, in banks where a controlling owner has high cash-flow rights. However, this interaction term enters negatively and significantly, indicating that generous deposit insurance in the presence of large cash-flow rights is associated with lower bank valuations. While the sign on the interaction term is puzzling, the paper's core results are unchanged: CF enters positively, RIGHTS enters positively, and CF * RIGHTS enters negatively. While not capturing all mechanisms through which regulation may positively and negatively influence bank valuations, these regressions confirm the paper's findings.

The second extension of the results on bank regulation focuses on broad, national institutions. Perhaps regulation only improves the corporate governance of banks when there are good national institutions, such as low levels of government corruption, efficiently operating bureaucracies, or responsive political systems. To assess this possibility, we added (1) an institutional indicator and (2) the interaction between the institutional indicator and the relevant regulatory variable to the regressions in Table 6. As an institutional indicator, we used Kaufman et al.'s (1999) aggregate institutional development index, which is calculated as the average of six indicators: voice and accountability in the political system, political stability, government effectiveness, regulatory quality, rule of law, and the absence of official corruption. Though not reported in the tables, in no case did the bank regulation variables or the interaction term between institutional development and the regulation variables enter significantly. Moreover, in no case did adding these variables alter the results on cash-flow rights, shareholder rights, or the interaction between them.

Third, we were also concerned that regulations might only enhance bank valuations when shareholder protection laws (RIGHTS) are weak. We tested this by adding the interaction term RIGHTS multiplied by the relevant regulatory variable to each regression in Tables 6 and 7. In unreported regressions, we never find that the regulatory variable or the interaction term enters significantly. Moreover, adding these interaction terms did not alter this paper's main findings.

5.2. Endogeneity

We have assumed that cash-flow rights are exogenous. As argued by La Porta et al. (2002), ownership patterns are very stable and largely determined by the particular histories of the corporations. Nevertheless, as shown, cash-flow rights vary systematically across countries, depending on national legal and regulatory systems. We address potential concerns about the endogeneity of cash-flow rights in two ways.

First, we use bank-level instrumental variables for cash-flow rights (CF) in Table 8. It is difficult to construct instruments that both explain a bank's cash-flow rights and are not affected by innovations in bank valuations. In regressions 1–4, for each bank, we use the average cash-flow rights of the other banks in the country as an instrument for its cash-flow rights. We exclude countries with only one bank from these instrumental variable regressions, because we can only compute this instrumental variable for countries with more than one bank. This instrument captures industry and country effects on a bank's CF. A positive feature of this instrument is that innovations in the valuation of one bank are unlikely to affect the CF of other banks. One risk, however, is that if exogenous shocks affect bank ownership structure and valuations across all

Table 8
Instrumental variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
State	−0.100 (0.154)	−0.070 (0.145)	−0.100 (0.154)	−0.100 (0.144)	0.299 (0.283)	0.087 (0.306)	0.007 (0.136)
CF	1.614** (0.695)	1.676** (0.669)	1.644** (0.691)	1.575** (0.669)	2.500* (1.492)	6.512*** (1.740)	2.826*** (1.048)
Rights	0.270*** (0.082)	0.259*** (0.078)	0.251*** (0.085)	0.256*** (0.077)	0.336*** (0.109)	0.638*** (0.132)	0.270** (0.113)
CF * Rights	−0.611*** (0.226)	−0.630*** (0.219)	−0.612*** (0.226)	−0.603*** (0.218)	−1.288*** (0.378)	−2.377*** (0.438)	−1.065*** (0.372)
Official	0.023 (0.032)						
Restrict		−0.034 (0.033)					
Independence			0.055 (0.081)				
Capital				0.086 (0.063)			
Observations	213	220	213	220	244	212	244
R-squared	0.22	0.21	0.21	0.23	0.14	0.18	0.16
Number of countries	35	36	35	36	44	42	44

