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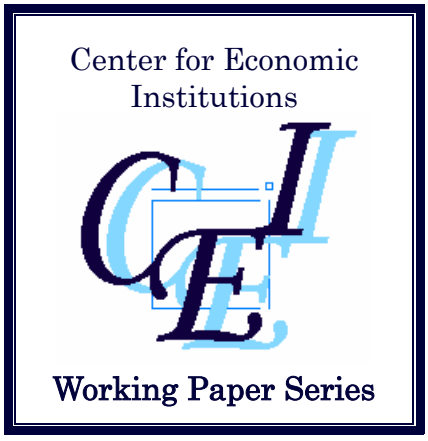

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To Steal or Not to Steal: Firm Attributes, Legal Environment, and Valuation

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To Steal or Not to Steal:
Firm Attributes, Legal Environment, and Valuation

Abstract

Data on corporate governance and disclosure practices reveal wide within-country variation that decreases with the strength of investors' legal protection. A simple model identifies three firm attributes related to that variation: investment opportunities, external financing, and ownership structure. Using firm-level governance and transparency data in 27 countries, we find that all three firm attributes are related to the quality of governance and disclosure practices and that firms with higher governance and transparency rankings are valued higher in stock markets. All relations are stronger in less investor-friendly countries, demonstrating that firms adapt to poor legal environments to establish efficient governance practices.

Previous studies show that better legal protection for investors is associated with higher valuation of the stock market (La Porta, et al. (2002)), higher valuation of listed firms relative to their assets or changes in investments (Wurgler (2000)), and larger listed firms in terms of their sales and assets (Kumar, Rajan, and Zingales (1999)). Furthermore, industries and firms in better legal regimes rely more on external financing to fund their growth (La Porta, et al. (1997), Demirgüç-Kunt and Maksimovic (1998), and Rajan and Zingales (1998)).[1]

Although these country-level studies provide valuable insights into the effects of regulatory environment, they leave several important questions unanswered. Do all firms in weak legal regimes suffer from poor corporate governance and do firms in strong legal regimes practice uniformly high-quality governance? Newly released data on 859 firms in 27 countries reveal wide within-country variation in governance and disclosure practices, with the variation increasing as legal environment gets less investor-friendly. These phenomena raise new questions: Does the wider variation in weaker legal regimes simply reflect greater latitudes allowed by lower minimum standards? Or does it reflect firms' adaptation to poor legal environment, as in Coase (1960), resulting in some firms having higher-quality governance than is required by law? If so, is there a systematic pattern in which firms choose their quality of governance? What are the relevant firm attributes and how are they related to the observed governance practices? Is the quality of governance priced in stock markets, and if so, is it economically significant for corporate decision makers to take notice?

To address these issues, we provide a simple model and test its predictions and related conjectures. The model describes how a controlling shareholder may arrive at the optimal level of diversion of corporate resources while facing private costs of diversion that increase with the strength of legal environment.

The model predicts that (1) firms with better investment opportunities, higher concentration of ownership, and greater needs for external financing practice better governance; (2) firms that practice better governance are valued higher; and (3) these relations are stronger in weaker legal

regimes. The basic intuitions are simple. Profitable investment opportunities matter because one is less likely to commit crime if one has something valuable to lose. Ownership concentration matters because one does not steal from oneself. External financing matters because one does not spit into the well from which one plans to drink. As for the interplay between firm attributes and legal environment, good corporate governance driven by private incentives plays a more important role in alleviating the harmful effects of ineffective legal framework when regulation is weak. And finally, good corporate governance is valued higher where it is scarce; namely, in weaker legal regimes.

These predictions are tested with data on the quality of corporate governance practice compiled by *Credit Lyonnais Securities Asia* (CLSA), while using *Standard and Poor's* (S&P) disclosure data as a robustness check. The CLSA data rely on an intuitively appealing and comprehensive, yet partially subjective method, while S&P scores are objective.

As predicted by the model, the quality of governance practice is positively related to growth opportunities, concentration of cash flow rights, and need for external financing. Furthermore, these relations are stronger in less investor-friendly legal environments. Consistent with Coase, firms seem to adapt to legal environments to effect efficient governance practices.

