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Why do countries matter so much for corporate governance?☆

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Abstract

This paper develops and tests a model of how country characteristics, such as legal protections for minority investors and the level of economic and financial development, influence firms' costs and benefits in implementing measures to improve their own governance and transparency. We find that country characteristics explain much more of the variance in governance ratings (ranging from 39% to 73%) than observable firm characteristics (ranging from 4% to 22%). Further, we show that firm

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characteristics explain almost none of the variation in governance ratings in less-developed countries and that access to global capital markets sharpens firms' incentives for better governance.
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1. Introduction

Corporate governance deals with the mechanisms that ensure investors in corporations get a return on their investments (Shleifer and Vishny, 1997). Corporate governance varies widely across countries and across firms. Better governance enables firms to access capital markets on better terms, which is valuable for firms intending to raise funds. We would therefore expect firms planning to access capital markets—especially firms with valuable growth opportunities that cannot be financed internally—to adopt mechanisms that commit them to better governance.

With the availability of firm-level data on corporate governance and disclosure practices around the world, provided initially by the Center for International Financial Analysis and Research (CIFAR) and, more recently, by Credit Lyonnais Securities Asia (CLSA), Standard & Poor's (S&P), and Institutional Shareholder Services (ISS), several studies have investigated how governance and disclosure are related to firm characteristics (Krishnamurti, Sevic, and Sevic, 2003; Klapper and Love, 2004; Durnev and Kim, 2005; Francis, Khurana, and Pereira, 2005). In general, these studies find that the quality of governance practices is positively related to growth opportunities, the need for external financing, and the state protection of investor rights, and is negatively related to ownership concentration. Until now, however, the importance of other country characteristics, such as the financial and economic development of the country in which a company is domiciled, and how that importance is affected by financial globalization, have not been investigated. This is surprising since a number of studies show that country characteristics other than measures of state investor protection have a significant impact on country-level measures of governance. For example, Bushman, Piotroski, and Smith (2004) show that characteristics of the political environment are important for some types of financial disclosures; Dyck and Zingales (2004) demonstrate that a high level of diffusion of the press is negatively related to benefits of control; and, Stulz and Williamson (2003) and Hope (2003) find that proxies for cultural heritage and religion are related to disclosure.

After accounting for country characteristics using dummy variables, we find that observable firm characteristics, such as investment opportunities, asset size, and ownership, explain only a very small fraction of the variance in governance scores—typically 2% or less. Firm-specific variables are more successful in explaining variation in S&P scores than in CLSA scores before accounting for country characteristics, but overall their explanatory power is dwarfed by that of country characteristics. We also examine the FTSE ISS Corporate Governance Index, which has not been used in published research before. This index covers a broad range of governance attributes for developed countries, much as the CLSA index does for less-developed countries. But even for FTSE ISS scores, observable firm characteristics have little explanatory power compared to

country characteristics. Strikingly, for the S&P scores and the FTSE ISS index, country characteristics have greater explanatory power than do observed and unobserved firm characteristics. As a result, the low explanatory power of firm characteristics cannot be accounted for by noise in the firm characteristic measures or by our failure to observe more relevant firm characteristics.

Why, then, do countries matter so much for corporate governance? Countries matter because they influence the costs that firms incur to bond themselves to good governance and the benefits from doing so.[1] Better governance reduces a firm's cost of funds only to the extent that investors expect the firm to be well governed after the funds have been raised. It is therefore important for the firm to find ways to commit itself credibly to higher-quality governance. However, mechanisms to do so could be unavailable or prohibitively expensive in countries with poor state investor protection or poor economic and financial development. For instance, a firm might be unable to commit to credible external verification of its income disclosures if the necessary infrastructure for such verification is not available (Ball, 2001; Black, 2001). Perhaps the most important benefit of good governance is access to capital markets on better terms. But this benefit is worth less to a firm in a country with poor financial development because that firm will obtain less funding from the capital markets and hence will benefit less from any governance-related reduction in the cost of funds. Consequently, firms in countries with low financial and economic development will find it optimal to invest less in governance and the rights of minority shareholders will be mostly determined at the country level rather than the firm level.

Financial globalization should reduce the importance of the country determinants of governance and increase firm-level incentives for good governance in two ways. First, firms that have access to foreign capital markets are less dependent on the extent of financial or economic development in their own country. As a result, firms in poorly developed countries find it easier to obtain capital and, therefore, have greater incentives to adopt good governance. Second, financial globalization enables firms to "borrow" the investor protection of countries where protection is higher. For instance, firms can list their shares for trading in the US by initiating an American Depositary Receipt (ADR) program. A number of researchers have argued that this action subjects or "bonds" the firms to US securities laws (see Coffee, 1999, 2002; Doidge, Karolyi, and Stulz, 2004; Doidge, 2004; Reese and Weisbach, 2002; Stulz, 1999). Though there are limits to the enforcement of US securities laws on foreign firms (see Black, 2001; Licht, 2003; Siegel, 2005), there might well be no substitute mechanisms for firms from some countries to credibly bond themselves to good governance (see Ball, 2001; Perino, 2003).

If it were costless for firms to adopt good governance mechanisms and if these mechanisms substituted perfectly for state investor protections, then all firms would adopt good governance mechanisms when they access capital markets for the first time. Hence, even though state investor protection would differ across countries, there would be no

[1]Our focus is on why firms in different countries have different governance quality when measured by governance indices rather than on why governance systems differ across countries. We take a country's governance system as exogenously given. It affects firms' corporate governance decisions. There is a large literature that contrasts governance systems across countries (see Allen and Gale, 2000). Some of that literature has focused on development as a determinant of the financial system. For instance, John and Kedia (2003, 2004) show theoretically that financial development and the quality of monitoring technologies of a country affect the choice of governance mechanisms.

differences across countries in the degree to which investors are expropriated by controlling shareholders. Therefore, the extent to which firm governance mechanisms substitute for state investor protection and the differences in the costs and benefits of implementing good governance mechanisms must be taken into account to explain why governance differs across countries.

We construct a model in which countries differ not only in how they protect investors but also in the costs of accessing capital markets and of implementing firm-level governance mechanisms. Our analysis shows that if it is costlier to implement good firm-level governance and to raise funds in less-developed countries, firms in such countries might find the benefit from good firm-level governance too small to justify the cost. Since state investor protection is generally poor in countries with low development, firm-level governance could be unaffordable precisely when it is needed most. Our model also predicts that if better state investor protection enables firms to make use of firm-level governance mechanisms that otherwise would be prohibitively expensive—as modeled by Bergman and Nicolaievsky (2007)—firms would gain more from implementing such governance mechanisms in countries with better state-provided investor protection than in other countries and would, therefore, spend more on governance. In this case, at least for some low levels of investor protection provided by the state, investor protection and firm-level governance are complements. Beyond some level of investor protection by the state, however, we would expect investor protection and governance to become substitutes.

An upper bound on the importance of country characteristics can be obtained by using country dummy variables. We show that almost 39% of the variance in CLSA ratings, 73% of the variance in S&P scores, and 72% of the FTSE ISS index can be explained by country-level dummy variables. Adding firm-specific variables to regressions using country dummies has limited impact on the explanatory power of the regressions. When we try to explain the country effects, we find that proxies for the legal environment, economic development, and financial development explain much less of the variation in the ratings than country dummy variables. Further, we show that measures of economic and financial development are at best only weakly successful in explaining firm-level governance. What appears to matter a great deal is whether a country is developed or less developed, not the actual variation in income and market capitalization levels among countries within those groups of countries. Such evidence is consistent with our model's prediction of threshold effects at low levels of development. We explore a wide range of alternative specifications for our tests and investigate alternative explanations for our results. Our additional evidence is generally supportive of our preferred interpretation of the results, which is that country characteristics are the more important determinants of governance.[2] Though some of our specifications leave a dominant role for unobserved firm characteristics, this is generally not the case for the specifications that use the S&P scores and the FTSE ISS index.

In this paper, we use a broader sample of firms for the S&P ratings than that used in earlier papers, enabling us to estimate regressions separately for developed and

[2]It is interesting to note that within-country studies often have little success in explaining variation in governance across firms using observable firm characteristics. For instance, Black, Jang, and Kim (2006) use a very detailed corporate governance scorecard in Korea and find that the incremental explanatory power of firm-specific characteristics is similar to what we observe in this paper. In particular, in the sample of firms that are affected by the same regulations, they find that the increase in the adjusted R^2 in a regression explaining corporate governance scores from firm characteristics is only 7%.

less-developed countries. Examining these differences is not possible for the CLSA ratings since almost all countries included in that sample are countries with GNP per capita below the median of the countries in the S&P sample, and it is also not possible for the FTSE ISS index which includes only developed countries. We find that observable firm-specific variables are more informative about firm-level governance for firms from more-developed countries, which is consistent with the key prediction of our model. In particular, firm characteristics are not significant in explaining the S&P ratings in countries with low development, but they are significant in countries with high development. However, in contrast to the prediction of our model, there is substantial variation in governance scores for less-developed countries.

We then investigate whether financial globalization enables firms to partly escape the country determinants of governance, thereby sharpening the incentives for firms with growth opportunities to have good governance. In support of our hypothesis, firm characteristics are jointly significant for firms with New York Stock Exchange (NYSE) or NASDAQ traded (''Level 2 or 3'') ADR programs from less-developed countries, but not for purely local firms. Further, country-level investor protection is not a significant determinant of corporate governance for global firms in developed countries. Less supportive of our hypothesis is the finding that adding firm characteristics to a regression that controls for country effects through dummy variables does not increase the adjusted R^2 any differently for global firms than for non-global firms.

The paper proceeds as follows. In Section 2, we examine the choice of firm-level governance mechanisms in a model in which the cost of implementing these mechanisms and the cost of access to capital markets depend on the country in which a firm is located. In Section 3, we present our sample of firms and governance ratings data. We demonstrate the paramount importance of country-specific factors and the limited importance of firm-specific factors as explanatory variables for the corporate governance ratings in Section 4. We also show that firm-specific factors are more important in more-developed countries and we provide evidence that globalization makes the governance of firms less dependent on country-specific characteristics and more dependent on firm-specific characteristics. We report on a number of robustness tests in Section 5. Conclusions follow in Section 6.

2. A model of choice of governance attributes by firms and financial globalization

La Porta, Lopez-de-Silanes, and Shleifer (1999) show that most firms outside the US are controlled by large shareholders who can extract private benefits from the corporations they control. A number of recent papers model this extraction of private benefits (Johnson, Boone, Breach, and Friedman, 2000; Lombardo and Pagano, 2002; La Porta, Lopez-De-Silanes, Shleifer, and Vishny, 2002; Shleifer and Wolfenzon, 2002; Doidge, Karolyi, and Stulz, 2004; Durnev and Kim, 2005; Stulz, 2005). These models assume that there is a cost of extracting private benefits and establish that controlling shareholders consume fewer private benefits in countries where the cost of extracting private benefits is higher.

The deadweight costs associated with the extraction of private benefits increase the cost of outside funds for the controlling shareholders since they, and not the minority shareholders, will have to pay these costs in equilibrium. As a result, controlling shareholders of firms with growth opportunities that cannot be financed internally have incentives to find ways to commit to lower extraction of private benefits by increasing the cost of extracting private benefits. The literature has shown that by increasing their

ownership of cash flow rights, controlling shareholders increase their cost of extracting private benefits because they pay for more of these private benefits out of the shares they own. Large shareholders can also increase their costs of extracting private benefits, and hence commit themselves to consuming fewer of these benefits, by improving the firm's governance. For instance, by increasing the firm's disclosures, controlling shareholders make it easier for outsiders to monitor the consumption of private benefits and to take actions to limit it. In this paper, we allow for a role for corporate governance.

We assume that a firm can improve governance, but at a cost. The cost includes the out-of-pocket costs of acquiring better governance mechanisms as well as the cost in management time. For instance, if a firm chooses to use a higher-quality external auditor, it will take time for management to hire the auditor, and the auditor will charge more than lower-quality auditors and make more demands on management's time. Similarly, reputable independent directors will require appropriate compensation, will make greater demands on management's time, and will limit managerial discretion. There is considerable skepticism in the literature that credible mechanisms—whereby the controlling shareholders commit to consume fewer private benefits—can even be adopted in countries with inadequate protection of minority shareholders (see Glaeser, Johnson, and Shleifer, 2001). In other words, in these countries, the cost of credible mechanisms may be prohibitive.

2.1. Model set-up

Like Shleifer and Wolfenzon (2002), we consider the problem of an entrepreneur who has to raise funds to finance an investment opportunity. This entrepreneur has control of the firm regardless of the fraction of cash flow rights k he owns. The key distinction of our model is that we allow the firm to improve, at a cost, the investor protection that applies to its shareholders through better corporate governance. We therefore focus our presentation on the implications of that distinction. We consider an entrepreneur with wealth W who has an investment opportunity available. An investment of capital K will return aK^{α}, where $0<\alpha<1$ and $a>0$. The entrepreneur has to decide the scale of the project. If $K>W$, the entrepreneur must sell shares to minority shareholders. The entrepreneur extracts private benefits after the investment opportunity has paid off. The cash flow left in the firm after extraction of private benefits is distributed as a liquidating dividend.