Note. Sample of 10 largest listed banks in the country in terms of total assets, if available. Dependent variable is market-to-book value of the bank's equity of a bank. CF is the fraction of the bank's ultimate cash-flow rights held by the controlling owners and zero if there is no controlling owner. State is a dummy variable that indicates whether the state is the controlling shareholder in the bank. We use 10 percent as the criteria for control. Official is an index of official supervisory power. Restrict is an index of activity restrictions. Independence is an index of overall supervisory independence. Capital is an index of capital regulation. All bank-level data are for the year 2001. Regressions are estimated with instrumental variables using the Baltagi (1981) error component two-stage least square random-effects estimator. In columns (1) to (4), we use the average CF of other banks in the country as instrument for CF. In column (5), we use total assets of the bank as instrument for CF. In column (6), we use the bank's total assets, Tobin's Q , loan growth, and deposits-to-assets ratio as instruments for CF. Loan growth is the bank's average net loan growth during the last 3 years. In column (7), we use a dummy variable that takes a value of one if the origin of the country's legal system is English (common law), and zero otherwise (civil law) as instrument for Rights. For all of the first-stage regressions reported in this table, we reject that null hypothesis that the exogenous variables do not explain endogenous regressors at the one percent significance level. In columns (1) to (4), we exclude countries with one bank. Standard errors in parentheses.

* Significant at the 10% level.

** Idem, 5%.

*** Idem, 1%.

banks in an economy in a similar manner, then this instrumental variable will not identify the exogenous impact of a bank's CF on its valuation. We do not believe this risk is very large, however, because (i) bank ownership structure changes very little over time and is not correlated across banks within a country (Laeven and Levine, 2006), (ii) the results hold when controlling for numerous country traits that may influence valuations, and (iii) the results hold when using alternative sets of instrumental variables. In practice, this instrument enters the first-stage regression for cash-flow rights significantly at the five percent level. Since the standard regressions also include the interaction term, CF * RIGHTS, we instrument for this term as well. We include the interaction term RIGHTS with the average cash flow of the other banks in the instrument set. This interaction term also enters the first-stage regression for CF * RIGHTS significantly at the five percent level. In regressions 1–4 the system is exactly identified, i.e., the number of excluded exogenous variables equals the number of endogenous regressors, and therefore we cannot per-

form a test of over-identifying restrictions. In each of these first stage regressions, the F -test of the null hypothesis that the exogenous variables do not explain the endogenous variables is rejected at the one percent significance level.

In regressions 5 and 6, we use two different sets of instrumental variables based on the work of Demsetz and Lehn (1985) and Demsetz and Villalonga (2001). Demsetz and Lehn (1985) argue that ownership structure and performance are endogenously determined and they use firm size as an instrument for ownership in assessing the relationship between ownership structure and Tobin's Q . Thus, in regression 5, we use the total assets of each bank as an instrument for CF, so that the system is again exactly identified. In the first-stage regression, total assets enters significantly at the five percent level and we reject the null hypothesis that the exogenous variables do not explain CF at the one percent level.

In regression 6, we base the choice of instruments on the analyses of Demsetz and Villalonga (2001) who examine the impact of ownership structure on corporate valuations. Following their work, we include the following instrumental variables: (a) financial leverage (as measured by the ratio of deposits to assets) to control for the possibility that creditors (depositors) provide some of the monitoring of management that would have otherwise come from shareholders, which could affect ownership structure, (b) loan growth is included to control for bank risk-taking, which might also influence ownership structure, (c) the total assets of each banks is included since larger bank size requires more investment from an owner of a given fraction of equity, which suggests that CF will be smaller in larger banks, and (d) Tobin's Q is also included to allow for reverse causation.⁶ The instrumental variables enter jointly significantly and we again reject the null hypothesis that the instruments do not explain CF at the one percent significance level.

Furthermore, there may be concerns that bank valuations influence the laws that countries construct. Or, a country-specific factor could be driving both the country-specific component of banks' market valuations and the country's shareholder protection laws. Consequently, we also instrument for RIGHTS in regression 7. Based on a large literature surrounding the exogenous determinants of the legal protection of shareholder rights, we use a dummy variable of whether the country is a common law country as an instrument for RIGHTS. This dummy variable does a good job in accounting for cross-country differences in RIGHTS, which is summarized in Beck and Levine (2005). In our first-stage regressions, the legal origin dummy variable enters significantly at the five percent level and we reject the F -test that the exogenous variables do not explain RIGHTS at the one percent level.

We conduct the instrumental variables analyses without loan growth in the regressions since loan growth is a bank-level variable with potential endogeneity concerns. Moreover, adding loan growth to the regressions does not alter our conclusions, and as above, loan growth does not enter the regressions significantly. The instrumental variables results are based on the Baltagi (1981) two-stage least square random-effects estimator.