The data also reveal that firms with better governance enjoy higher valuation. One standard deviation increase in overall governance score is associated with an increase of a firm's market value by nine percent, on average, with a stronger impact in weaker legal regimes. For example, for firms in Mexico, which has the weakest legal framework in our sample, one standard deviation increase in governance scores is associated with 13.2 percent increase in market value, whereas the same change in a strong legal framework like Hong Kong is associated with only 4.6 percent increase. These findings are consistent with recent studies based on international data and may explain why previous studies on the relation between governance and firm performance using U.S. data show mostly mixed results.[2]

Section I presents a simple model to provide empirical hypotheses. Empirical design and data are described in Section II. Section III reports empirical results, with robustness checks described in Section IV. The concluding section contains a summary and implications.

I. Theoretical Considerations

We consider an environment similar to Johnson, et al. (2000), Lombardo and Pagano (2002), and Shleifer and Wolfenzon (2002), in which controlling shareholders divert corporate resources and diversion is costly. We relate diversion to corporate governance by defining the quality of governance as (*1-d*), where *d* is the proportion of firm value diverted for private gains. Thus, a high level of *d* implies poor governance practice, where *d* is broadly defined to include a wide range of value-decreasing activities from what Jensen and Meckling (1976) define as excessive shirking and corporate perks to outright stealing of tangible and intangible corporate resources. This definition of the quality of governance captures various governance and managerial practices in place that may or may not be legally binding.

Diversion is costly to the controlling shareholder. The most obvious costs are fines, jail terms, and loss of reputation associated with illegal diversion. Another cost is bribery of employees, regulators, and politicians to facilitate and hide diversion. A third cost is the difference between the controlling shareholder's private value of corporate perks or of diverted resources and their fair replacement value. These direct costs vary across countries due to differences in regulatory environment, with higher costs in countries with stronger legal protection for investors.

Diversion also incurs opportunity costs if it affects investment decisions. For example, the direct costs of diversion generally are lower when a project is at the idea or business plan stage than after the project becomes tangible assets, because it is more difficult to identify and exercise property rights of a business idea than of tangible assets. When this cost difference is sufficiently large, it may be optimal to divert the project before investments are made. Such diversion will lower the project's value if it is worth more as a part of the firm – say, due to economic dependence with the firm's existing assets – than elsewhere.

In general, timing of diversion depends on how costs and benefits vary over time, and hence, diversion may affect investment decisions. To incorporate such possibilities, we assume that the controlling shareholder makes diversion and investment decisions jointly and that the direct costs of diversion are linear in the amount diverted. We also consider, in Appendix A, a case in which diversion is made after investments as in Shleifer and Wolfenzon (2002) with a convex cost function. Both approaches lead to the same set of hypotheses because reductions in project value and a linear cost of diversion, combined, have a similar effect on the optimal diversion decision as a convex cost.

A. A Simple Model

We consider a simple investment opportunity set in a single period, in which investments are made at the beginning and returns are realized at the end, when the firm liquidates and the controlling shareholder collects her share of liquidating dividends. The interest rate is zero and investors are risk-neutral.

The gross return per unit of capital invested in project j is equal to $1+\pi(j)$, where $j \geq 0$ and $\pi(j)$ is linear and decreasing in j for all firms with each firm having a maximum of $\overline{\pi} > 0$. $\overline{\pi}$ varies across firms and is the variable that differentiates the profitability of investment opportunities across firms. With these assumptions, the gross return for the j^{th} unit of capital invested can be written as $1+\pi(j) = 1+\overline{\pi} - j$. If a firm takes all positive NPV projects, it will invest until $1+\overline{\pi} - j = 1$, and the units of capital invested will be $j = \overline{\pi}$.

The cost of diversion is assumed to be a constant fraction, c, of the amount diverted. The controlling shareholder owns α fraction of cash flow rights and will divert only when $c < 1-\alpha$, because one dollar of diversion creates wealth transfer of $1-\alpha$ from other shareholders giving her a net benefit of $1-\alpha-c$.

The controlling shareholder will invest as long as her share of liquidating dividends from a project is greater than the after-cost diversion; namely, if $\alpha(1+\pi(j)) > 1-c$. Thus she will

invest up to the point where $\alpha(1+\bar{\pi}-j)=1-c$, from which we obtain the controlling shareholder's optimal level of investment,

$$j^* = \begin{cases} 1+\bar{\pi}-\dfrac{1-c}{\alpha} & \text{if } \ 1-(1+\bar{\pi})\alpha < c < 1-\alpha \\ 0 & \text{if } \ c \le 1-(1+\bar{\pi})\alpha \end{cases} . \qquad [1]$$