When the entrepreneur raises funds, investors form expectations about the proportion of the firm's cash flows that will be expropriated, f. In this model, the entrepreneur incurs a cost for expropriating shareholders on personal account. The cost could represent the expected value of the punishment if he is caught expropriating minority shareholders, as in Shleifer and Wolfenzon (2002), or it could correspond to expenses that the entrepreneur incurs for setting up mechanisms to extract private benefits. The cost is assumed to be a convex function of f, or bf^2, where b can be a positive constant or a function, and it increases linearly with the extent to which minority shareholders are protected from expropriation and with the firm's cash flows. Investors are protected from expropriation by firm- and state-level governance mechanisms. The cost of expropriation is given by $0.5bf^2aK^{\alpha}(p+q)$, where p and q measure, respectively, country-level and firm-level investor protection. Since the cost of extracting private benefits increases with p and q, minority shareholders are better protected as p and q increase. We assume that p and q are substitutes in the deadweight cost function so that a firm can make up for deficiencies in

the investor protection offered by the state and its ability to do so does not depend on the investor protection offered by the state. (We discuss the case where p and q are complements at the end of this section.)

We assume that the marginal cost of firm-level governance is increasing in the quality of firm-level governance, so that the functional form for the cost of firm-level governance is mq^2, where m is a positive constant. The rationale for this assumption is that different firm-level governance measures have different costs and the firm will implement the cheapest measures first. To take into account differences in financial development across countries, we assume that it costs $n(K-W)$ to raise $K-W$ from outside investors, where n corresponds to a proportional cost of raising capital. An improvement in financial development corresponds to a decrease in n, where n is a constant between 0 and 1. Though existing models (except for Doidge, Karolyi, and Stulz, 2004) assume that $q=0$, Shleifer and Wolfenzon (2002) have a differential cost of funds between a closed economy and an open economy. In our model, the payments $n(K-W)$ and mq^2 reduce the wealth of the entrepreneur dollar-for-dollar whether these amounts are paid by him out of his own pocket or through the firm. It simplifies the analysis, but does not change anything of substance, if we assume that $n(K-W)$ and mq^2 are paid by the entrepreneur out of the liquidating dividend paid to him by the firm.

The model has no risk, so that shares return the risk-free rate, which is assumed to be zero for simplicity. Therefore, the minority shareholders acquire a fraction $(1-k)$ of cash flow rights only if their expected liquidating dividend, equal to $(1-k)(1-f)aK^{\alpha}$, is at least equal to their initial investment of $K-W$ (the minority shareholders' participation constraint). Since the entrepreneur will not give money away to the minority shareholders, it must be the case that the participation constraint of minority shareholders is binding:

$$(1-k)(1-f)aK^{\alpha}=K-W. \tag{1}$$

The entrepreneur wants to maximize the total cash flows of the firm net of the cost of extracting private benefits and of the dividend to be paid to minority shareholders:

$$S=aK^{\alpha}-n(K-W)-mq^2-0.5bf^2aK^{\alpha}(p+q)-(K-W). \tag{2}$$

The entrepreneur maximizes (2) by choosing K, q, and f subject to two constraints. First, he will only invest if S is non-negative (the entrepreneur's participation constraint). Second, f has to maximize the entrepreneur's welfare at the time that it is chosen, which is after shares have been sold to minority shareholders (the entrepreneur's incentive-compatibility constraint).

After the entrepreneur has chosen q and K, shares are sold to outside investors for an amount equal to $K-W$. The entrepreneur then owns a fraction k of cash flow rights, given by $1-(K-W)/(1-f)aK^{\alpha}$, where $(1-f)aK^{\alpha}$ is the firm's cash flow after expropriation. After raising funds, the entrepreneur chooses f, such that $0\leqslant f<1$, to maximize

$$k(1-f)aK^{\alpha}-0.5bf^2aK^{\alpha}(p+q)+faK^{\alpha}. \tag{3}$$

The first term of the expression corresponds to the liquidating dividend received by the entrepreneur. The second term is the entrepreneur's cost of extraction of private benefits. Finally, the third term represents the private benefits extracted by the entrepreneur.

The solution for f is

$$f = \frac{1-k}{b(p+q)}. \tag{4}$$

For a given k, the fraction of cash flow expropriated falls as the level of investor protection provided by the state, p, increases, as in earlier models. In contrast to earlier models, the entrepreneur gets to choose the level of investor protection provided by the firm, q, and he extracts less in private benefits when q is higher. Further, f and k are negatively related, so that an entrepreneur with a larger stake in the firm expropriates less.

Using the participation constraint of minority shareholders, Eq. (4) can be written as

$$f = \left[\frac{K-W}{(1-f)aK^{\alpha}}\right]\frac{1}{b(p+q)}. \tag{5}$$

Rewriting this equation, we get a quadratic equation in f. The solution requires that $f=0$ if it is infinitely costly to expropriate shareholders. With this requirement, there is only one possible solution for f:

$$f = \frac{1}{2} - \frac{1}{2}\left[1 - 4\left(\frac{K-W}{aK^{\alpha}}\right)\frac{1}{b(p+q)}\right]^{0.5} \text{ if } 4\left(\frac{K-W}{aK^{\alpha}}\right)\frac{1}{b(p+q)} < 1;$$
$$f = 0 \quad \text{otherwise}. \tag{6}$$

When the entrepreneur chooses q and K, he also chooses f, so that f can be written as $f(K,q)$. For a given level of K, f falls with q and with the productivity of physical capital, a.

As in Shleifer and Wolfenzon (2002), there will be investment opportunities for which the entrepreneur will not be able to raise funds. Everything else constant, the quality of firm-level governance is inversely related to m. If m is low, the firm can improve cheaply on its country's investor protection, so that some firms that would not go public if they had to rely on the country's investor protection alone will choose to do so after spending to improve the firm's corporate governance. In the extreme case where $m=0$, country-level investor protection becomes irrelevant and the controlling shareholder chooses $q=\infty$, so that $f=0$. In our model, the cost to a firm of improving its governance does not depend on its size. This assumption is motivated by the belief that the fixed costs of governance mechanisms are important—for instance, finding an independent board member is unlikely to be much more time-consuming for management if the firm is larger. Consequently, firms that raise a small amount of outside equity will not gain as much from improving their governance because the cost of doing so will be amortized over fewer dollars raised. Keeping entrepreneurial wealth constant, we therefore expect larger firms to have better governance. A high value of n reduces the incentives of firms to improve on corporate governance because it reduces the amount of funds raised.

Substituting (6) into (1) and using the minority shareholders' participation constraint, the controlling shareholder maximizes

$$S = aK^{\alpha} - n(K-W) - mq^2 - 0.5bf(K,q)^2aK^{\alpha}(p+q) - (K-W). \tag{7}$$

The nonlinearity of this expression in K and q makes it impossible to obtain closed-form solutions for K and q when b is fixed. In Appendix A, we provide a closed-form example

for a particular functional form for b for which the results discussed in this section hold. If b is fixed, the following proposition holds:

Proposition 1. *If the parameter m, which drives the cost of firm-level governance, equals zero, all firms that raise external funds choose a value of firm-level investor protection, q, high enough so that the fraction of cash flows expropriated, f, equals zero, and the protection of investors by the state is not relevant. As m becomes large, q becomes very small, and the protection of investors depends almost exclusively on the protection granted by the state, p. As p becomes large and m is greater than zero, q becomes very small because firm-level governance mechanisms become redundant but are costly. Finally, for firms for which the parameter driving their external capital-raising costs, n, is large enough, q equals zero since the firm does not expect to raise external capital.*

The important point of this proposition is that a firm's choice of governance mechanisms depends on the cost of implementing these mechanisms and on the transaction costs of raising funds. These costs are determined partly by a country's investor protection but also by the country's economic and financial development. If investor protection is high enough, no expropriation takes place and the adoption of firm-level governance mechanisms is not optimal. If development is too low, there is no point in adopting such mechanisms because the transaction costs of raising funds are too high for firms to recover the costs of improving their governance. Proposition 1 implies that there exists a threshold level of economic development below which firms' incentives for good governance are trivially small and a threshold level of state investor protection above which there is little gain to firms from improving on that level of investor protection at their own expense.

2.2. Key comparative statics

We can obtain additional results using the first-order conditions for K and q. These first-order conditions are, respectively,

$$a\alpha K^{\alpha-1} = 1 + n + [bf(K,q)f_K aK^{\alpha} + 0.5bf(K,q)^2 a\alpha K^{\alpha-1}](p+q), \tag{8a}$$

$$2mq = -bf_q f(K,q)aK^{\alpha}(p+q) - 0.5bf(K,q)^2 aK^{\alpha}, \tag{8b}$$

where f_K is the partial derivative of $f(K,q)$ with respect to K and is positive and f_q is the partial derivative of f with respect to q, which we already know to be negative. The left-hand side of Eq. (8a) is the marginal revenue from investing an additional dollar. The right-hand side is the marginal cost to the entrepreneur of the additional dollar raised. In perfect financial markets, the cost would be \$1. With imperfect investor protection and financial markets, the additional terms on the right-hand side of the equation are positive, so that the cost of capital is higher than that in perfect markets. As a result, the amount of capital invested is lower than that in perfect markets. In Eq. (8b), the left-hand side is the marginal cost of better governance, while the right-hand side is the marginal benefit.

We can use Eq. (8b) to study the comparative statics of q by treating K as a parameter. In this case, q increases with K and a, but falls as m and p increase. The intuition is as follows. As K and a increase, cash flow increases. For a constant f, the total amount of expropriation increases and expropriation becomes more costly for the entrepreneur. He partly offsets this increase in the cost of expropriation by increasing q. As m increases, it

becomes more costly for the entrepreneur to acquire better governance and he therefore acquires less of it. Finally, p and q are substitutes. An increase in p decreases the marginal benefit from better firm-level investor protection and the entrepreneur decreases the amount of firm-level investor protection he acquires. Eq. (8b) does not depend on n directly. Though we can derive comparative statics using Eq. (8b) in a straightforward way, we have to use a linear approximation of (8a) in q and K to obtain results. Using the linear approximation, Eq. (8a) implies that an increase in n decreases K. It therefore follows from Eqs. (8a) and (8b) that an increase in n leads to a decrease in investor protection through its impact on q. With this analysis, the entrepreneur purchases more investor protection if the investment opportunity is more valuable (higher cash flow before expropriation), if the cost of acquiring investor protection is lower, if financial development is higher, and if investor protection guaranteed by the state is lower.

With this model, the extent to which firms improve corporate governance depends critically on the development of capital markets. To see this, suppose that capital markets differ across countries in the extent to which they can absorb equity issues. In other words, firms in a country with poorly developed capital markets are constrained in issuing equity while firms in countries with well-developed markets are not. In our model, this is equivalent to making n a step function, so that beyond a given level of capital-raising activity, n is large enough to prevent more capital-raising activity. For constrained firms, the benefit of improving governance is limited since doing so does not enable them to raise more funds. Suppose, however, that a constrained firm gains access to global markets. In this case, it becomes more valuable for the firm to improve governance because it can raise more funds as a result.

We have considered a firm at inception. We assume that the exogenous variables are non-stochastic. Since the solutions for q and K depend nonlinearly on the exogenous variables, making these variables stochastic would complicate the problem considerably. Suppose, however, that a firm has chosen q and K, has sold equity, and unexpectedly faces a change in one of the exogenous variables. In this case, any improvement in firm-level governance in response to the change in the exogenous variable has an additional cost in that it creates a wealth transfer from the controlling shareholder to the other investors in the firm (see Bebchuk and Roe, 1999). For instance, if a unexpectedly increases, the firm will not move to the level of firm-level governance it would have chosen at its inception with that level of a because of the redistribution cost. Nevertheless, the firm will expand production, improve firm-level governance, and raise more funds if m and n are not too high. More generally, we have the following result:

Proposition 2. *Provided that the cost parameters of firm-level governance and external capital raising, m and n, respectively, are not too large, firm-level governance improves following an unexpected decrease in state protection, p, an unexpected decrease in n, an unexpected decrease in m, and an unexpected increase in the return on invested capital, a.*

With this result, we expect globalization to reduce n by opening up new capital markets for firms and creating more competition in the financial intermediation industry. It should also reduce m by enabling firms to access new contracting technologies, by allowing them to rent investor protection institutions from the host country, and by expanding the range of financial services accessible to firms. Hence, we would expect access to global markets to lead to an increase in q.