The instrumental variable results in Table 8 confirm the earlier findings: (i) the cash-flow rights variable enters positively and significantly, (ii) the shareholder rights variable enters positively and significantly, (iii) the interaction term between cash-flow rights and shareholder rights enters negatively and significantly, and (iv) the regulation variables do not enter significantly.

As a second approach to assessing the importance of simultaneity bias, we focus only on within-country variation in cash-flow rights. Thus, we de-mean the cash-flow rights variable by

⁶ Since there does not exist a test of over-identifying restrictions for systems estimated using random effects, we were unable to conduct further validity tests beyond using different sets of instrumental variables and discussing the first-stage results.

the country mean to focus only on cross-bank differences in cash-flow rights and abstract from cross-country differences in cash-flow rights. Using de-meaned cash flow, we confirm our earlier findings. In unreported regressions, the de-meaned CF (CFD) and the interaction term (CFD * RIGHTS) continue to enter with significantly positive and negative coefficients, respectively. When using CFD, the results on RIGHTS weaken somewhat, implying that the inclusion of the cross-country component of CF is important for the significance of RIGHTS when including the interaction term between CFD and RIGHTS. In sum, these results with de-meaned CF suggest that our earlier findings—that (i) greater cash-flow rights boost bank valuations and (ii) stronger shareholder protection laws mitigate the need for concentrated cash-flow rights—are not driven by simultaneity bias since the findings hold when focusing solely on the within-country variation.

5.3. Controlling for other country-level characteristics

To assess whether the shareholder rights variable is proxying for some other country trait, we include each country's level of real per capita Gross Domestic Product (PER CAPITA INCOME), an index of contract enforcement (ENFORCE), an index of the degree of official corruption in the economy (where higher values indicate less corruption) (CORRUPT), and an index of the law and order tradition of the country (LAW). We include these indicators to control for the level of economic and institutional development and the design and operation of the legal system beyond specific shareholder protection laws. If RIGHTS is simply proxying for “good” country-specific traits that boost bank valuations, then these control variables should drive out the significance of RIGHTS in the valuation regressions.

As shown in Table 9, we obtain the same results when controlling for the level of economic development and for country-level indicators of the degree of institutional development. Thus, RIGHTS does not seem to be a general proxy for economic and institutional development. We also tried splitting the sample at the median based on per capita gross domestic product to assess whether the relationships among bank valuations, shareholder protection laws, and ownership concentration differ for richer and poorer countries. As shown in Table 9 regressions 5 and 6, the earlier results hold for the poorer countries but not for the richer countries. This is not surprising. More than half of the banks in rich countries do not have a controlling shareholder. Thus, when we examine the subsample of rich countries, there is not enough cross-bank variation in CF to explain differences in valuation. As we show in the next table, however, we gain more power by including the interaction between CF and Per Capita Income in a single regression.

5.4. Interacting cash-flow rights with economic and institutional development

The marginal effect of cash-flow rights may depend on the country's level of income per capita, on the overall efficiency of its legal system, and on the degree of corruption. CF may have less of a positive impact on valuations in more developed economies. If RIGHTS is proxying for economic and institutional development, then the interaction between RIGHTS and CF should become insignificant when including the interaction between CF and general development indicators.

Table 10 shows that the results are robust to controlling for income per capita, legal system efficiency, corruption, and the interaction between CF and these development indicators. Per capita income enters positively and significantly and the interaction between CF and per capita income enters negatively and significantly. This suggests that more developed economies tend to have more highly valued banks, but the positive impact of cash-flow rights diminishes as countries develop.

Table 9
Additional country-level controls

	(1)	(2)	(3)	(4)	(5) High income	(6) Low income
Loan growth	0.071 (0.325)	0.055 (0.332)	0.093 (0.327)	0.073 (0.324)	−0.766 (0.498)	0.376 (0.446)
State	−0.045 (0.137)	−0.077 (0.143)	−0.061 (0.137)	−0.056 (0.136)	0.014 (0.235)	−0.163 (0.187)
CF	1.482*** (0.572)	1.514** (0.608)	1.535*** (0.573)	1.510*** (0.570)	0.065 (0.802)	2.601*** (0.907)
Rights	0.206** (0.086)	0.215** (0.089)	0.216** (0.086)	0.200** (0.086)	0.151 (0.099)	0.314** (0.157)
CF * Rights	−0.544*** (0.183)	−0.545*** (0.199)	−0.561*** (0.184)	−0.547*** (0.183)	−0.184 (0.252)	−0.844*** (0.300)
Per capita income	0.098 (0.065)					
Enforce		0.070 (0.046)				
Corrupt			0.075 (0.099)			
Law				0.060* (0.036)		
Observations	213	207	213	213	106	107
Number of countries	42	41	42	42	20	22