The internal funds available for investments is $F=\bar{\pi}+e>0$, where *e* is a constant indicating whether the firm has sufficient funds to invest in all positive NPV projects.[3] The funds remaining after the investment, $F-j^*$, will be diverted if $c<1-\alpha$. Because $F=\bar{\pi}+e$, it follows from equation [1] that the optimal amount of diversion is,

$$D^* = \begin{cases} \dfrac{1-c-\alpha}{\alpha}+e & \text{if } \ 1-(1+\bar{\pi})\alpha < c < 1-\alpha \\ \bar{\pi}+e & \text{if } \ c \le 1-(1+\bar{\pi})\alpha \end{cases} . \qquad [2]$$

Dividing *D** by the firm's endowment, $\bar{\pi}+e$, we obtain our proxy for the quality of corporate governance, the optimal proportion of the endowment diverted,

$$d^* = \begin{cases} \dfrac{1-c-\alpha+\alpha e}{\alpha(\bar{\pi}+e)} & \text{if } \ 1-(1+\bar{\pi})\alpha < c < 1-\alpha \\ 1 & \text{if } \ c \le 1-(1+\bar{\pi})\alpha \end{cases} . \qquad [3]$$

B. Hypotheses

Equation [3] specifies how *d** is related to the variables of interest, namely, *c*, α, and $\bar{\pi}$. Taking partial derivatives of *d** with respect to these variables provides a number of testable hypotheses. The most obvious is that *d** is negatively related to the cost of diversion *c*, our proxy for the strength of legal environment. Restating the well-known result,

HYPOTHESIS 1: *In stronger legal regimes (higher-c countries), firms will divert less and practice higher-quality corporate governance.*

Taking the partial derivative of *d** with respect to $\bar{\pi}$, the profitability of investment opportunities,

$$\frac{\partial d^*}{\partial \bar{\pi}} = \begin{cases} \dfrac{\alpha + c - 1 - \alpha e}{\alpha(\bar{\pi} + e)^2} < 0 & \text{if } \ 1 - (1 + \bar{\pi})\alpha < c < 1 - \alpha \\ 0 & \text{otherwise} \end{cases} . \qquad [4]$$

This derivative is negative because when investment opportunities are more profitable, the controlling shareholder's personal gains from investments due to her cash flow rights are greater.

HYPOSTHESIS 2: *Controlling shareholders of firms with more profitable investment opportunities divert less for private gains and practice higher-quality corporate governance.*

Equation [4] also implies that when a firm suffers a substantial drop in profitable investment opportunities, the controlling shareholders will divert more corporate resources. Johnson, et al. (2000) document such behavior by Asian firms before the Asian financial crisis. In the U. S., the media alleges similar actions by the top management of Enron, Worldcom, and other firms prior to their filing bankruptcy.

The impact of investment opportunities on governance practice may vary across legal regimes, which can be seen by taking the derivative of equation [4] with respect to *c*,

$$\frac{\partial d^*}{\partial \bar{\pi} \partial c} = \begin{cases} \dfrac{1}{\alpha(\bar{\pi} + e)^2} > 0 & \text{if } \ 1 - (1 + \bar{\pi})\alpha < c < 1 - \alpha \\ 0 & \text{otherwise} \end{cases} . \qquad [5]$$

Equation [5] shows that the sensitivity of diversion to investment opportunities falls as the cost of diversion rises. In other words, the positive relation between investment opportunities and the quality of governance is stronger in weaker legal regimes. The potential loss of value due to diversion is greater in weaker legal frameworks and, hence, those with good investment opportunities have greater incentives to mitigate it through good governance:

HYPOTHESIS 3: *The impact of investment opportunities on the quality of governance practices is stronger in a country with weaker legal environment.*

The impact of ownership concentration can be seen by differentiating *d** with respect to α,

$$\frac{\partial d^*}{\partial \alpha} = \begin{cases} -\dfrac{1 - c}{\alpha^2(\bar{\pi} + e)} < 0 & \text{if } \ 1 - (1 + \bar{\pi})\alpha < c < 1 - \alpha \\ 0 & \text{otherwise} \end{cases} . \qquad [6]$$

This is the well-known Jensen and Meckling (1976) agency argument that entrepreneurs with higher ownership divert less, restated as:

HYPOTHESIS 4: *Controlling shareholders with greater cash flow rights practice higher quality corporate governance.*