We investigate a number of alternative specifications of the model set up. First, we allow p and q to be complements in the deadweight cost function. With this approach, a given set of firm-level governance provisions has more of an effect on investor protection if investor protection by the state is better. We consider the case where the deadweight cost function depends not on $p+q$, but on $p \times q$ (excluding the case where $q<1$ to insure that a firm cannot make its investor protection worse than that guaranteed by the state). With this assumption, q still falls as p increases and our other results still hold. Second, we assume that the cost of firm-specific investor protection, m, depends on p. For instance, in Bergman and Nicolaievsky (2007), better investor protection by the state makes it possible for firms to adopt more precise contracts to protect minority shareholders. Hence, to guarantee a given level of investor protection, a firm would have to spend more in a country with worse protection by the state. If m depends on p, it becomes possible for q to actually increase with p so that q and p turn out to be complements, at least for low levels of investor protection provided by the state. Finally, the cost of accessing capital markets could depend on p. In Shleifer and Wolfenzon (2002), the number of firms is inversely related to p since poor state investor protection makes it economically infeasible for some firms to exist. If the number of firms is smaller, financial intermediaries benefit less from economies of scale, which adversely affects the cost of access to capital markets for those firms that cannot access global markets.

3. Data

We want to explain firm-level choices of corporate governance. For that purpose, we use the governance ratings of Credit Lyonnais Securities Asia (CLSA), Standard & Poor's (S&P), and FTSE ISS (ISS). The CLSA ratings cover less-developed countries and newly emerged countries. The S&P ratings cover both developed and less-developed economies. The ISS governance scores cover developed countries.

The CLSA survey was conducted over a six-week period ending in March 2001, and it rates the corporate governance practices of 495 firms from 25 countries (see Gill, 2001; Khanna, Kogan, and Palepu, 2006, provide an evaluation of the quality of the CLSA data set). This survey has been used in a number of recent papers (see, e.g., Chen, Chen, and Wei, 2003; Krishnamurti, Sevic, and Sevic, 2003; Klapper and Love, 2004; Khanna, Kogan, and Palepu, 2006; Durnev and Kim, 2005). The main criteria for including firms in the CLSA survey are firm size and investor interest. The CLSA corporate governance rating is based on a questionnaire given to financial analysts who responded with "Yes" or "No" answers to 57 questions related to seven categories: management discipline, financial transparency, independence, accountability, responsibility, fairness, and social responsibility. A composite governance rating is computed by giving an equal weight of 15% to the first six categories and a weight of 10% to social responsibility. Percentage scores on the composite governance ratings range from 13.9 to 93.5. We do not include financial firms because they are often subject to regulations and laws that other firms are not subject to and because financial ratios have a different meaning for them. After removing financial firms, there are 376 firms in the CLSA sample.

The Standard & Poor's ratings, constructed for a study by S&P launched in 2001, have also been used in recent research (Khanna, Palepu, and Srinivasan, 2004; Durnev and Kim, 2005; Patel, Balic, and Bwakira, 2002, provide a description of the S&P measure, and Bushee, 2004, provides an extensive discussion of the properties of the S&P ratings).

The sample provided to us by Standard & Poor's in April 2003 covers 901 firms from 40 countries. S&P compiles the ratings by examining firms' annual reports and standard regulatory filings for disclosure of 98 items, divided into three sections: financial transparency and information disclosure (35 items), board and management structure and process (35 items), and ownership structure and investor relations (28 items). S&P uses a binary scoring system in which one point is awarded if a particular item is disclosed. The scores are added and converted to a percentage score, with scores ranging from 15.22 to 88.78. After removing financial firms, there are 711 firms from 39 countries.

Finally, we use the corporate governance ratings compiled by the FTSE Group and Institutional Shareholder Services (ISS). The sample provided to us by ISS, dated November 2003, contains 1,710 firms from 22 developed countries. The scope of coverage is dictated by the FTSE Group's financial indexes, which were designed to be used as the basis for structured investment products and funds. ISS developed its corporate governance rating system to assist institutional investors in evaluating the impact that a firm's corporate governance structure and practices might have on performance. As such, the goal of the ratings is to provide objective and impartial information on firms' governance practices; the ratings are not tied to any other service provided by ISS and firms do not pay to be rated, although they are invited to check the accuracy of the ratings. The only way a firm can improve its rating is to make and publicly disclose changes to its governance structure and/or practices.

The ISS corporate governance rating is based on a detailed analysis of firms' regulatory filings, annual reports, or websites. For non-US firms, ISS considers 55 different criteria in eight categories: board, audit, charter/bylaws, anti-takeover provisions, executive and director compensation, qualitative factors, ownership, and director education. Not all 55 criteria are usable and the final score that we use is based on a binary coding of 50 different factors. A firm receives a 1 or 0, depending on whether or not it meets minimally acceptable criteria.[3] The scores are then summed up and converted in to a percentage score, with scores ranging from 14 to 70. After removing financial firms, there are 1,449 firms.

Our sample construction begins with the list of firms included in the three ratings systems. Table 1 describes the sample constructed from the three surveys. It is immediately apparent that S&P covers many more countries than CLSA or ISS. Further, the number of firms covered within a country differs sharply across countries. In some countries, such as Argentina for CLSA and New Zealand for S&P, only one firm is covered. We therefore check to see if the results reported below differ when we include only countries for which at least five firms are rated. We find that doing so makes little difference. It is also clear that there is substantial variation in ratings within countries as well as across countries. For CLSA, the lowest-rated country is Indonesia with an average score of 37.06, with scores ranging from 13.90 to 64.90, and the highest-rated country is South Africa with an average score of 68.38, with scores ranging from 45.00 to 82.60. For S&P, the lowest-rated country is Colombia (one firm with a score of 19.15) and the highest-rated is Finland (average score

[3]See http://www.issproxy.com/corporate/analytics/cgq.jsp for further information. Brown and Caylor (2004) provide a detailed description of how the ratings are constructed from the raw data provided by ISS for US firms. We follow the same basic procedure that they outline for US firms, with a number of minor modifications. For example, we include the provision for a dual class capital structure, but omit the director education provision, as well as ownership by officers and directors (we include ownership as an explanatory variable in our regressions).

Table 1
Sample description

This table reports summary statistics for the CLSA corporate governance ratings (Panel a), the S&P transparency and disclosure ratings (Panel b), and the FTSE ISS corporate governance ratings (Panel c). Number of firms with Level 2 or 3 ADRs is the number of firms in each country that have an exchange-listed ADR at the end of 2000 for the CLSA and S&P ratings and at the end of 2003 for the ISS ratings. Financial firms are excluded.

Panel a. CLSA governance rating.

Country	No. of obs.	No. of Level 2/3 ADRs	Mean	Std. dev.	Minimum	Maximum
Argentina	1	1	66.70	.	66.70	66.70
Brazil	28	14	61.91	8.28	45.40	76.50
Chile	16	10	62.12	5.75	46.70	71.30
China	13	6	46.22	7.36	29.90	51.50
Colombia	1	0	57.90	.	57.90	57.90
Czech Republic	1	0	51.40	.	51.40	51.40
Hong Kong	25	5	61.91	12.65	41.50	84.10
Hungary	2	1	52.85	10.68	45.30	60.40
India	70	4	54.74	9.93	39.10	93.30
Indonesia	16	2	37.03	12.22	13.90	64.90
Malaysia	36	0	55.25	14.45	24.60	77.80
Mexico	6	4	68.20	4.52	62.40	74.00
Pakistan	9	0	34.69	14.94	18.90	65.60
Peru	1	1	75.50	.	75.50	75.50
Philippines	12	1	48.30	11.88	33.40	67.90
Poland	2	0	36.20	3.11	34.00	38.40
Russia	1	0	15.40	.	15.40	15.40
Singapore	29	3	67.23	7.77	48.70	85.70
South Africa	25	7	68.45	9.02	45.00	82.60
South Korea	19	4	43.65	4.40	38.00	55.20
Taiwan	35	5	55.97	8.15	43.40	77.10
Thailand	17	0	54.49	13.29	33.80	77.80
Turkey	11	1	43.67	10.58	29.40	59.40
Total	376	69				
Average			53.03	9.39	40.88	66.54

Panel b. S&P transparency and disclosure rating.

Country	No. of obs.	No. of Level 2/3 ADRs	Mean	Std. dev.	Minimum	Maximun
Argentina	6	3	28.63	5.32	23.4	37.23
Australia	20	6	61.14	7.25	40.43	71.28
Austria	2	0	49.70	9.45	43.01	56.38
Belgium	3	0	54.16	14.37	37.23	65.96
Brazil	27	12	32.75	12.04	19.57	59.18
Chile	17	11	34.33	11.01	15.22	54.26
China	16	8	48.58	11.31	28.72	63.44
Colombia	1	0	19.15	.	19.15	19.15
Denmark	5	3	52.17	17.37	24.47	67.35
Finland	4	4	75.70	5.87	70.65	84.04
France	39	14	67.91	8.87	47.87	85.11
Germany	26	9	55.90	9.66	38.78	73.12
Greece	1	1	68.04	.	68.04	68.04
Hong Kong	13	1	47.47	3.23	43.62	52.13
India	37	3	38.75	10.23	20.21	62.37
Indonesia	13	2	36.47	5.88	26.60	48.94
Ireland	3	3	75.25	3.24	71.88	78.35
Italy	14	5	58.58	10.41	42.55	73.47

Table 1 (*continued*)

Panel b. S&P transparency and disclosure rating.

Country	No. of obs.	No. of Level 2/3 ADRs	Mean	Std. dev.	Minimum	Maximun
Japan	130	19	54.15	3.32	48.39	67.39
Luxembourg	1	0	38.30	.	38.30	38.30
Malaysia	34	0	45.44	7.33	35.11	62.77
Mexico	16	7	24.77	8.87	15.22	51.61
Netherlands	22	12	63.23	10.15	43.88	80.00
New Zealand	1	0	55.91	.	55.91	55.91
Norway	4	2	58.83	15.06	45.16	78.72
Pakistan	8	0	39.76	6.55	32.98	48.94
Peru	6	1	23.26	4.28	18.68	30.85
Philippines	3	1	27.21	13.12	12.24	36.73
Portugal	5	2	55.00	9.83	41.49	64.95
Singapore	7	1	58.86	5.46	50.00	65.31
South Korea	33	6	46.65	12.84	5.21	62.89
Spain	13	4	52.67	12.12	32.98	72.34
Sweden	13	3	61.51	8.98	45.74	75.51
Switzerland	12	5	54.91	12.43	38.04	71.28
Taiwan	34	4	21.63	7.15	14.89	38.14
Thailand	15	0	51.63	9.45	27.17	65.98
UK	104	41	71.36	6.21	56.52	88.78
Venezuela	2	1	30.65	17.48	18.28	43.01
Total	711	194				
Average			48.43	9.30	35.73	61.03

Panel c. FTSE ISS corporate governance rating.

Country	No. of obs.	No. of Level 2/3 ADRs	Mean	Std. dev.	Minimum	Maximun
Australia	49	7	50.33	6.65	36.00	64.00
Austria	16	1	32.13	3.54	26.00	42.00
Belgium	11	1	26.18	3.40	22.00	32.00
Canada	88	39	51.93	6.63	40.00	70.00
Denmark	21	2	28.48	4.24	20.00	36.00
Finland	23	3	35.13	4.34	28.00	48.00
France	57	12	42.95	6.26	30.00	56.00
Germany	66	11	31.45	2.82	26.00	38.00
Greece	29	2	28.83	4.77	22.00	40.00
Hong Kong	27	2	31.63	2.83	24.00	36.00
Ireland	10	3	35.40	4.99	28.00	46.00
Italy	40	7	25.60	4.67	20.00	40.00
Japan	412	21	35.95	2.17	30.00	44.00
Netherlands	43	14	36.28	5.65	26.00	50.00
New Zealand	13	0	37.85	3.41	32.00	42.00
Norway	16	5	27.75	3.17	24.00	34.00
Portugal	10	2	24.20	3.46	18.00	28.00
Singapore	31	3	37.55	4.97	26.00	46.00
Spain	29	2	23.17	6.27	14.00	38.00
Sweden	34	7	33.18	2.66	28.00	40.00
Switzerland	43	8	29.67	2.89	24.00	40.00
UK	149	47	37.58	4.41	26.00	52.00
Total	1,217	199				
Average			33.78	4.28	25.91	43.73

of 75.70). Finally, for ISS, Portugal has the lowest rating, with an average score of 23.26, while Canada has the highest rating, with an average score of 50.00. There is substantial variation in the scores within countries for all the indices; the average coefficient of variation (ratio of standard deviation to mean) ranges from 12% in the FTSE ISS ratings to 19% for the CLSA ratings.

We also give information in the table on the number of firms in each sample that are cross-listed on a major US stock exchange. These cross-listings include firms with ordinary shares or Level 2 or 3 ADRs listed on the AMEX, the NYSE, or NASDAQ. Level 3 ADR firms have also raised equity in the US. Foerster and Karolyi (1999, Table 1) provides more details on types of ADR listings. To determine if a firm is listed on a US exchange, we use information obtained from the Bank of New York, Citibank, the NYSE, and NASDAQ. Listing dates are verified using Lexis-Nexis searches and by examining 20-Fs filed with the SEC and firms' annual reports. The largest contingents of cross-listings in our sample come from the UK, Canada, and Japan among developed countries and from Brazil, Chile, South Africa, and China among less-developed countries.