Note. Sample of 10 largest listed banks in the country in terms of total assets, if available. Dependent variable is market-to-book value of the bank's equity of a bank. Loan growth is the bank's average net loan growth during the last 3 years. Rights is an index of anti-director rights for the country. CF is the fraction of the bank's ultimate cash-flow rights held by the controlling owners and zero if there is no controlling owner. State is a dummy variable that indicates whether the state is the controlling shareholder in the bank. We use 10 percent as the criteria for control. Per capita income is the log of GDP per capita. Enforce is an index of enforcement of contracts. Corrupt is an index of corruption. Law is a measure of law and order tradition. In column (5), we run the regression on the subset of countries with above median level per capita income. In column (6), we run the regression on the subset of countries with below median level per capita income. All bank-level data are for the year 2001. Regressions are estimated using random country-effects. Standard errors in parentheses.

* Significant at the 10% level.

** Idem, 5%.

*** Idem, 1%.

5.5. Additional bank-level controls

Cash-flow rights concentration could proxy for other bank-specific traits that influence valuations. For instance, if a bank is so large that regulators believe that it is “too-big-to-fail,” then the market will attach a value to this implicit protection that will be reflected in the share price of the bank. If ownership structure (CF) is correlated with bank size and a too-big-to-fail premium, this could lead to spurious results unless we control for the too-big-to-fail effect. Consequently, in regression (1) of Table 11, we include a dummy variable called TOO-BIG-TO-FAIL, which equals one if the deposits of the banks are greater than ten percent of the total deposits in the country and zero otherwise. (We experimented with larger cut-offs, obtaining similar results.) Furthermore, a range of other bank-specific traits could be related to both bank valuations and ownership concentration. For instance, whether the bank is heavily capitalized, whether there are large provisions against bad loans, the current profitability of the bank, the liquidity structure

Table 10

Interactions between CF and other country-level controls

	(1)	(2)	(3)	(4)
Loan growth	0.155 (0.325)	0.091 (0.333)	0.141 (0.329)	0.109 (0.326)
State	−0.079 (0.137)	−0.080 (0.143)	−0.063 (0.137)	−0.056 (0.136)
CF	4.110*** (1.409)	2.279** (0.921)	3.424** (1.630)	2.026*** (0.731)
Rights	0.187** (0.087)	0.205** (0.091)	0.206** (0.086)	0.188** (0.087)
CF * Rights	−0.518*** (0.183)	−0.535*** (0.199)	−0.546*** (0.184)	−0.521*** (0.184)
Per capita income	0.178** (0.077)			
CF * Per capita income	−0.300** (0.147)			
Enforce		0.097* (0.052)		
CF * Enforce		−0.111 (0.100)		
Corrupt			0.154 (0.118)	
CF * Corrupt			−0.279 (0.226)	
Law				0.082** (0.041)
CF * Law				−0.089 (0.078)
Observations	213	207	213	213
Number of countries	42	41	42	42

Note. Sample of 10 largest listed banks in the country in terms of total assets, if available. Dependent variable is market-to-book value of the bank's equity of a bank. Loan growth is the bank's average net loan growth during the last 3 years. Rights is an index of anti-director rights for the country. CF is the fraction of the bank's ultimate cash-flow rights held by the controlling owners and zero if there is no controlling owner. State is a dummy variable that indicates whether the state is the controlling shareholder in the bank. We use 10 percent as the criteria for control. Per capita income is the log of GDP per capita. Enforce is an index of enforcement of contracts. Corrupt is an index of corruption. Law is a measure of law and order tradition. All bank-level data are for the year 2001. Regressions are estimated using random country-effects. Standard errors in parentheses.

* Significant at the 10% level.

** Idem, 5%.

*** Idem, 1%.

of the bank, and the size of the bank could all influence both valuations and ownership. Thus, regression (2) in Table 11 includes (i) the capital–asset ratio, (ii) the ratio of the bank's loan loss provisions to interest income, (iii) the total assets of the bank, (iv) the ratio of total operating expenses to total operating income, and (v) the ratio of bank's liquid assets to liquid liabilities, and total assets. We call this regression the CAMEL regression since these bank-specific traits are associated with capital adequacy, asset quality, earnings, and liquidity of the bank.