A more interesting result is obtained by differentiating equation [6] with respect to *c*,

$$\frac{\partial d^*}{\partial \alpha \partial c} = \begin{cases} \dfrac{1}{\alpha^2(\bar{\pi}+e)} > 0 & \text{if } \ 1-(1+\bar{\pi})\alpha < c < 1-\alpha \\ 0 & \text{otherwise} \end{cases} . \qquad [7]$$

Equation [7] shows that the sensitivity of diversion to ownership concentration falls as the cost of diversion rises. In other words, the positive relation between ownership and the quality of governance is stronger in weaker legal regimes. In the absence of adequate legal protection for investors, concentrated ownership becomes a more important tool to resolve the agency conflict between controlling and minority shareholders.[4] Thus we propose

HYPOTHESIS 5: *The impact of ownership concentration on the quality of governance is greater in a weaker legal regime.*

The quality of governance also may be related to external financing. We have already shown that firms with profitable investment opportunities will have better corporate governance. If profitable investment opportunities lead to more external financing, firms with greater external financing are likely to have better corporate governance.

Demirgüç-Kunt and Maksimovic (1998), however, predict the opposite. They argue that profitable firms have more internally generated funds and, hence, rely less on external financing. Thus we isolate the impact of external financing from that of profitability of investment opportunities by assuming that investment is given. We also assume that external financing is bounded from above by a minimum level of cash flow rights necessary to maintain the control and that new investors rationally anticipate diversion. Under these assumptions, in Appendix B we show that firms in greater need for external financing have greater incentives to enhance the quality of governance, which leads to

HYPOTHESIS 6: *For a given level of profitable investment opportunities, controlling shareholders of firms with greater need for external financing will practice higher-quality governance.*

One reason firms in weaker legal regimes have difficulty raising external capital is investors' lack of trust in legal protection of their rights. Since this distrust leads to higher costs of capital, firms with external financing needs have incentives to alleviate their concerns by practicing high-quality governance. The incentives are likely to be greater among firms that suffer more from the lack of investor confidence; namely, firms located in weaker legal regimes. Hence,

CONJECTURE 1: *The positive relation between external financing needs and the quality of governance is stronger in a weaker legal environment.*

Finally, we examine the relation between the quality of governance and a firm's market-to-book value ratio, Q, defined as the ratio of the present value of gross returns from projects to the amount of investment, j^*,

$$Q = \frac{\int_0^{(1-d^*)(\bar{\pi}+e)} (1+\bar{\pi}-j)dj}{(1-d^*)(\bar{\pi}+e)} = (1+\bar{\pi}) + \frac{(\bar{\pi}+e)(1-d^*)}{2}. \qquad [8]$$

Equation [8] shows that Q increases as d^* decreases; thus,

HYPOTHESIS 7: *Firms with high-quality governance are valued higher.*

Because high-quality governance is relatively scarce in weak legal regimes, everything else being equal, the few firms with good governance are likely to be valued more in poor legal environments. Thus,

CONJECTURE 2: *The impact of the quality of governance on firm valuation is greater in weaker legal regimes.*

II. Empirical Design and Data

A. Regression Specification

To test the hypotheses and conjectures concerning relations between governance and firm attributes, we regress individual firms' corporate governance scores on measures of investment

opportunities, external financing needs, ownership concentration, and legal environment, controlling for industry and other firm characteristics. Specifically, we estimate the following cross-sectional country random-effects regression:

$$CORP\_GOV_j^c = \alpha + \beta_1 * INV\_OPP_j^c + \beta_2 * EXT\_FIN_j^c + \beta_3 * OWN\_CASH_j^c + \gamma_1 * LEGAL^c + \gamma_2 * EXT\_FIN_j^c * LEGAL^c + \gamma_3 * INV\_OPP_j^c * LEGAL^c + \gamma_4 * OWN\_CASH_j^c * LEGAL^c + \sum_{k=1}^{K} \delta_k * Z_{k,j}^c + \sum_{i=1}^{I-1} d_i + \varepsilon_j^c \quad , [S1]$$

where *CORP_GOV* is corporate governance or transparency scores; α, a constant; *INV_OPP*, investment opportunities; *EXT_FIN*, the need for external financing; *OWN_CASH*, concentration of cash flow rights; and *LEGAL*, the strength of a country's legal regime. Interaction terms *INV_OPP*LEGAL, EXT_FIN*LEGAL*, and *OWN_CASH*LEGAL* are those of legal regime with investment opportunities, external financing, and ownership concentration, respectively. And *Z*s are control variables; *d*, industry dummy; *c,* country; *i,* industry; *j*, firm; *K*, the number of control variables; and *I*, the number of industries.