To test our hypotheses, we require data on firm and country characteristics. Firm-level data for sales growth, total assets, ownership, cash holdings, and SIC (Standard Industrial Classification) codes are from Thomson Financial's Worldscope database. We use data from 2000 for the CLSA and S&P ratings, but for ISS, we use data for 2003 instead. Sales growth is measured as the two-year geometric average of annual inflation-adjusted growth in sales. Sales growth is winsorized at the 1st and 99th percentiles to reduce the impact of outliers. Total assets are measured in millions of US dollars. Ownership is the data item reported as "Closely-held shares." Worldscope defines closely-held shares as shares held by insiders, including senior corporate officers and directors and their immediate families; shares held in trusts; shares held by another corporation (except shares held in a fiduciary capacity by financial institutions); shares held by pension/benefit plans; and shares held by individuals who hold 5% or more of shares outstanding. In Japan, closely-held shares represent the holdings of the ten largest shareholders. For firms with more than one class of shares, closely-held shares for each class are added together. The ownership measure is far from perfect since it relies on information disclosed by firms and this disclosure is often voluntary and unmonitored (see Mitton, 2002, for a discussion of the limitations of the Worldscope ownership data). Cash holdings correspond to liquid assets held by firms and are normalized by total assets.

Sales growth is a widely used proxy for growth opportunities (see, for instance, La Porta, Lopez-De-Silanes, Shleifer, and Vishny, 2002). The difficulty with sales growth is that it is affected by a country's institutions and business conditions. We therefore also use a measure of dependence on external finance (Rajan and Zingales, 1998) defined as capital expenditures minus cash flows from operations divided by capital expenditures. This latter variable for these non-US firms is computed using data on capital expenditures and cash flows for firms from the same industry in the US. The motivation for this approach is that, assuming that growth opportunities of firms in the same industry have a significant common component across countries, the level of external financing of US firms is the level that firms in other countries would have if they were not constrained by the poor development of the country in which they are located. Francis, Khurana, and Pereira (2005) use this measure to explain CIFAR disclosure scores and find that the 1991–1993 scores are positively related to the original Rajan and Zingales (1998) measure. We do not use the original measure because our scores are for the early 2000s and the original Rajan

and Zingales estimates are for the 1980s. We match US and non-US firms by industry at the three-digit SIC code level. Data for this measure are obtained for all US firms included in S&P's Compustat database from 1995–2000. For each firm, the use of external finance is summed over 1995–2000 and divided by the firm's total capital expenditures from 1995 to 2000. At the three-digit SIC code level, we take the industry median. Sample firms with the same three-digit SIC code industry group are assigned the industry median value.

Finally, we use a number of country-level variables in our analysis. We use the anti-director rights variable from Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2006) as a measure of shareholder rights. The indices of the rule of law and risk of expropriation are measures of enforcement and property rights and are obtained from La Porta, Lopez-De-Silanes, Shleifer, and Vishny (1998). These variables are not available for China, Hungary, Poland, or Russia in the La Porta et al. study. We obtain values for the rule of law for these countries from Pistor, Raiser, and Gelfer (2000), although the risk of expropriation index is not available in their study. We follow Durnev and Kim (2005) and define "Legal" as the product of anti-director and rule of law, although our measure is constructed using the updated version of anti-director rights in Djankov, LaPorta, Lopez-de-Silanes, and Shleifer (2006). Stock market capitalization divided by GDP (gross domestic product) is from Beck, Demirguc-Kunt, and Levine (2000) with updates for later years from the World Bank Group's Financial Structure and Economic Development database (http://www.worldbank.org) and gross national product (GNP) per capita is from the World Bank's *World Development Indicators* database.

The surveys create two selection biases. The first bias is related to country coverage. Less-developed countries and those in which financial and legal institutions are especially inadequate will not be represented in the survey because they will not have firms in which the survey-sponsoring organizations would have any interest. In these countries, firms will not have been able to overcome country characteristics to draw interest from the survey-sponsoring organizations. This bias leads us to understate the potential importance of country characteristics.

The second bias is related to company coverage within countries. Only a subset of firms is rated in each country. The S&P ratings have firms from developed and less-developed countries. Though one might think that firms in developed countries are more likely to be rated, this is not the case. Using the S&P ratings, we find that a higher proportion of firms are rated in less-developed countries than in developed countries (5% versus 3%, with a p-value for the difference of the means significant at the 1% level).

To investigate this bias further, we collect data on almost 15,000 nonfinancial firms available in Worldscope that are in countries covered by the surveys. We then estimate probit regression models to predict which firms have a CLSA rating, an S&P rating, or an ISS rating. In the probit regressions, the dependent variable takes a value of one if a firm is in the CLSA, S&P, or ISS samples and the explanatory variables are the firm characteristics that we subsequently use to explain the ratings in our empirical work. Because we use these probit models in later robustness checks to estimate Heckman selection models, we also include ROA and the ratio of long-term debt to assets as identifying variables. For a given rating, we do not include firms from countries that have no firms with ratings. For example, CLSA does not rate any firms from the UK, so we do not include any firms from the UK in the CLSA probit regression.

The results are presented in Appendix B, Panel a. It is interesting to note the similarities and differences in the firm coverage for the three samples. In all probit regressions, firm

size and dependence on external finance are significant with a positive coefficient. Inside ownership has a positive and significant coefficient in the CLSA rating regression and, by contrast, a negative and significant coefficient in the S&P and ISS rating regressions. Finally, sales growth has a positive and significant coefficient in the CLSA regression; the ratio of cash holdings to total assets has a positive, but marginally significant, coefficient in the ISS rating regressions; ROA has a positive and significant coefficient in the CLSA and S&P regressions; and long-term debt to assets has a positive and significant coefficient in the CLSA regression, but a negative and significant coefficient in the ISS regression. The explanatory power of these three models differs substantially. Firm characteristics explain proportionally much less of the selection process by CLSA (pseudo R^2 of 27.9%) than of the selection process by S&P (pseudo R^2 of 44.8%) and ISS (pseudo R^2 of 45.8%). It is clear from this that larger firms are more likely to be rated. Our theory shows that larger firms might have more incentives to adopt good governance. If so, our study could understate the importance of firm characteristics because the firms in the CLSA, S&P, and ISS samples are more homogeneous in terms of size than the population of firms.

4. How important are country and firm characteristics for governance ratings?

In this section, we evaluate the importance of country and firm characteristics in explaining firm-level governance choices. In Table 2, we report estimates of regressions of ratings on firm and country characteristics. Specifically, we estimate the following regressions in each panel of the table:

Model (1): $y_i = \alpha + \boldsymbol{\beta}'\mathbf{x_i} + \varepsilon_i$,
Model (2): $y_i = \alpha + \boldsymbol{\delta}'\mathbf{c_i} + \varepsilon_i$,
Model (3): $y_i = \alpha + \boldsymbol{\beta}'\mathbf{x_i} + \boldsymbol{\delta}'\mathbf{c_i} + \varepsilon_i$,
Model (4): $y_i = \alpha + \text{country dummies} + \varepsilon_i$,
Model (5): $y_i = \alpha + \boldsymbol{\beta}'\mathbf{x_i} + \text{country dummies} + \varepsilon_i$,

where y_i is firm i's governance rating (by either CLSA, S&P, or ISS), $\mathbf{x_i}$ is a set of firm-level variables for firm i, and $\mathbf{c_i}$ is a set of country-level variables. The coefficients $\boldsymbol{\beta}$ and $\boldsymbol{\delta}$ measure the sensitivity of the governance ratings to the firm- and country-level variables.

We first estimate regressions of the governance ratings on firm characteristics. The firm-level variables we use in these regressions are shown to be significant in the voluntary disclosure literature that studies US firms (see e.g., Lang and Lundholm, 1993) as well as firms across countries (see, e.g., Francis, Khurana, and Pereira, 2005). We discuss later how our results are affected by the use of other firm characteristics.

The analysis of Section 2 predicts that firms with a greater demand for external finance will adopt more constraining governance practices. We therefore use sales growth as a firm characteristic since it is a measure of investment opportunities that has been frequently used in the literature. Existing papers show that sales growth is significant and positively related to CLSA ratings in regressions that control for firm characteristics and investor protection (Klapper and Love, 2004; Durnev and Kim, 2005). In addition, we include the Rajan and Zingales measure of dependence on external finance as an alternative measure of growth opportunities.

Table 2
The importance of firm and country characteristics

The dependent variable in each regression is either the CLSA corporate governance rating (Panel a), the S&P transparency and disclosure rating (Panel b), or the FTSE ISS corporate governance rating (Panel c). Firm-level data are from Worldscope. In Panels a and b, data are for the year 2000; in Panel c data are for 2003. Sales growth is inflation-adjusted two-year sales growth (winsorized at 1% and 99% tails) and Total assets are in $ millions. Dependence on external finance is from Compustat and is computed for US firms in the same industry from 1995–2000 as capital expenditures minus cash flow from operations divided by capital expenditures. Legal is Anti-director × Rule of law, from Djankov et al. (2006) and La Porta et al. (1998). Log of GNP per capita ($) is from the World Bank WDI Database. Stock market capitalization to GDP is from Beck et al. (2000). The standard errors are computed assuming observations are independent across countries, but not within countries. *t*-statistics are in parentheses. The *F*-statistic tests the hypothesis that the firm-level (country-level) variables are jointly equal to zero. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	Panel a. CLSA governance rating.				
	(1)	(2)	(3)	(4)	(5)
Constant	54.57	41.45	43.00	44.19	48.24
	(12.82)***	(4.41)***	(5.62)***	(11.83)***	(8.62)***
Sales growth	5.44		5.74		1.86
	(2.74)**		(2.74)**		(1.13)
Dependence on external finance	1.49		1.93		0.07
	(1.51)		(1.91)*		(0.09)
Ownership	−0.76		0.94		2.40
	−(0.15)		(0.24)		(0.69)
Log(Assets)	−0.23		−0.90		−1.08
	−(0.30)		−(1.21)		−(1.43)
Cash/Assets	16.29		5.49		11.51
	(3.30)***		(1.17)		(2.15)**
Legal		0.51	0.51		
		(2.43)**	(2.87)***		
Log GNP/capita		0.13	0.49		
		(0.09)	(0.34)		
Stock market capitalization/GDP		0.32	0.11		
		(0.13)	(0.06)		
Country dummies	No	No	No	Yes	Yes
F-statistic: firm-level variables	9.06***		6.31***		4.00***
F-statistic: country-level variables		6.63***	8.35 ***		
Adjusted R^2	0.0424	0.1534	0.1922	0.3860	0.4074
No. of countries	23	23	23	23	23
No. of observations	309	309	309	309	309
	Panel b. S&P transparency and disclosure rating.				
	(1)	(2)	(3)	(4)	(5)
Constant	23.71	3.60	4.35	30.64	16.37
	(2.33)**	(0.33)	(0.45)	(5.18)***	(3.88)***
Sales growth	−4.20		−3.41		0.29
	−(0.67)		−(0.60)		(0.19)
Dependence on external finance	1.50		1.96		1.39
	(2.09)**		(2.93)***		(2.41)**
Ownership	−16.69		−6.00		1.20
	−(1.68)		−(0.95)		(0.49)

Table 2 (*continued*)

	Panel b. S&P transparency and disclosure rating.				
	(1)	(2)	(3)	(4)	(5)
Log(Assets)	4.03		2.92		1.78
	(4.87)***		(2.80)***		(3.58)***
Cash/Assets	10.53		4.56		4.13
	(2.71)**		(1.38)		(1.43)
Legal		0.47	0.51		
		(1.40)	(1.55)		
Log GNP/capita		3.37	0.78		
		(2.24)**	(0.47)		
Stock market capitalization/GDP		3.18	3.51		
		(0.78)	(0.90)		
Country dummies	No	No	No	Yes	Yes
F-statistic: firm-level variables	8.99***		5.59***		5.52***
F-statistic: country-level variables		8.59***	4.92***		
Adjusted R^2	0.2249	0.3160	0.3708	0.7338	0.7515
No. of countries	38	38	38	38	38
No. of observations	667	667	667	667	667
	Panel c. FTSE ISS corporate governance rating.				
	(1)	(2)	(3)	(4)	(5)
Constant	43.58	41.08	51.63	37.58	31.97
	(4.50)***	(0.81)	(1.04)	(9.78)***	(9.78)***
Sales growth	6.37		4.57		0.11
	(1.62)		(1.58)		(0.17)
Dependence on external finance	0.51		0.25		0.10
	(1.42)		(0.97)		(0.81)
Ownership	−7.60		−4.52		−2.13
	−(2.66)**		−(2.05)*		−(2.04)*
Log(Assets)	−0.29		0.07		0.39
	−(0.55)		(0.20)		(1.70)
Cash/Assets	−4.60		1.26		1.91
	−(0.66)		(0.45)		(1.25)
Legal		0.53	0.49		
		(2.37)**	(2.39)**		
Log GNP/capita		−1.98	−2.85		
		−(0.38)	−(0.55)		
Stock market capitalization/GDP		−2.39	−2.28		
		−(1.97)*	−(2.02)*		
Country dummies	No	No	No	Yes	Yes
F-statistic: firm-level variables	2.14*		4.11***		7.53***
F-statistic: country-level variables		2.64*	2.40*		
Adjusted R^2	0.0626	0.1800	0.2004	0.7196	0.7266
No. of countries	22	22	22	22	22
No. of observations	1,217	1,217	1,217	1,217	1,217

We also use firm size as a firm characteristic. Our model assumes that the cost of good governance is a fixed cost but the benefit is amortized over all of a firm's security issues. Our model therefore predicts a positive relation between firm size and governance scores.