The Table 11 results indicate that controlling for these other bank-specific characteristics does not change the findings. In particular, TOO-BIG-TO-FAIL enters positively and significantly as expected. Being too-big-to-fail creates a premium for which the market is willing to pay. Controlling for TOO-BIG-TO-FAIL, however, does not change the findings on CF, RIGHTS,

Table 11
Additional bank-level controls

	(1) Too-big-to-fail	(2) CAMEL
Loan growth	0.208 (0.324)	−0.133 (0.331)
State	−0.102 (0.135)	−0.063 (0.149)
CF	1.735*** (0.566)	1.398** (0.595)
Rights	0.229*** (0.083)	0.202** (0.085)
CF * Rights	−0.605*** (0.180)	−0.490*** (0.187)
Too-big-to-fail	0.255*** (0.091)	
Capital–asset ratio		−0.032*** (0.012)
Loan loss provision ratio		−0.685*** (0.220)
Cost–income ratio		−0.543* (0.312)
Liquidity ratio		1.605 (1.756)
Total assets		0.000 (0.000)
Observations	213	168
Number of countries	42	37

Note. Sample of 10 largest listed banks in the country in terms of total assets, if available. Dependent variable is market-to-book value of the bank's equity of a bank. Loan growth is the bank's average net loan growth during the last 3 years. Rights is an index of anti-director rights for the country. CF is the fraction of the bank's ultimate cash-flow rights held by the controlling owners and zero if there is no controlling owner. State is a dummy variable that indicates whether the state is the controlling shareholder in the bank. We use 10 percent as the criteria for control. Too-big-to-fail is a dummy variable that takes a value of one if the bank's share in the country's total deposits exceeds 10%. Data on total deposits of deposit-taking institutions in the country is obtained from the IFS data of the IMF. Capital–asset ratio is the ratio of the bank's equity to total assets. Loan loss provision ratio is the ratio of the bank's loan loss provisions to net interest income. Cost–income ratio is the ratio of the bank's total operating expenses to total operating income. Liquidity ratio is the ratio of the bank's liquid assets to liquid liabilities. Total assets is the bank's total assets in thousands of US dollars. All bank-level data are for the year 2001. Regressions are estimated using random country-effects. Standard errors in parentheses.

* Significant at the 10% level.

** Idem, 5%.

*** Idem, 1%.

or the interaction between CF and RIGHTS. Similarly, when we control for the broad range of bank-specific traits associated with CAMEL, we continue to find that RIGHTS and CF boost valuations, but the marginal effect of each diminishes as the other increases. That is, CF has less of a positive impact on valuations in economies with strong shareholder protection laws.

5.6. Controlling for growth opportunities

We were also concerned that net loan growth might not fully control for the growth opportunities of banks. Growth opportunities will affect valuations and may also influence ownership

concentration. Furthermore, if mergers and acquisitions (M&As) influence valuations and cash-flow rights, then omitting a proxy for M&As could also affect the validity of our estimates.

Consequently in Table 12, we include an assortment of controls for growth opportunities and a measure of M&A activity. In particular, we control for return on equity (ROE), the ROE over the last three years, the Tobin's Q of non-financial firms, the average return on assets and equity

Table 12
Controlling for growth opportunities

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Loan growth	0.003 (0.312)	−0.093 (0.304)	0.014 (0.332)	0.005 (0.333)	0.052 (0.326)	−0.064 (0.325)	0.074 (0.325)
State	−0.045 (0.131)	0.020 (0.128)	−0.070 (0.140)	−0.072 (0.140)	−0.073 (0.137)	−0.080 (0.135)	−0.048 (0.138)
CF	1.447*** (0.543)	1.247** (0.537)	1.454** (0.574)	1.899* (1.002)	1.552*** (0.568)	1.616*** (0.555)	1.467** (0.575)
Rights	0.195** (0.078)	0.151* (0.083)	0.203** (0.086)	0.201** (0.086)	0.203** (0.083)	0.198** (0.077)	0.198** (0.087)
CF * Rights	−0.540*** (0.173)	−0.482*** (0.172)	−0.531*** (0.185)	−0.543*** (0.186)	−0.583*** (0.181)	−0.609*** (0.176)	−0.543*** (0.184)
ROE	1.899*** (0.397)						
3-year average ROE		2.152*** (0.381)					
Tobin's Q of firms			0.506 (0.318)	0.576* (0.345)			
CF * Tobin's Q of firms				−0.377 (0.693)			
Country-average ROA					24.155* (14.067)		
Country-average ROE						3.010*** (0.924)	
M&A activity							0.006 (0.005)
Observations	213	213	209	209	213	213	213
Number of countries	42	42	41	41	42	42	42