Specification [S1] is estimated by two separate regressions: one with *INV_OPP* and *EXT_FIN,* and another with *OWN_CASH* as independent variables. These variables are separated for two reasons. First, using all three variables in the same regression substantially reduces the sample size because ownership data are not available for a substantial part of our sample. Second, using all three as independent variables in addition to their interaction terms with *LEGAL* may create a multi-collinearity problem.

We estimate these regressions using country random-effects to take into account that observations on individual firms in a given country are not independent and that errors among observations are correlated. Country random-effects specification is supported by the Breusch and Pagan (1980) test, which strongly rejects the hypothesis that the variation of random effects is zero. Moreover, our sample consists only of a sub-sample of the total population of countries and, thus, a random-effects specification is preferable (Greene (1997)).

To investigate the relation between firm valuation and corporate governance, we again control for strength of legal environment, industry, and firm characteristics and estimate the following cross-sectional regression using country random-effects:

$$Valuation_j^c = \alpha + \beta_1 * CORP\_GOV_j^c + \gamma_1 * LEGAL^c + \gamma_2 * CORP\_GOV_j^c * LEGAL^c + \sum_{k=1}^{K} \delta_k * Z_{k,j}^c + \sum_{i=1}^{I-1} d_i + \varepsilon_j^c \quad . \qquad [S2]$$

The inferences one can draw from these regressions are limited because of endogeneity and other econometric problems. To reduce endogeneity, we exercise care in choosing proxies for key variables and sample periods. For example, our measure of *EXT_FIN* is a projected need for external financing, not an outcome-based measure. We also choose different time periods to estimate the dependent and independent variables in [S1] and [S2]. In addition, we conduct various robustness checks for sample selection, endogeneity, regression model specification, and alternative definitions of main variables, which are described in Section IV.

B. Data

B.1. Corporate Governance and Transparency

B.1.1. CLSA Governance Scores. In March 2001, CLSA issued a report on governance practices by 494 companies in 24 countries providing scores on the quality of governance in year 2000. Firms are selected based on size (large) and investor interest (high). The governance scores are based on responses from financial analysts to 57 questions that are used to construct scores on a 1 to 100 scale, where a higher number indicates better governance. According to CLSA, 70 percent of the scores are based on objective information and all questions have binary answers (yes/no) to minimize analysts' subjectivity.[5]

CLSA groups the scores on the 57 questions into six categories of governance and an index of social responsibility: *discipline* (managerial incentives and discipline towards value maximizing actions), *transparency* (timely and accurate disclosure), *independence* (board independence), *accountability* (board accountability), *responsibility* (enforcement and

management accountability), *protection* (minority shareholder protection), and *social awareness* (social responsibility). We compute the *composite* governance index, *COMP*, by taking a simple average of the first six categories.

Three different scores are used as a proxy for *CORP_GOV*: the composite index, *COMP*; investor protection, *PROTECT*; and social awareness, *SOCIAL*. Of the six CLSA governance categories, we single out *PROTECT* because it is the most direct measure of investor protection against theft and, hence, is more relevant to ownership concentration than *COMP*. Ownership concentration is hypothesized to help improve investor protection; however, there is no obvious reason to expect firms with more concentrated ownership to disclose more and be more transparent. Since *COMP* also includes measures of transparency and other governance categories in addition to investor protection, we expect *OWN_CASH* to be more closely related to *PROTECT* than to *COMP*. Social awareness is examined separately because it is distinct from (has low correlations with) other governance categories and corporate social responsibility receives much public attention.

B.1.2. Standard & Poor's Transparency Scores. As a robustness check, we use Standard & Poor's measure of corporate disclosure practices for 573 companies in 16 emerging markets and three developed countries in 2000. The measure counts whether a firm discloses relevant information on 91 possible items that would be of interest to investors: 22 items on ownership structure and investor relations (*ownership*), 34 items on accounting and financial policies (*disclosure*), and 35 items on board and management structure and process (*board*). These counts become scores ranging from 0 to 22 for *ownership*, from 0 to 34 for *disclosure*, and from 0 to 35 for *board*. We add the scores of the three categories to create an aggregate transparency score, *TRAN*, ranging from 0 to 91, which is equivalent to assigning an equal weight to each disclosed item.