Ownership by the controlling shareholders affects the choice of governance practices at the firm level. There is a subtle distinction, however, between the impact of ownership on the firm's level of expropriation of minority shareholders and on the governance practices adopted by the firm. In existing models, greater concentration of ownership leads to less expropriation because the controlling shareholder expropriates more from himself as his stake increases, so that the payoff from expropriation falls. As the controlling shareholder's ownership stake increases, we would expect him to invest less in costly firm-level governance mechanisms because his incentives to expropriate are lower. Consequently, governance scores could be negatively related to ownership if they do not weight ownership too much. To the extent that CLSA scores partly measure the risk of expropriation from the controlling shareholder and that risk is negatively related to the ownership of the controlling shareholder, ownership of the controlling shareholder could be positively related to the CSLA score. The S&P scores measure the extent of the adoption of firm-specific governance mechanisms and do not directly measure the risk of expropriation by the controlling shareholder. We would therefore expect a negative relation between S&P scores and the ownership of the controlling shareholder. With ISS, insider ownership is included in the construction of the score. We remove this one item to avoid a mechanical relation between ownership and the rating. Since the other determinants of the FTSE ISS index are governance practices, we would therefore expect a negative relation between the rating and insider ownership.

Finally, we employ the ratio of cash holdings to total assets. We would expect firms with more cash to be less likely to access the capital markets. Consequently, we would expect a negative relation between cash holdings and governance. However, firms that have just accessed the capital markets could also have higher cash holdings, and these firms should also have better governance ratings. Further, cash holdings could also proxy for growth opportunities since firms that have recently raised funds to finance growth opportunities will have larger cash holdings. In this case, we would expect cash holdings to be positively associated with governance.

Panel a of Table 2 reports the regression results for the CLSA ratings. Model (1) shows the regression of governance ratings on firm characteristics. Two firm characteristics, sales growth and the cash-to-assets ratio, are significant and both have a positive coefficient. The adjusted R^2 from an ordinary least-squares (OLS) regression is 4.24%, which shows that observable firm characteristics have very limited explanatory power. In all specifications, we report an F-statistic for a test of the joint significance of all firm and/or country variables. These F-statistics for firm-level variables are always significant at the 1% level. The t-statistics and F-statistics are reported from a regression that takes into account the potential clustering of the error terms within countries.[4]

[4]A model using country random effects would also correct for within-country correlation. However, Hausman tests indicate that the assumptions of the model are not met and that the random effects estimator is not valid. Therefore, we use OLS regressions with clustered robust standard errors to account for within-country correlation of the error terms—observations within a country are not treated as independent, but observations across countries are. The clustered standard errors are similar to heteroskedasticity-consistent standard errors (White, 1980) except that the weights are sums over each country (cluster); see Rogers (1993) and Williams (2000) for further details.

In specification (2), we investigate the role of country characteristics used in the literature, namely the "Legal" variable used by Durnev and Kim (2005), the log of GNP per capita, and the ratio of stock market capitalization to GDP. We see that these country variables explain much more of the variation in ratings (15.34%) than do firm-specific characteristics. Legal has a significant positive coefficient while the other two country characteristics are insignificant. In specification (3), we estimate regressions of the ratings on both sets of country and firm-specific characteristics. The adjusted R^2 increases (19.22%) and the F-statistics indicate that firm and country characteristics are jointly significant. All the variables that were significant in models (1) and (2) remain significant.

In model (4), we estimate a statistical upper bound on the importance of country-specific characteristics by projecting the governance ratings on country dummy variables. The adjusted R^2 of that model (38.60%) is about two and a half times the adjusted R^2 of model (2). This indicates that variables that researchers have focused on capture only a fraction of the country characteristics that can potentially influence governance scores. Comparing model (4) to model (1), we see that the adjusted R^2 of the country dummy regression is nine times that of the regression with firm-specific variables. Consequently, the country characteristics dominate firm characteristics in explaining the variation in firm governance ratings. In model (5), we estimate (3) but with country dummies instead of country characteristics. The improvement in adjusted R^2 obtained by adding firm-specific variables to (4) is trivial. Further, sales growth is no longer significant. In other words, part of the success of sales growth seems to be explained by its correlation with country characteristics. The only firm-specific variable that is significant is the cash-to-assets ratio, with a coefficient of 11.51 and a t-statistic of 2.15.

The results for the S&P governance ratings are reported in Panel b of Table 2. Firm characteristics explain much more of the variation in the S&P ratings than they do of the variation in the CLSA ratings. Model (1) estimates a regression of the S&P ratings on firm-specific characteristics. The adjusted R^2 is 22.49%, which is more than five times the adjusted R^2 of the same regression for the CLSA rating. Surprisingly, sales growth is not significant but the measure of dependence on external finance is and with a positive coefficient. Size has the predicted positive coefficient. As in Panel a, the cash-to-assets ratio has a positive and significant coefficient. In the regression with country characteristics, Legal is not significant but the log of GNP per capita is. The adjusted R^2 is roughly twice the adjusted R^2 for the comparable regression in Panel a. Model (3) adds the set of firm characteristics to model (2). The only significant variables in that regression are the measure of dependence on external finance and firm size. None of the country characteristics are significant, though the F-statistic associated with the joint test that they equal zero is rejected (F-statistic of 4.92). As in Panel a, country characteristics capture much less of the variation in governance ratings than country dummy variables. We find in model (4) that the R^2 using country dummy variables is 73%—more than twice the R^2 using country characteristics. Finally, when we combine firm characteristics with country dummies in model (5), the adjusted R^2 increases by a relatively small amount (from 73% to 75%). Again, only the dependence on external finance and firm size are significant.

Finally, Panel c of Table 2 reports results using the ISS scores. Model (1) shows that firm variables explain about as much of the variation of ISS scores as of CSLA scores. The only variable that is significant is insider ownership, although the firm variables are jointly significant. Model (2) has about three times more explanatory power. Legal is significant at

the 5% level with a positive coefficient. In contrast to our predictions, however, the ratio of stock market capitalization to GDP has a negative coefficient significant at the 10% level. When we add firm-specific variables to model (2), the R^2 increases slightly (from 18% to 20%). Both the firm and country variables are jointly significant. The country dummy variables explain about as much of the variation in the ISS ratings as they do for the S&P ratings. The firm characteristics are jointly significant (F-statistic of 7.53) when country effects are controlled for with dummy variables. The results for the ISS ratings are not very different from those for the S&P ratings, except that firm characteristics explain more of the variation in the S&P ratings than they do for the ISS ratings.

Irrespective of the rating system, country characteristics explain more of the variation in ratings than observable firm characteristics. The greater importance of country characteristics is most obvious when we use country dummy variables. The country characteristics used in the literature capture only a fraction of the variation in ratings due to country effects.

Our model predicts that firm characteristics matter more with greater economic and financial development. However, there is no reason for this effect to be linear in the level of economic development. It could well be that there is a threshold development effect, so that firm characteristics would not matter for less-developed countries but would matter for better-developed countries. To investigate this possibility, we split the sample between better- and less- developed countries. Such a comparison is more meaningful for the S&P ratings. We therefore restrict our analysis to these ratings.

Panel a of Table 3 splits the sample of the countries for which S&P ratings are available into countries with above-median GNP per capita, which we deem the developed countries, and below-median GNP per capita, or the less-developed countries. A number of results are striking. First, when we estimate regressions of the ratings on firm characteristics, the adjusted R^2 is 15.54% for the developed countries and 2.19% for the less-developed countries. None of the firm characteristics are significant in explaining the ratings of the less-developed countries. The F-statistic (13.40) is significant for the developed countries, but not for the less-developed countries (F-statistic of 0.81). In the developed countries, the rating increases with firm size and dependence on external finance and falls with ownership concentration, as predicted by our model. Country dummies explain 51.72% of the variation in ratings for the developed countries and 48.12% for the less-developed countries. Adding firm characteristics to the regression with only country dummies increases the adjusted R^2 from 51.72% to 59.81% for developed countries and decreases it from 48.12% to 48.00% for the other countries. The F-statistic of the joint test of the firm-level variables is significant for the developed countries (F-statistic of 7.25) and insignificant for the less-developed countries (F-statistic of 1.60). This finding confirms that firm characteristics are not useful in explaining governance ratings in economically less-developed countries and are more useful in countries with better economic development. The significantly negative coefficient on GNP per capita in the regressions that include country characteristics is puzzling, however. Although not reported, we did a similar investigation contrasting countries with low and high levels of financial development in the S&P sample using above- and below-median cutoffs by market capitalization-to-GDP ratios. We found similar differences as above.

In Panel b of Table 3 we split the S&P sample using the legal index, or "Legal," in which high (low) investor-protection countries are those with Legal scores above (below) the median. If country-level investor protection and firm-level governance are complements,

Table 3
The importance of firm and country characteristics: the role of economic development, investor protection, and globalization

The dependent variable in each regression is the S&P transparency and disclosure rating. Panel a shows results for sample splits on economic development (above or below median log of GNP per capita); panel b shows sample splits on investor protection (above or below median of Legal); panel c shows splits on global vs. non-global for firms in low economic development countries. Firms are classified as global if they have a Level 2 or 3 ADR as of December 31, 2000. Firm-level data are from Worldscope. Sales growth is inflation-adjusted two-year sales growth from 1998–2000 (winsorized at 1% and 99% tails). Data for Ownership, Total assets ($ millions), and Cash/Assets are for 2000. Dependence on external finance is from Compustat and is computed for US firms in the same industry from 1995–2000 as capital expenditures minus cash flow from operations divided by capital expenditures. Legal is anti-director × Rule of law, from Djankov et al. (2006) and La Porta et al. (1998). Log of GNP per capita ($) is for 2000 and is from the World Bank WDI Database. Stock market capitalization to GDP is from Beck et al. (2000). The standard errors are computed assuming observations are independent across countries, but not within countries. *t*-statistics are in parentheses. The *F*-statistic tests the hypothesis that the firm-level (country-level) variables are jointly equal to zero. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel a.	*High economic development.*					*Low economic development.*				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Constant	52.37	200.62	191.57	71.13	48.10	39.89	61.71	54.83	30.64	27.31
	(6.79)***	(2.85)**	(3.07)***	(96.14)***	(10.43)***	(5.14)***	(10.30)***	(8.18)***	(4.36)***	(3.83)***
Sales growth	5.18		−1.50		−0.61	−2.49		−1.80		1.01
	(1.03)		−(0.63)		−(0.27)	−(0.67)		−(0.58)		(0.45)
Dependence on external finance	1.53		1.69		1.25	1.60		2.00		1.33
	(2.05)*		(2.12)**		(2.01)*	(1.14)		(1.60)		(1.20)
Ownership	−16.47		−11.55		0.18	8.12		5.48		3.55
	−(2.37)**		−(2.55)**		(0.07)	(0.99)		(1.62)		(0.78)
Log(Assets)	1.42		2.59		2.64	−0.74		0.28		0.34
	(2.06)*		(5.91)***		(5.23)***	−(0.79)		(0.36)		(0.41)
Cash/Assets	−0.43		6.70		5.83	4.91		4.78		2.94
	−(0.09)		(2.14)**		(1.78)*	(0.92)		(0.69)		(0.55)
Legal		0.22	0.24				−0.10	−0.10		
		(0.79)	(1.06)				−(0.73)	−(0.77)		
Log GNP/capita		−14.54	−15.72				−3.37	−3.08		
		−(2.19)**	−(2.59)**				−(3.92)***	−(3.23)***		
Stock market capitalization/GDP		0.89	0.92				9.10	9.43		
		(0.24)	(0.30)				(3.64)***	(3.59)***		

Table 3 (*continued*)

Panel a.	*High economic development.*					*Low economic development.*				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Country dummies	No	No	No	Yes	Yes	No	No	No	Yes	Yes
F-statistic: firm-level variables	13.40***		13.05***		7.25***	0.81		1.28		1.60
F-statistic: country-level variables		2.37	3.42**				7.86***	6.08***		
Adjusted R^2	0.1554	0.1989	0.3338	0.5172	0.5981	0.0219	0.0658	0.0698	0.4812	0.4800
No. of countries	19	19	19	19	19	19	19	19	19	19
No. of observations	422	422	422	422	422	245	245	245	245	245