Note. Sample of 10 largest listed banks in the country in terms of total assets, if available. Dependent variable is market-to-book value of the bank's equity of a bank. Loan growth is the bank's average net loan growth during the last 3 years. Rights is an index of anti-director rights for the country. CF is the fraction of the bank's ultimate cash-flow rights held by the controlling owners and zero if there is no controlling owner. State is a dummy variable that indicates whether the state is the controlling shareholder in the bank. We use 10 percent as the criteria for control. ROE is the ratio of bank-level pre-tax profits to the book value of equity. We winsorize observations at the 1st and 99th percentiles. 3-year average ROE is the average return on equity over the past three years. Tobin's Q of firms is the country-median Tobin's Q of non-financial firms in 2000. This variable is calculated using data from *Worldscope*. Tobin's Q is calculated as the market value of equity plus the book value of debt over the book value of equity and debt. Country-average ROA is the return on assets averaged across all banks in the country. Return on assets is calculated as pre-tax profits over total assets. Country-average ROE is the return on equity averaged across all banks in the country. M&A activity is the percentage of traded companies listed on the country's stock exchange that have been targeted in completed mergers or acquisitions deals during the 1990s. Source of the merger data is Rossi and Volpin (2004). All bank-level data are for the year 2001. Regressions are estimated using random country-effects.

* Significant at the 10% level.

** Idem, 5%.

*** Idem, 1%.

across all banks in the country, and the percentage of traded companies that have been targeted in completed mergers or acquisitions during the 1990s.⁷

As shown, controlling for these alternative measures of growth opportunities and this indicator of M&A activity does not affect the paper's results. CF and RIGHTS enter positively and significantly in all of the regressions, while the interaction term CF * RIGHTS enters negatively and significantly. Many of the growth opportunity proxy variables enter positively and significantly as expected, but this does not affect the paper's core results on ownership and shareholder protection laws.

We are also concerned that our shareholder rights variable may be proxying for growth opportunities of the country and that this drives the result we find on the interaction between CF and RIGHTS. However, when we include an interaction between CF and the Tobin's *Q* of non-financial firms (as a measure of growth opportunities in the country), the coefficient on the interaction between CF and RIGHTS is not significantly affected (regression 4 of Table 12).

5.7. Redefining variables and altering the sample

In this subsection, we examine the sensitivity of the results to altering the definition of some of our key variables and to changing the sample of countries and banks. First, as noted, some may argue that banks controlled by widely-held financial or non-financial corporations should be classified as widely held, not as having a controlling shareholder. Thus, as a robustness check, we reclassified banks. Banks were classified as having a controlling owner only if the controlling owner is a family or the state. Then, we use a dummy variable for state control in the regressions. This alternative definition of a controlling owner confirms the paper's findings.

Second, we examine control rights instead of cash-flow rights. Note that theoretical models by Shleifer and Wolfenzon (2002) and La Porta et al. (2002) focus on cash-flow rights. As cash-flow rights increase, expropriation by the controlling owner increasingly involves self-theft, so that stronger shareholder rights will exert less of a positive impact on bank valuations as the cash-flow rights of the controlling owner rises. Due to differences in control rights and cash-flow rights, control rights per se are logically not as directly linked to valuations. The results are consistent with these concepts. While shareholder rights, control rights, and the interaction term continue to enter with the same signs as the earlier results with cash-flow rights, the significance level is now weaker, especially on the interaction term between control rights and shareholder rights. Thus, as expected, the relationships among valuations, shareholder rights, and cash-flow rights are stronger than those with control rights.

Third, instead of using ten percent of a bank's voting rights as the minimum level necessary to be classified as having a controlling owner, we use twenty percent. This classifies more banks as widely held. The results with this alternative minimum control limit confirm the paper's findings.

Fourth, we examine Tobin's *Q* as an alternative dependent variable instead of the simple market-to-book value of banks and obtain similar results.