We interpret these scores as an indicator of the quality of disclosure practice. If a firm has more disclosure on ownership-related items, for example, we infer the firm has less to hide and

hence has relatively sound practices on matters concerning ownership structure. The advantage of S&P scores lies in their objectivity; however, they depend only on the number of disclosures and do not reflect disclosure content. They are best viewed as a measure of transparency and not a comprehensive measure of corporate governance.

B.1.3. Consistency across CLSA and S&P Scores. To determine whether companies scored high on corporate governance by CLSA are also scored high on disclosure by S&P, we identify 208 companies that are ranked by both agencies. For these firms the CLSA composite index, *COMP*, is significantly correlated with S&P aggregate score, *TRAN*, with a Spearman rank-order correlation of 0.20 with *p*-value = 0.00. To check whether the correlation is due to country and industry differences, we regress *COMP* on *TRAN* with country and industry dummies. The relation remains significant, confirming the consistency between the two rankings.[6]

Although scores on many individual categories of the CLSA ranking are not correlated with those of S&P ranking, the correlations are positive and significant when the individual categories are measured on overlapping characteristics. For instance, S&P score on *disclosure* is significantly correlated with CLSA score on transparency; S&P score on *board* is significantly correlated with CLSA score on board accountability, and so on. These correlations, as well as the lack thereof, suggest that S&P scores provide valuable data to check the robustness of results based on CLSA scores.

B.2. Legal Environment

Our measure of the strength of legal environment is based on both *de jure* and *de facto* aspects of regulation. The *de jure* measure of investor protection, *INVESTOR,* is the anti-director rights (shareholder rights) index defined in La Porta, et al. (1998a) and extended by Claessens, Djankov, and Nenova (1999), and Pistor, Raiser, and Gelfer (2000). It ranges from 0 to 6. We cannot rely solely on this measure, however, because countries such as India and Pakistan score the highest in our sample (5), but do not have the best *de facto* investor protection. To measure the strength of *de facto* regulation, *ENFORCE*, we use the 1999-to-2000 monthly average of the

rule of law index, the assessment of the law and order tradition from the *International Country Risk Guide*. The rule of law assesses the law and order tradition of a country on a scale from 0 to 10.

There is little correlation between *de jure* and *de facto* measures of regulation. The correlation coefficient between *INVESTOR* and *ENFORCE* is 0.18 with *p*-value = 0.38. To construct a measure that reflects both aspects of regulation, we multiply *INVESTOR* by *ENFORCE* and define it *LEGAL*. As a robustness check, we also define *LEGAL* as the sum of the two.

Table I provides summary statistics by country for legal regime variables, CLSA composite scores, and S&P aggregate scores.

[Table I here]

Our sample covers a broad range of legal regimes with *LEGAL* scores ranging from 3.33 (Mexico) to 41.65 (Hong Kong and Chile). Both CLSA and S&P scores reveal wide within-country variation: For CLSA, the average spread between maximums and minimums for countries with more than two firms is 38.46 against the mean score of 47.03; for S&P, the average spread is 29.56 against the mean of 34.37.[7] The data also reveal greater variation in governance practices in weaker legal regimes.[8]

B.3. Firm Variables

Because much of the firm-level data originate from financial statements and accounting practices that vary across countries, it is difficult to directly compare the data. However, one of the key distinguishing characteristics in legal regimes is accounting standards; thus, the legal regime variable controls, to some extent, for their differences. Additionally, industry dummies help control for different accounting practices across industries. Any remaining noise would weaken the power of our tests. Most of the firm-level data are obtained from *Worldscope*. Variables are measured in U.S. dollars.

B.3.1. Investment Opportunities, External Financing, Ownership, and Valuation. To measure investment opportunities, *INV_OPP*, we rely on past growth in sales because it is less affected than earnings by diversion, manipulation, and different accounting rules. We estimate a two-year geometric average of annual percentage growth in net sales from 1998 to 2000, and winsorize it at the 1st and 99th percentile to reduce the impact of outliers.

In estimating the need for external financing, *EXT_FIN*, we avoid an outcome-based measure to reduce endogeneity. We use an estimate of projected need for outside capital employed in Demirgüç-Kunt and Maksimovic (1998). It defines external financing need as the difference between the firm's actual growth rate and the sustainable growth rate with retained earnings and short-term and long-term debt financing that maintain a constant debt to assets ratio. We estimate a firm's actual growth rate as a two-year geometric average of annual growth rate in total assets from 1998 to 2000, and the sustainable growth rate as a two-year average of *ROE*/(1-*ROE*).[9]

For ownership concentration, we measure concentration of cash flow rights, *OWN_CASH*, as the share of cash flow rights held by the largest shareholder in 1996 as defined in Claessens, et al. (2002). Data on cash flow and control rights are obtained from data sets constructed by Larry Lang and Mara Faccio, parts of which were previously used in Claessens, Djankov, and Lang (2000) and Claessens, et al. (2002). The data overlap our sample for 173 and 240 firms in 12 and 11 countries for CSLA and S&P samples, respectively.