Panel b.	*High investor protection.*					*Low investor protection.*				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Constant	28.01	−78.26	−70.12	71.13	52.97	17.37	21.68	6.47	30.64	20.09
	(1.78)*	−(2.87)**	−(2.19)**	(94.37)***	(9.65)***	(2.23)**	(1.98)*	(0.72)	(4.15)***	(3.21)***
Sales growth	−7.28		−2.65		0.84	4.52		1.94		−0.32
	−(0.78)		−(0.57)		(0.50)	(1.08)		(0.55)		−(0.10)
Dependence on external finance	1.15		1.41		1.20	2.45		0.50		1.63
	(1.55)		(1.63)		(1.88)*	(1.67)		(0.33)		(1.02)
Ownership	−19.65		−5.09		−0.07	−0.13		10.84		4.07
	−(1.78)*		−(0.68)		−(0.03)	−(0.02)		(1.83)*		(0.64)
Log(Assets)	3.88		3.00		2.07	3.26		1.49		1.23
	(2.75)**		(2.63)**		(3.58)***	(3.37)***		(1.65)		(1.34)
Cash/Assets	6.79		1.66		4.55	14.24		10.55		3.83
	(1.56)		(0.42)		(1.39)	(1.90)*		(1.58)		(0.61)
Legal		1.20	1.21				0.49	0.65		
		(2.01)*	(2.10)*				(1.29)	(2.02)*		
Log GNP/capita		9.18	5.87				0.23	−0.38		
		(4.41)***	(3.02)***				(0.17)	−(0.27)		
Stock market capitalization/GDP		1.37	1.74				28.91	28.06		
		(0.33)	(0.44)				(2.70)**	(2.53)**		
Country dummies	No	No	No	Yes	Yes	No	No	No	Yes	Yes
F-statistic: firm-level variables	7.53***		3.28**		6.40***	4.71***		5.52***		5.37***
F-statistic: country-level variables		9.77***	5.04***				10.24***	6.71***		

Adjusted R^2	0.2110	0.4271	0.4789	0.7784	0.7997	0.1411	0.2885	0.3128	0.4751	0.4814
No. of countries	19	19	19	19	19	19	19	19	19	19
No. of observations	481	481	481	481	481	186	186	186	186	186
Panel c.	*Low economic development: global firms.*					*Low economic development: non-global firms.*				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Constant	20.79	52.80	51.26	43.01	37.44	48.01	59.12	56.45	18.28	21.64
	(1.80)*	(2.74)**	(2.52)**	(3.92)***	(2.17)**	(6.54)***	(8.84)***	(7.33)***	(1.95)*	(2.76)**
Sales growth	5.37		2.14		5.22	−4.16		−3.37		−0.83
	(0.73)		(0.35)		(0.89)	−(0.91)		−(0.93)		−(0.31)
Dependence on external finance	4.73		3.86		4.63	0.51		0.73		0.02
	(2.02)*		(1.80)*		(2.23)**	(0.35)		(0.50)		(0.02)
Ownership	7.12		−5.63		−2.25	8.49		5.71		3.41
	(0.58)		−(0.53)		−(0.20)	(1.06)		(1.53)		(0.78)
Log(Assets)	1.85		1.89		0.49	−1.93		−1.03		−0.48
	(1.58)		(1.51)		(0.32)	−(1.68)		−(1.03)		−(0.43)
Cash/Assets	−14.31		−6.13		4.01	4.51		5.84		2.41
	−(0.58)		−(0.26)		(0.12)	(0.77)		(0.69)		(0.73)
Legal		−0.68	−0.66				0.25	0.24		
		−(3.09)***	−(3.17)***				(1.44)	(1.40)		
Log GNP/capita		−0.99	−2.37				−3.87	−2.78		
		−(0.34)	−(0.86)				−(4.06)***	−(2.62)***		
Stock market capitalization/GDP		17.87	18.42				5.24	4.38		
		(1.97)*	(2.34)**				(1.69)*	(1.37)		
Country dummies	No	No	No	Yes	Yes	No	No	No	Yes	Yes
F-statistic: firm-level variables	2.53*		5.83***		3.75**	1.82		1.05		0.72
F-statistic: country-level variables		6.64***	5.61**				7.41**	4.69***		
Adjusted R^2	0.0157	0.1760	0.1824	0.4352	0.4301	0.0512	0.0897	0.0935	0.5234	0.5142
No. of countries	14	14	14	14	14	18	18	18	18	18
No. of observations	57	57	57	57	57	188	188	188	188	188

firms in countries with low country-level investor protection would have weaker incentives to invest in firm-level governance mechanisms. Firm characteristics are jointly significant for both subsamples, but these characteristics explain proportionally more of the variation in the ratings for firms in countries with high investor protection. This evidence indicates the incentives for firms to adopt firm-level governance measures are higher with better state investor protection. In regressions not reported, we find some additional evidence in support of the view that firm-level governance and state investor protection are complements. When we allow Legal to have a nonlinear effect on firm-level governance, we find that the relation between Legal and firm-level governance is significant only for countries with a high value for Legal.

In unreported results, we also split our sample of firms using legal origin (common law versus civil law countries) as a proxy for investor rights. As with the split based on the Legal variable, we find that firm characteristics are significant in both groups. However, it is striking that firm characteristics explain more than 50% of the variation in the rating for common law countries. To the extent that common-law countries have better investor protection, this evidence further supports the view that firm-level governance and country-level investor protection are complements.

In our regression analysis, we focus on an index of the legal system (Legal), a measure of economic development (GNP per capita), and a measure of financial development (stock market capitalization per GDP) as the country-specific explanatory variables. One could argue that other country variables should affect firm governance. For example, the extent to which property rights are enforced is important. Recent research (see Acemoglu and Johnson, 2005) shows that the respect of property rights is an important determinant of economic growth. In the model of Section 2, poor respect of property rights would make it less valuable to invest in governance since controlling shareholders who are more likely to be expropriated by the state gain less from investing in corporate governance. However, respect for property rights is strongly correlated with GNP per capita, so that our specifications might already account for the effect of this property-rights variable. Nevertheless, we re-estimated our regressions with country characteristics with the risk of expropriation index used by La Porta, Lopez-De-Silanes, Shleifer, and Vishny (1998). This index takes values from one through 10, where a value of one indicates the highest risk of expropriation. Using this variable restricts our sample size because it is not available for China or any of the former Eastern bloc countries. For the regressions in Table 2 that have both country and firm characteristics, we find that the coefficient on the expropriation index is not significant in the regression for the CLSA ratings, but it is positive and significant in the regression for the S&P ratings. For the S&P ratings, governance is positively related to the expropriation index, so that countries with a higher risk of expropriation have worse governance, as we would expect. Consequently, the risk of expropriation from the state is an important country characteristic. However, taking that characteristic into account changes none of our basic inferences, although it increases the proportion of the cross-sectional variation in governance ratings that can be explained by country characteristics. Finally, with ISS, there is very limited variation in expropriation risk across the mostly developed countries, so that expropriation risk has no explanatory power.

We also examine a number of other country-level measures. For example, as substitutes for the Legal variable, we consider the property rights index from the Heritage Foundation Index of Economic Freedom (www.heritage.org); Djankov, LaPorta, Lopez-de-Silanes,

and Shleifer (2003) index for procedural formalism in dispute resolution; a series of indicators from Kaufmann, Kraay, and Mastruzzi (2005) on accountability, political instability, government effectiveness, regulatory burden, rule of law, and control of corruption; and the World Bank's "Doing Business" indicators for disclosure, legal rights, credit information, director liability, and shareholder suits (www.doingbusiness.org). We also investigate other variables to proxy for financial market development, as in La Porta, Lopez-De-Silanes, and Shleifer (2006), including the number of listed firms per millions of population, the value of initial public offerings per country to GDP, equity market access, and ownership concentration. The adjusted R^2 values from these regressions are at times higher, but inferences about the explanatory power of firm-level variables are unchanged.

We have found evidence that is supportive of our hypotheses. At the same time, however, there are important limitations to our approach. Existing evidence shows that "earnings management appears to be lower in economies with large stock markets, dispersed ownership, strong investor rights, and strong legal enforcement" (Leuz, Nanda, and Wysocki, 2003, p. 507). This evidence raises the concern that the quality of firm accounting data is lower in the countries with lower economic and financial development, which might help explain why firm characteristics are less important in the regressions for such countries. However, we would still expect the Rajan-Zingales measure to work equally well across our datasets since it is constructed from US accounting data. It does not. Further, this data issue can only matter for the explanation of why firm characteristics have less explanatory power in less-developed countries. It has no bearing on the issue that firm characteristics have little explanatory power in general since this result holds for developed countries alone as well as for the whole sample.

Our regression analysis can only account for observable firm characteristics. Our specifications clearly do not explain all the variation in the governance ratings. For the regressions in which we account for country characteristics with dummy variables, what we do not explain should be explained by unobserved firm characteristics and mistakes in the ratings. Unobserved firm characteristics likely do not change our conclusions on the relative importance of firm and country characteristics for the regressions using the S&P ratings because, with the S&P ratings, country characteristics alone explain 73% of the variation in the ratings. The same point applies for the ISS ratings. Since the country dummy variables explain only 39% of the variation of the CLSA ratings, it would seem that observed and unobserved firm characteristics somehow explain more of the dispersion in the CLSA ratings than country dummy variables themselves. Part of the problem here could be mechanical, however. The countries that constitute the CLSA rating have much less variation in country characteristics than those for the S&P ratings because there are simply fewer countries represented in that sample. If we had a rating for just one country, it would not be surprising if all of the variation in those ratings were found to be explained by firm characteristics. This is precisely why we have focused more on the S&P ratings. At the same time, however, our argument has an obvious weakness, which is that country dummies explain as much for the ISS ratings as they do for the S&P ratings, even though the ISS ratings are available for firms in fewer countries.

We have restricted our focus to those firm characteristics that have been used most often in the literature. Market-to-book is often used as a proxy for growth opportunities, but it is also known that market-to-book is higher for firms that are better governed. When we estimate our regressions with market-to-book, our conclusions do not change. We investigate whether other characteristics would help explain the ratings better, without

success. To address the concern about omitted firm characteristics, we collect Worldscope data on ten additional firm characteristics (profitability, turnover, and leverage measures) and incorporate them into the existing regression specifications, not worrying about multicollinearity among the variables since the focus is on overall explanatory power. The results are not directly comparable to those in Table 3 because the additional data requirements reduce the sample size. For example, in Panel a, the number of firms in the sample of developed countries falls from 422 to 385 and the number of firms in the sample of less-developed countries falls from 245 to 139. When we run model (1) of Panel a in Table 3 with the restricted dataset, the adjusted R^2 is 17.31%. Adding the ten additional firm characteristics increases it to 21.74%. When we do this for less-developed countries in model (6), the adjusted R^2 increases from 1.74% to 2.77% so that for less-developed countries, firm characteristics still have little explanatory power even when we use the largest specification possible. We also estimate these regressions using three-year averages for firm characteristics, but the results are similar.[5]

What else could help explain the unexplained variation in ratings? Noisy data could matter on two fronts. First, it could be that there is simply random variation in governance ratings. Suppose there are governance attributes that are cheap to adopt but have little impact. Some firms might adopt them, others not. Such attributes would be economically unimportant, but they would drive down the R^2 of our regressions. Second, in spite of the extensive efforts made by the ratings agencies to construct accurate and meaningful measures, there could be systematic or idiosyncratic mistakes in the ratings. We discuss this issue further in Section 5.

It is important to note that we have assumed that the governance indices we use measure governance attributes that are valuable to minority shareholders and that adopting these attributes would decrease the deadweight costs of private benefits for controlling shareholders. It could be that we fail to find much explanatory power for firm characteristics in less-developed countries because transparency and better firm-level governance have mixed implications for shareholder wealth in such countries. It is possible that better disclosure might make it easier for the state to expropriate some types of firms (see, e.g., Stulz, 2005). If that is the case, firm characteristics might have little explanatory power because governance attributes have important costs that we are not taking into account. However, the limitation of this possible explanation is that a positive relation between governance indices and firm value does seem to exist (see, e.g., Durnev and Kim, 2005).

To conclude this section, we investigate whether financial globalization reduces the importance of country characteristics. Our model predicts that country (firm) characteristics should be less (more) important for firms that access global markets. To examine this issue, we re-estimate the regressions of Panel a of Table 3 that use the S&P ratings, but now we further split each subsample into two groups: firms with a cross-listing on a US exchange in the form of ordinary shares or Level 2 or 3 ADRs (which we call ''global firms'') and other firms (''non-global firms''). Panel c of Table 3 shows estimates for the

[5]Although the variable for dependence on external finance, which is constructed at the three-digit SIC code level, should control for industry effects, we also introduce industry dummy variables to control for potential sectoral effects in governance ratings and to determine whether they perturb our main inferences about the explanatory power of firm- and country-level variables for the ratings. There are no obvious patterns across sectors and including industry controls does not change any of our main inferences.

regressions contrasting global and non-global firms in less-developed countries. Strikingly, no firm characteristic coefficient is significant for non-global firms, although log assets is almost significant at the 10% level (but with the wrong sign). In contrast, dependence on external finance has a positive significant coefficient for global firms, suggesting that firms with high financing requirements with access to global markets gain from having better governance. For global firms, the *F*-statistic for the joint test that firm characteristics are irrelevant always rejects the null (2.53 for model (1), 5.83 for model (3) and 3.75 for model (5)). For non-global firms, the *F*-statistic for firm characteristics is insignificant in the regression specification of model (6) that has no other variables but firm characteristics and even when we add country characteristics (model (8), *F*-statistic of 1.05) or when we include country dummies (model (10), *F*-statistic of 0.72). Two results are not supportive of our model, however. First, there is some evidence that firm characteristics explain less of the variation in governance ratings for global firms than for non-global firms. Second, though country dummy variables explain more of the variation in governance ratings for non-global firms than for global firms, the opposite is true when we use country characteristics.