Fifth, we test whether the results hold when restricting the sample to various subsamples of banks. We eliminated widely held banks from the analysis (i.e., we eliminate banks where CF equals zero) and confirm all of the paper's findings. Furthermore, we examined only the subset

⁷ We assessed the robustness to including net loan growth during the year in which bank valuation is measured as well as current and lagged values of asset growth and revenue growth. Including these additional bank-level traits does not change any of this paper's results.

of banks with American Depositary Receipt listings (arguably these banks adhere to stricter disclosure requirements) and again confirm the results.

Sixth, we re-conducted the analyses excluding countries with only one bank. This did not change any of the results. Also, we used weighted least squares, where we weighted observations by the inverse of the number of banks from the country in the sample. Again, this did not alter this paper's findings.

6. Conclusions

This paper first constructed new data on the ownership of 244 banks in 44 countries and then (1) documented the ownership structure of banks around the world and (2) assessed different theories about the relationships among ownership structure, shareholder protection laws, and bank valuations.

On ownership, we find that except in a few countries with very strong shareholder protection laws, banks are not widely held. Indeed, 21 out of the 44 countries in our sample do not have a widely held bank among the ten largest banks. Rather, banks tend to be controlled by a family or the State.

On valuations, we find that (i) larger cash-flow rights by the controlling owner boosts valuations, (ii) weak shareholder protection laws lower bank valuations, and (iii) greater cash-flow rights mitigate the adverse effects of weak shareholder protection laws on bank valuations. These results are consistent with the views that expropriation of minority shareholders in banks is important internationally, that laws can play a role in restraining this expropriation, and that concentrated cash-flow rights also represents an important mechanism for governing banks. These results are robust to an array of robustness checks, including controls for numerous country-specific and bank-specific characteristics, the use of different definitions for ownership control and bank valuations, and re-estimation using different samples of countries and banks. Furthermore, we do not find robust evidence that the stringency of capital requirements or official supervisory power influences bank valuations, nor do we find that regulatory restrictions on bank activities affect the market's valuation of banks. Finally, when we scrutinize the different channels through which regulation may affect the governance of banks, we find no evidence that regulation has an impact on bank valuations—neither a positive effect by reducing expropriation nor a negative effect by reducing bank risk below the level desired by shareholders. Thus, the results indicate that the same core corporate control mechanisms that influence the governance of non-financial firms also influence bank operations.

Acknowledgments

We thank Manju Puri (the Editor), three anonymous referees, Thorsten Beck, George Benston, Sugato Bhattacharyya, Stijn Claessens, Patrick Honohan, Jack Kareken, Rafael La Porta, Hamid Mehran, Phil Strahan, Joao Santos, Anjan Thakor and seminar participants at Brown University, Emory University, the Federal Reserve Bank of New York, the University of Minnesota's Carlson School of Management, the Financial Intermediation Research Society conference in Capri, the 2004 European Finance Association Annual Meeting in Maastricht, Tilburg University and the World Bank for helpful comments, and Ying Lin for excellent research assistance.

References

Baltagi, B.H., 1981. Simultaneous equations with error components. *J. Econometrics* 17, 189–200.