We define ownership wedge, *WEDGE*, as a dummy variable equal to one if control rights exceed cash flow rights by at least ten percent (19.3 percent of the sample firms) and zero, otherwise. The results do not change when *WEDGE* is defined by a five percent difference. A ten percent cutoff point is used to determine whether the largest shareholder has effective control over intermediate and final corporations in the chain of control.[10]

Firm valuation is measured as the 2000-to-2001, two-year average of Tobin's Q. As in La Porta, et al. (2002) and Doidge, Karolyi, and Stulz (2003), we define Tobin's Q as the sum of

total assets plus the market value of equity less book value of equity, over total assets. The market value of equity is the number of common shares outstanding, times the year-end price.

As stated earlier, we separate time periods during which dependent and independent variables are measured to reduce endogeneity. Specifically, we use 2000 to 2001 to estimate two-year average *Q*, 2000 CLSA and S&P scores for *CORP_GOV*, and 1998 to 2000 to calculate two-year averages for *INV_OPP* and *EXT_FIN*, and 1996 for cash flow and control rights.

B.3.2. Control variables. Industry dummies (d_i) are included in regressions to account for differences in asset structure, accounting practice, government regulation, and competitiveness, each of which may affect corporate governance and firm valuation. We classify two-digit SIC industries into 13 groups as in Campbell (1996).[11]

Firm size, *SIZE*, is defined as the logarithm of sales. We use sales because they are less sensitive to differences in accounting standards across countries. Because larger firms tend to attract more attention and may be under greater scrutiny by the public, size may affect governance structure. Size also proxies for firm age; older and larger firms tend to have higher book-to-market value ratio.

Research and development expenditure scaled by sales, *R&D*, is used to control for differences in intangibility of corporate resources, which may be related to cost of diversion. For example, intangible assets are harder to monitor and easier to steal. Thus a firm with a greater proportion of intangibles may adopt stricter governance standards. Companies with high *R&D* expenditures also tend to be high-growth firms and may enjoy high valuation.

Export intensity, *EXPORT*, is defined as sales revenue generated from shipping merchandise to foreign countries, scaled by sales. This measure is used to control for differences in exposure to globalization pressures in the product market. Companies that conduct more business globally may feel more pressure to conform their governance to global standards (Khanna, Kogan, and Palepu (2002)). Variables *SIZE*, *R&D*, and *EXPORT* are constructed as two-year averages during 1999-2000.

If a firm has all variables except *R&D* and *EXPORT*, we set those two variables equal to zero; that is, we assume they are not reported because R&D spending or sales generated through export are negligible. Dropping companies with missing data for R&D may bias our sample towards technology-oriented firms. As a robustness check, we follow Himmelberg, Hubbard, and Palia (1999) and use two dummy variables, which take values of one when a firm does not report R&D or export. These dummies control for the possibility that non-reporting firms are different from reporting firms.

Some variables may not be directly comparable if firms use different methods to account for their subsidiaries. For example, the measure of *Q* may be distorted when partially owned subsidiaries are treated as fully owned in consolidation of financial statements. Consolidation may also affect our estimates of sales growth rate and external financing needs. La Porta, et al. (2002) make adjustments for the potential distortion and compare unadjusted *Q* with the consolidation-adjusted *Q*. They find a correlation of 0.83 between the two measures and conclude the distortion is not material enough to base their statistical results on adjusted *Q*. We control for the effects of consolidation by adding a dummy equal to one if a firm consolidates, and zero otherwise. The dummy also controls for the possibility that consolidation makes the combined entity more transparent. As a robustness check we repeat our regressions on a sub-sample of firms that fully consolidate their financial statements.