We also split the sample of CLSA firms in less-developed countries into global and non-global firms (not reported). We have proportionally fewer "global" firms that have US cross-listings in the CLSA sample. Nevertheless, we find when controlling for the country characteristics used in the literature that firm characteristics are insignificant for non-global firms and significant for global firms. The result has to be treated with caution, though, because it does not hold when country characteristics are controlled for with dummy variables.

We also estimate, but do not report, similar regressions using the S&P developed countries as well as the ISS ratings. In the S&P sample, the *F*-statistic for the joint test that firm characteristics are irrelevant always rejects the null for global firms. For non-global firms, the *F*-statistic for firm characteristics is insignificant in the regression specification that has no other variables but firm characteristics. When we add country characteristics or just country dummies, firm characteristics become significant explanatory variables. In the ISS sample, firm characteristics explain much more of the variation of the ratings for global firms (R^2 of 19.93%) than for non-global firms (R^2 of 3.65%). Further, firm characteristics are jointly significant for global firms but not for the other firms, except when we use country dummies, in which case firm characteristics are not significant for either type of firm. However, country characteristics have similar explanatory power for both types of firms.

Our theory also implies that home-country investor protection should be less important for global firms. The evidence supportive of this prediction is limited for less-developed countries in the S&P sample. Legal is negative and significant for global firms, but is insignificant for non-global firms. It could well be that splitting our sample into global and non-global firms as well as developed and less-developed countries asks too much of it.

5. Robustness checks

In this section, we address some potential concerns about our ratings data and about our econometric methodology. One concern is that of endogeneity. The economic, capital market, and institutional environments could influence not only a firm's governance decisions but also its policies and performance outcomes, such as cash holdings, asset size,

and sales growth, spuriously inducing statistical associations among these measures. A second problem could also arise due to omitted country-level variables that serve as predeterminants for differences in investor protection, income (GNP per capita), or stock market capitalization that are, in turn, shown to be correlated with governance scores. A third potential concern is that of selection bias. We explore the extent of the sample selection problem at the end of Section 3, but not its consequences for inferences from our regression analysis of governance ratings. In this section, we explore each of these challenges in a battery of robustness checks.

At the end of the previous section, we ask whether noise could help explain the unexplained variation in the ratings. The limitations of our databases suggest that there ought to be more at work than just noise. Because the CLSA, S&P, and FTSE ISS governance ratings are constructed at a particular point in time (2000 or 2003), we do not know when a firm adopts a particular provision. It might do so in response to a change in some firm characteristic or the market or institutional environment, but the change could subsequently disappear. Governance provisions are sticky, so that even though firm characteristics change, a particular provision might remain in effect. Another possibility is that particular firm characteristics (policy choices or performance outcomes) might arise as a result of a firm's governance actions. Finally, a firm might adopt a particular governance provision and the firm characteristic might occur in response to specific forces that we (and other researchers) do not observe. Without any time-series information, our ability to deal with this endogeneity issue is limited. One approach we use is to lag the firm and country characteristics such as sales growth, ownership, asset size, cash-to-asset ratio, log of GNP per capita, and stock market capitalization to GDP by one year (to 1999) relative to the reporting year for the S&P ratings (2000). The results in Panel a of Table 4 correspond to those (Models (3) and (8), respectively) in Panel a of Table 3 for the high and low economic development sample split. We find that the adjusted R^2s are lower, but the inferences about the explanatory power of the firm- and country-level variables do not change: firm-level variables are jointly significant for developed economies and only country-level variables matter for less-developed countries.

Our theory argues that incentives to invest in firm-level governance mechanisms depend on the level of state investor protection. However, it follows from Acemoglu, Johnson, and Robinson (2001) that legal institutions that determine state investor protection levels can affect governance choices not only directly but also indirectly, through their impact on overall economic performance. Acemoglu et al. use an instrumental variables (IV) approach to break a similar endogeneity link for the impact of legal institutions on income per capita by identifying exogenous, predetermined variation in legal institutions (through settler mortality rates two centuries earlier).[6] We cannot rely on settler mortality as a predetermined instrumental variable, since we have many countries in our sample from which settlers originated. However, we perform a similar analysis using the legal origin dummy variable (common versus civil law) as an instrument for Legal in a first-stage regression and the predicted value in the second-stage regression on firm-level governance ratings. Panel b of Table 4 reports the results for the S&P ratings sample split on high and

[6]See Levine (2005) for a survey of the two countervailing views on the role of property rights in economic development: the law and property rights view versus the endowment and property rights view. He references a number of studies that employ similar instrumental variables regression analysis to ours (e.g., Beck, Demirguc-Kunt, and Levine, 2003).

Table 4
Robustness checks

The dependent variable in each regression is the S&P transparency and disclosure rating. Each panel shows results for high and low economic development countries, denoted as HED and LED. Panel a shows results using data for 1999. Panel b shows instrumental variable regression results, where the Common law dummy is used as an instrument for Legal in the first-stage regression and the predicted value for Legal is used in the second-stage regression. Panel c shows results of Heckman regressions, where the dependent variable in the first-stage probit equals one if a firm is included in the S&P sample and zero otherwise – the non-sample firms include all non-financial firms available in Worldscope that are in countries covered by S&P (see Appendix A, Panel b). Data are for 1999 in panel a and for 2000 in panels b and c. Firm-level data are from Worldscope. Sales growth is inflation-adjusted two-year sales growth (winsorized at 1% and 99% tails). Total assets are in $ millions. Dependence on external finance is from Compustat and is computed for US firms in the same industry from 1995–2000 as capital expenditures minus cash flow from operations divided by capital expenditures. Legal is Anti-director × Rule of law, from Djankov et al. (2006) and La Porta et al. (1998). Log of GNP per capita ($) is from the World Bank WDI Database. Stock market capitalization to GDP is from Beck et al. (2000). In panels a and c, the standard errors are computed assuming observations are independent across countries, but not within countries. In Panel b, the standard errors are from the covariance matrix of the instrumental variables estimator. *t*-statistics are in parentheses. In Panels a and b, an *F*-statistic is reported that tests the hypothesis that the firm-level (country-level) variables are jointly equal to zero. In Panel c, a chi-square statistic is reported. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	Panel a. Results for 1999.		*Panel b. IV regressions.*		*Panel c. Heckman regressions.*	
	HED countries	LED countries	HED countries	LED countries	HED countries	LED countries
Constant	194.17	56.05	146.03	−8.81	189.60	38.97
	(2.30)**	(7.91)***	(5.18)***	−(0.26)	(3.01)***	(1.36)
Sales growth	0.86	−1.82	0.53	−1.00	−1.47	−1.53
	(0.35)	−(0.60)	(0.22)	−(0.20)	−(0.63)	−(0.51)
Dependence on	1.75	2.01	1.64	1.43	1.70	2.49
external finance	(2.10)**	(1.56)	(2.80)**	(0.71)	(2.16)**	(1.72)*
Ownership	−11.63	6.12	−10.95	8.42	−12.00	5.73
	−(2.35)**	(1.75)*	−(4.73)***	(1.33)	−(2.54)**	(1.57)
Log(Assets)	1.99	0.26	2.52	0.76	2.79	1.73
	(4.53)***	(0.35)	(6.20)***	(0.61)	(4.25)***	(0.67)
Cash/Assets	4.06	4.62	4.99	7.19	7.00	9.05
	(0.92)	(0.55)	(1.36)	(0.56)	(2.09)**	(0.85)
Legal	0.24	−0.08	0.50	1.68	0.24	−0.09
	(0.94)	−(0.54)	(3.95)***	(1.98)**	(1.06)	−(0.72)
Log GNP/capita	−15.58	−3.16	−11.98	−0.24	−15.72	−3.20
	−(1.86)*	−(3.28)***	−(4.79)***	−(0.11)	−(2.61)***	−(3.25)***
Stock market	2.38	7.32	0.19	2.04	0.95	9.25
capitalization/GDP	(0.64)	(2.86)***	(0.22)	−(0.39)	(0.31)	(3.31)***
F-statistic: firm-level variables	10.43***	1.33	14.47***	3.01	40.76***	5.91
F-statistic: country-level variables	1.90	4.88***	35.29***	9.06**	10.42**	16.08***
Adjusted R^2	0.2739	0.0614	0.3443	0.1119	.	.
No. of countries	19	19	19	19	19	19
No. of observations	422	243	422	245	6,239	1,992

low economic development in order to compare with models (3) and (8) in Panel a of Table 3. The explanatory power of Legal in the IV regressions is higher and it is now significant and positive in both specifications. Interestingly, there is a spillover effect for stock market capitalization to GDP, which now becomes insignificant in the less-developed countries. The adjusted R^2s in both models are higher, but especially so for less-developed countries. The explanatory power of the firm-level variables in those countries is still weak, however. (The standard errors in the IV regressions are computed from the covariance matrix of the IV estimator, although they are not clustered by country as in the other regressions.)

In Section 3, we report evidence that the firms that constitute the CLSA, S&P, and FTSE ISS samples are not random. Probit regression results show that larger firms (by total assets) and possibly those with a need for external finance are more likely to be included in such rankings. The results also show that higher inside ownership makes it more likely that firms are included in the CLSA sample and less likely that firms are included in the S&P and ISS samples. To investigate whether this selection bias affects our inferences about the explanatory power of firm- and country-level variables, we estimate Heckman selection models, in which the first equation draws from the probit models in Appendix B, Panel b, respectively, for firms in high and low economic development countries. These models are applied to 6,239 and 1,992 firms, respectively, drawn from the Worldscope universe. Panel c of Table 4 shows that our inferences are similar to those in Table 3. The coefficient magnitudes are similar and the firm-level variables are jointly significant in the developed countries, while they are insignificant for the less-developed countries.

So far, we have used the level of the governance index as the dependent variable. Arguably, the governance index reflects both governance attributes chosen by firms and governance attributes imposed on them by regulations and laws. Though one would expect country characteristics and country fixed-effects to capture common governance attributes across firms, a more focused test would use a measure of discretionary governance attributes as a dependent variable. There are two difficulties with constructing such a dependent variable. First, one has to identify discretionary governance attributes. Second, one has to properly scale the resulting index. To resolve the first problem, we subtract from the governance index the lowest index score of a firm in a country. The obvious difficulty with this approach is that a firm could have chosen to ignore governance requirements because it could, while others could not. Hence, our constructed measure is by no means perfect. The scaling problem is more serious. Suppose we use as the dependent variable the difference between a firm's S&P rating and the minimum rating in a country. Surprisingly, the minimum across all countries is for South Korea and equals 5.21. This means that South Korean firms could choose governance attributes that increase their rating all the way from 5.21 to 100. In contrast, the highest minimum rating is for Finland at 70.65. In Finland, therefore, firms have considerably less discretion in choosing governance attributes. We could focus on the number of governance attributes a firm chooses beyond the minimum (what we call the "level distance" measure). Alternatively, we could investigate how firm and country characteristics are related to the fraction of the gap from the country minimum to the theoretical maximum a firm attempts to close (or, the "proportional distance" measure).