- Bankscope, 2003. Bureau Van Dijk Electronic Publishing, www.bankscope.com.
- Barth, J.R., Caprio, G., Levine, R., 2001. The regulation and supervision of banks around the world: A new database. In: Litan, R.E., Herring, R. (Eds.), *Brooking-Wharton Papers on Financial Services*. Brookings Institution, Washington, DC, pp. 183–250.
- Barth, J.R., Caprio, G., Levine, R., 2004. Bank regulation: What works best? *J. Finan. Intermediation* 13, 205–248.
- Barth, J.R., Caprio, G., Levine, R., 2006. *Rethinking Bank Regulation: Till Angels Govern*. Cambridge Univ. Press, New York.
- Beck, T., Levine, R., 2005. Legal institutions and financial development. In: Menard, C., Shirley, M. (Eds.), *Handbook of New Institutional Economics*. Kluwer Academic, Norwell, MA, pp. 251–278.
- Beck, T., Levine, R., Loayza, N., 2000. Finance and the sources of growth. *J. Finan. Econ.* 58, 261–300.
- Beck, T., Demirgüç-Kunt, A., Levine, R., 2006. Bank supervision and corruption in lending. *J. Monet. Econ.* 53, 2131–2163.
- Boyd, J.H., Chang, C., Smith, B.D., 1998. Moral hazard under commercial and universal banking. *J. Money, Credit, Banking* 30, 426–468.
- Breusch, T.S., Pagan, A.R., 1979. A simple test for heteroscedasticity and random coefficient variation. *Econometrica* 47, 1287–1294.
- Burkart, M., Gromb, D., Panunzi, F., 1997. Large shareholders, monitoring, and fiduciary duty. *Quart. J. Econ.* 112, 693–728.
- Caprio, G., Levine, R., 2002. Corporate governance in finance: Concepts and international observations. In: Litan, R.E., Pomerleano, M., Sundararajan, V. (Eds.), *Financial Sector Governance: The Roles of the Public and Private Sectors*. Brookings Institution Press, Washington, DC, pp. 17–50.
- Claessens, S., Laeven, L., 2003. Financial development, property rights, and growth. *J. Finance* 58, 2401–2436.
- Claessens, S., Djankov, S., Lang, L.H.P., 2000. The separation of ownership and control in East Asian corporations. *J. Finan. Econ.* 58, 81–112.
- DeAngelo, H., DeAngelo, L., 1985. Managerial ownership of voting rights. *J. Finan. Econ.* 14, 33–69.
- Demirgüç-Kunt, A., Detragiache, E., 2002. Does deposit insurance increase banking system stability? An empirical investigation. *J. Monet. Econ.* 46, 1373–1406.
- Demirgüç-Kunt, A., Laeven, L., Levine, R., 2004. Regulations, market structure, institutions, and the cost of financial intermediation. *J. Money, Credit, Banking* 36, 593–622.
- Demsetz, H., Lehn, K., 1985. The structure of corporate ownership: Causes and consequences. *J. Polit. Economy* 93, 1155–1177.
- Demsetz, H., Villalonga, B., 2001. Ownership and corporate performance. *J. Corp. Finance* 7, 209–233.
- Fama, E., 1985. What's different about banks? *J. Monet. Econ.* 15, 29–39.
- Holderness, C., Kroszner, R., Sheehan, D., 1999. Were the good old days that good? Changes in managerial stock ownership since the great depression. *J. Finan.* 54, 435–470.
- Jensen, M., Meckling, W., 1976. Theory of the firm, managerial behavior, agency costs and ownership structure. *J. Finan. Econ.* 3, 305–360.
- Kaufmann, D., Kraay, A., Zoido-Lobaton, P., 1999. Governance matters. Working paper 2196. Policy Research, The World Bank.
- Laeven, L., Levine, R., 2006. Corporate governance, regulation, and bank risk taking. Mimeo. Brown University.
- Lang, L.H.P., So, R.W., 2002. Bank ownership structure and economic performance. Mimeo. Chinese University of Hong Kong.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 1999. Corporate ownership around the world. *J. Finan.* 54, 471–517.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R.W., 2002. Investor protection and corporate valuation. *J. Finance* 57, 1147–1170.
- Lease, R.C., McConnell, J., Mikkelsen, W., 1983. The market value of control in publicly traded corporations. *J. Finan. Econ.* 11, 439–471.
- Levine, R., 1999. Law, finance, and economic growth. *J. Finan. Intermediation* 8, 8–35.
- Levine, R., 2006. Finance and growth: Theory, evidence, and mechanisms. In: Aghion, P., Durlauf, S. (Eds.), *Handbook of Economic Growth*. North-Holland/Elsevier, Amsterdam, pp. 865–934.
- Levine, R., Zervos, S., 1998. Stock markets, banks, and economic growth. *Amer. Econ. Rev.* 88, 537–558.
- Levine, R., Loayza, N., Beck, T., 2000. Financial intermediation and growth: Causality and causes. *J. Monet. Econ.* 46, 31–77.
- McConnell, J., Servaes, H., 1990. Additional evidence on equity ownership and corporate value. *J. Finan. Econ.* 27, 595–612.

- Morck, R., Shleifer, A., Vishny, R.W., 1988. Management ownership and market valuation: An empirical analysis. *J. Finan. Econ.* 20, 293–315.
- Morgan, D., 2002. Rating banks: Risk and uncertainty in an opaque industry. *Amer. Econ. Rev.* 92, 874–888.
- Shleifer, A., Wolfenzon, D., 2002. Investor protection and equity markets. *J. Finan. Econ.* 66, 3–27.
- Volpin, P., Rossi, S., 2004. Cross-country determinants of mergers and acquisitions. *J. Finan. Econ.* 74, 277–304.