As one additional robustness test, we re-estimate all our results with the level-distance and proportional-distance measures, requiring a minimum of either two or five firms in a given country. The results with these measures are similar to those we have discussed, so

that the choice of these measures does not seem to be important. We repeat our analysis for the S&P data, but for the three subcomponents of the overall index that relate to (i) ownership structure and investor rights (''ownership''), (ii) financial transparency and disclosure (''disclosure''), and (iii) board and management structure and process

Table 5
Differences from country minimum scores for the overall S&P rating and for sub-categories of the S&P ratings

The dependent variable in each regression is the difference in the S&P transparency and disclosure rating from the country minimum, computed as: $100 \times ((\text{Firm score} - \text{Country minimum})/(100 - \text{Country minimum}))$. Countries with less than five firms are excluded. Results are shown for the overall S&P rating (overall), as well as for each of the three sub-components of the S&P rating: ownership structure and investor rights (ownership), financial transparency and information disclosure (disclosure), and board and management structure and process (board). Each panel shows results for high and low economic development countries, denoted as HED and LED. Firm-level data are from Worldscope. Sales growth is inflation-adjusted two-year sales growth from 1998–2000 (winsorized at 1% and 99% tails). Ownership, Total assets ($ millions), and Cash/Assets are for 2000. Dependence on external finance is from Compustat and is computed for US firms in the same industry from 1995–2000 as capital expenditures minus cash flow from operations divided by capital expenditures. Legal is Anti-director × Rule of law, from Djankov et al. (2006) and La Porta et al. (1998). Log of GNP per capita ($) is for 2000 and is from the World Bank WDI Database. Stock market capitalization to GDP is from Beck et al. (2000). The standard errors are computed assuming observations are independent across countries, but not within countries. *t*-statistics are in parentheses. The *F*-statistic tests the hypothesis that the firm-level (country-level) variables are jointly equal to zero. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	Overall rating		*Ownership*		*Disclosure*		*Board*	
	HED countries	LED countries	HED countries	LED countries	HED countries	LED countries	HED countries	LED countries
Constant	345.62	20.62	436.54	16.52	180.18	4.98	471.96	34.06
	(3.82)***	(2.51)**	(3.57)***	(1.88)*	(2.74)**	(0.48)	(3.95)***	(2.32)**
Sales growth	−1.11	0.63	−4.52	−3.86	−1.91	1.44	1.56	2.15
	−(0.30)	(0.16)	−(1.42)	−(1.13)	−(0.34)	(0.33)	(0.40)	(0.65)
Dependence on	3.37	2.28	2.00	0.42	4.58	3.33	3.1	1.73
external finance	(2.55)**	(1.44)	(1.61)	(0.27)	(3.48)***	(1.94)*	(1.91)*	(1.41)
Ownership	−14.15	−1.17	−9.58	0.14	−7.70	9.84	−28.67	−3.36
	−(2.56)**	−(0.28)	−(1.42)	(0.03)	−(1.13)	(1.85)*	−(3.52)***	−(0.44)
Log(Assets)	4.08	1.03	0.98	0.19	6.88	2.78	3.73	0.58
	(4.81)***	(1.05)	(0.70)	(0.20)	(8.59)***	(2.48)**	(4.24)***	(0.50)
Cash/Assets	5.74	6.81	5.61	7.11	3.81	15.38	7.95	6.69
	(0.78)	(0.78)	(0.54)	(0.92)	(0.45)	(1.55)	(1.21)	(0.81)
Legal	−0.27	−0.27	−0.39	−0.02	0.11	−0.25	−0.54	−0.31
	−(0.87)	−(1.51)	−(0.91)	−(0.14)	(0.36)	−(1.10)	−(1.21)	−(0.72)
Log GNP/capita	−33.99	−0.15	−39.76	0.84	−20.45	−0.10	−45.24	−1.40
	−(4.04)***	−(0.13)	−(3.53)***	(0.70)	−(3.14)***	−(0.07)	−(4.23)***	−(0.45)
Stock market	2.41	−0.08	2.69	−0.55	2.14	7.69	8.81	−1.19
capitalization/GDP	(0.54)	−(0.02)	(0.50)	−(0.17)	(0.45)	(1.91)*	(1.47)	−(0.19)
F-statistic: firm-level variables	23.96***	0.71	1.06	0.49	95.11***	2.64**	8.88***	1.11
F-statistic: country-level variables	6.24***	1.83	4.98**	0.17	3.75**	1.53	8.48***	2.13
Adjusted R^2	0.3405	0.0023	0.2423	−0.0245	0.2221	0.0391	0.4418	0.0192
No. of countries	13	14	13	14	13	14	13	14
No. of observations	405	237	405	237	405	237	405	237

(''board''). In addition to the fact that these subcomponents measure different attributes of governance in some countries, there may be important insights we can obtain about our econometric methodology. The fact is that within-country variation in some components could be greater than in others and the ability for firm-level variables to explain this variation could stem mechanically from this feature of the data.

Table 5 presents regressions using the proportional distance measures, first for the S&P overall ratings to facilitate comparisons with the results in Table 3, and second for the three subcomponent indexes. We see that the explanatory power of firm-level variables for developed countries is concentrated in the disclosure and board ratings and is absent completely for the ownership ratings. We have no a priori reason to explain why these two subcomponents capture more firm-level variation and there are some surprising outcomes. It is not clear why more concentrated ownership (the ''Ownership'' variable) would be associated with lower overall ratings, due in large part to the board and management structure component, more than the ownership structure component. A check on the unconditional statistical properties of these component ratings shows no measurable difference in dispersion, so one cannot attribute this finding to an artifact of the econometric procedure. Also interesting is the fact that for less-developed countries, firm-level variables are jointly insignificant overall and for two components (ownership, board), but not for the disclosure component (F-statistic of 2.64, significant at the 5% level). In any case, these additional findings suggest that additional analysis of components of these ratings would be worthwhile.

6. Conclusion

In this paper, we distinguish between investor protection granted by the state and investor protection adopted by the firm. We show that the extent to which firms choose to improve upon the investor protection granted by the state depends on the costs and benefits of doing so. In countries with weak development, it is costly to improve investor protection because the institutional infrastructure is lacking and good governance has political costs. Further, in such countries, the benefit from improving governance is smaller because capital markets lack depth. Finally, such countries have poor investor protection and we find some evidence that there is complementarity between country-level investor protection and firm-level governance. However, financial globalization reduces the importance of country characteristics, thereby increasing the incentives for good governance.

Using the CLSA corporate governance ratings, the S&P transparency and disclosure ratings, and the FTSE ISS governance scores, we find that a large fraction of the variation in these ratings is attributable to country characteristics. Strikingly, though the relation between firm-level governance and country characteristics seems to be somewhat dependent on the governance ratings used and different subsamples of firms, we always find strong evidence that, when we control for country characteristics using country dummy variables, adding firm characteristics to a regression increases the adjusted R^2 trivially unless we use a sample of developed countries. We also find some evidence that firm characteristics matter more for firms from less-developed countries that have access to global markets. Though it is possible that the ratings are better at evaluating firm-level governance in more-developed countries or for more-global firms, it is not clear how that could be the case for the S&P ratings or the ISS ratings since they are fully based on

objective criteria. Finally, although we use firm characteristics that the literature has believed to be associated with governance, it might be that omitted firm characteristics or past values of firm characteristics play a more significant role in explaining the ratings. However, for the S&P and ISS ratings, these unobserved firm characteristics explain much less of the variation in ratings than country dummy variables. In conclusion, the evidence presented here is consistent with the view that country characteristics are the most important determinant of a firm's governance. While the investor protection granted by the state is an important determinant of a firm's governance, so are the economic development, the financial development, and the openness of the firm's home country.

Appendix A. Closed-form example

A closed-form solution for S can be obtained for the case where b is equal to $B(1-k)$, where B is a constant. The literature has assumed that the cost of expropriation depends on p but not on firm characteristics other than cash flow. The assumption that b is proportional to $(1-k)$ implies that the overall cost of expropriation for the controlling shareholder falls linearly with his ownership stake in the firm. The assumption that the cost of expropriation falls as k increases does not seem unreasonable. Suppose that the controlling shareholder owns 99.99% of the firm. Presumably, if he has some money, he can always buy out the shareholders who own the other 0.01% if he is caught expropriating. In contrast, if the controlling shareholder owns 40% of the firm and gets caught, many more individuals will be affected and pressure on politicians to punish the controlling shareholder is likely to be much higher. So, it is reasonable to think that the political system is likely to punish more severely the controlling shareholder who owns 40% of the shares than the one who owns 99.99%. A controlling shareholder who owns 40% of the shares and expropriates 10% of the cash flow of the company is also more likely to get caught than one who owns 99.99% and who expropriates the same fraction of the cash flows because the shareholders who get expropriated lose a much larger dollar amount in the former case than in the latter.

With this assumption, we can replace b in Eq. (3) with $B(1-k)$, so that f now equals $1/B(p+q)$ and no longer depends on k. The value of the firm is $(1-f)$ times the firm's cash flow before expropriation:

$$V = \left[\frac{B(p+q)-1}{B(p+q)}\right] aK^{\alpha}. \tag{A.1.1}$$

It then follows that k is equal to

$$k = \frac{(B(p+q)-1)aK^{\alpha} - B(p+q)(K-W)}{(B(p+q)-1)aK^{\alpha}}. \tag{A.1.2}$$

Replacing f by $1/B(p+q)$ and b by $B(1-k)$ in Eq. (7), where k is defined by Eq. (A.1.2), we obtain a new expression for S:

$$S = aK^{\alpha} - n(K-W) - mq^2 + (K-W)\left(\frac{1-2B(p+q)}{2(B(p+q)-1)}\right). \tag{A.1.3}$$

A closed-form solution for S can be obtained if we assume that the cost of expropriation falls linearly with the ownership stake of the controlling shareholder. In this case, we

obtain a new expression for S,

$$S = aK^{\alpha} - n(K - W) - mq^2 + (K - W)\left(\frac{1 - 2B(p+q)}{2(B(p+q) - 1)}\right). \tag{A.1.4}$$

The entrepreneur again maximizes S by choosing q and K, but, in this case, if the entrepreneur raises funds, he chooses K to be given by

$$K = \left[\frac{\alpha a(2B(p+q) - 2)}{(2B(p+q) - 2)n + 2B(p+q) - 1}\right]^{1/1-\alpha}. \tag{A.1.5}$$

There are four important comparative statics for K in Eq. (A.1.5):

(1) An increase in a increases K. An increase in a means that the investment opportunity of the entrepreneur is better, so that the marginal product of capital increases and he invests more.
(2) An increase in n decreases K. If n is high, as in poorly developed financial markets, it is more expensive to raise funds, so that the entrepreneur raises a smaller amount of funds and invests less.
(3) An increase in investor protection from the firm, q, is associated with an increase in K because expropriation falls.
(4) An increase in investor protection from the state, p, is associated with an increase in K since the entrepreneur expropriates less.

In Eq. (A.1.5), K depends on q. We can substitute Eq. (A.1.5) into the first-order condition for q, or Eq. (8b). A polynomial in q is obtained. The comparative statics are straightforward to evaluate when S is a concave function of q, which has to be the case for an interior solution for q to exist. Consequently, we obtain the following result:

Proposition A. *Provided that there is an interior solution for q and that the entrepreneur raises outside equity, a lower q is chosen, or in other words, the firm adopts fewer restraints on the expropriation of investors, as*

P1. *The cost of adopting these restraints, m, increases*;
P2. *The protection of investor rights through the state, p, increases*;
P3. *The cost of accessing capital markets, n, increases*;
P4. *The investment opportunities of the firm, a, worsen*.

Note that Proposition A has the same results as those obtained earlier when evaluating the first-order conditions in Eqs. (8a) and (8b) and using a linear approximation in the comparative static analysis. The intuition for the results is the same as earlier. Moreover, if we view $\Omega = p + q$ as the measure of investor protection that takes into account the protection granted by the state, p, and the additional protection granted by the firm, q, Ω increases with p, falls with m, increases with a, and falls with n.

Appendix B. Sample selection

For more information about sample selection see Table B1.

Table B1
The dependent variable in each probit regression model equals one if a firm is in included the CLSA sample, the S&P sample, or the FTSE ISS sample, and zero otherwise. Panel a shows results for each rating using all countries. Panel b shows results for the S&P sample split into high and low economic development countries (HED and LED). The non-sample firms include all non-financial firms available in Worldscope that are in countries covered by a given rating. For the CLSA and S&P ratings, data are for 2000; data for the FTSE ISS ratings are for 2003. Sales growth is inflation-adjusted two-year sales growth (winsorized at 1% and 99% tails) and Total assets is in $ millions. Dependence on external finance is from Compustat and is computed for US firms in the same industry from 1995–2000 as capital expenditures minus cash flow from operations divided by capital expenditures. The standard errors are computed assuming observations are independent across countries, but not within countries. *t*-statistics are in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	Panel a. All countries included.			*Panel b. S & P ratings for HED and LED countries.*	
	CLSA	S&P	FTSE ISS	HED countries	LED countries
Constant	−4.22	−5.70	−8.96	−8.55	−4.20
	−(6.33)***	−(8.95)***	−(8.69)***	−(12.23)***	−(5.91)***
Sales growth	0.21	0.09	−0.31	0.42	−0.07
	(2.16)**	(0.52)	−(1.52)	(2.55)**	−(0.37)
Dependence on external finance	0.25	0.09	0.17	0.00	0.16
	(3.75)***	(1.65)*	(3.23)***	(0.04)	(1.85)*
Ownership	0.49	−0.74	−1.25	−1.90	0.08
	(2.74)***	−(3.15)***	−(4.74)***	−(6.28)***	(0.47)
Log (Assets)	0.40	0.64	0.66	1.00	0.45
	(4.65)***	(7.99)***	(8.57)***	(12.01)***	(4.22)***
Cash/Assets	0.86	0.47	0.62	1.47	1.14
	(1.33)	(1.53)	(1.75)*	(2.72)***	(2.93)***
ROA	3.48	3.04	0.00	3.92	1.50
	(4.81)***	(3.58)***	(1.28)	(5.67)***	(1.64)
Long-term debt/assets	0.22	0.17	−0.48	−0.53	0.15
	(2.89)***	(0.63)	−(2.21)**	−(0.70)	(1.78)*
Pseudo R^2	0.2788	0.4482	0.4581	0.6460	0.2587
No. of countries	23	38	22	19	19
No. of observations	2,440	8,231	6,325	6,239	1,992

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