Finally, *ADR* dummy variable is included to control for listing on U.S. stock exchanges. Doidge, Karolyi, and Stulz (2003) provide evidence that ADR-listed foreign firms are valued higher. Since ADR-listed firms are more likely to have high-quality accounting standards, we expect *ADR* to be correlated with the CLSA governance and S&P transparency scores. The dummy variable is equal to one if a firm's shares or its ADRs are listed on U. S. exchanges in either 1999 or 2000 (15.9 percent of the sample) and zero, otherwise. We do not include privately placed ADRs through Rule 144a and 'Over-the-Counter' stocks.

C. Sample Construction

We follow the usual practice of excluding financial institutions because of their unique financial structure, regulatory requirements, and accounting standards. There are occasionally slight differences in the way company names appear in the CLSA, S&P, and *Worldscope* data sets. In such cases we confirm their identity with the *Internet Securities, Inc. (ISI) Emerging Markets* database. We drop four CLSA firms and one S&P firm from samples because the ambiguity cannot be resolved, leaving 384 and 456 firms in the CLSA and S&P samples, respectively. Sample sizes are reduced further when relevant variables for each regression are unavailable from *Worldscope*: 40 CLSA and 17 S&P companies are dropped when *INV_OPP* and *EXT_FIN* enter as independent variables in [S1], and another is dropped from the S&P sample when Tobin's Q is used.

III. Empirical Results

In this section we first report country random-effects regression results on the relation between CLSA or S&P scores with the three firm attributes and legal environment. Then we report results on the relation between firm valuation and the governance or transparency scores.

A. Relation between Governance and Firm Attributes

A.1 Investment Opportunities and External Financing

Table II reports the results of regression [S1] with *INV_OPP* and *EXT_FIN* as independent variables and *COMP*, *PROTECT*, *TRAN* and *SOCIAL* as measures of the quality of governance.

[Table II here]

The results are supportive of our hypotheses. Both investment opportunities and external financing are significantly positively related to the composite index and investor protection. The strength of legal regimes, *LEGAL*, is also positively related to both scores. The coefficients on *COMP* indicate that one standard deviation increase in growth rates (*INV_OPP*) increases the governance score by 4.86, a 9.97 percent increase over the sample mean of 48.74, while the same increase in external financing needs raises *COMP* by 2.13, a 4.37 percent increase.

The interaction terms of legal regime with investment opportunities and external financing for *COMP* and *PROTECT* show negative coefficients, and three of four are significant. These results are consistent with the hypothesis that positive relations for investment opportunities and external financing are stronger in weaker legal environments. The results with the S&P score, *TRAN*, as the dependent variable also are largely consistent with those of the CLSA scores.

When *social awareness* is used as the dependent variable, however, none of the independent variables of interest are significant, except external financing which shows a negative sign. There is no evidence that firms are more socially responsible when they have better investment opportunities or need more external financing.

Results on ADR and consolidation dummies also are revealing. ADR listing seems to be positively related to firms' overall governance practices, but not with investor protection. This lack of relation between ADR and investor protection is consistent with Siegel's (2003) finding that investors of ADR listed firms do not benefit from U.S. securities regulation. The consolidation dummy shows a similar pattern. Its coefficient is positive and significant for the composite score, but is driven mainly through transparency. This result confirms the notion that firms consolidating their financial statements tend to be more transparent. Finally, *SIZE* is significantly positively related to *COMP* and *TRAN* but negatively related to *PROTECT*, which suggests that larger firms tend to have better disclosure practices, but not better investor protection.

A.2. Ownership

The regressions of [S1] with ownership concentration also contain the OWN_CASH^2 term to account for possible non-linearity between ownership concentration and corporate governance as in McConnell and Servaes (1990) and Himmelberg, Hubbard, and Palia (1999). It also contains *WEDGE* to account for differences in cash flow rights and control rights.

As mentioned earlier, the sample size for ownership data is small to start with, and becomes even smaller when we exclude financial firms. Without financial firms we have only 124 and 177

firms, an average of ten and 16 firms per country, for CLSA and S&P samples, respectively. To alleviate this small sample size problem, we add back financial firms and estimate [S1] with a financial industry dummy variable. The results are reported in Panel A of Table III. Panel B reports results without the financial firms.

[Table III here]

Panel A shows a significant positive coefficient on cash flow rights, *OWN_CASH*, and a significant negative coefficient on OWN_CASH^2 for both *COMP* and *PROTECT*, suggesting that corporate governance improves with the concentration of cash flow rights but at a decreasing rate. This is consistent with earlier findings of Morck, Shleifer, and Vishny (1988) and McConnell and Servaes (1990), who argue that greater ownership concentration by insiders may align their interests with those of minority shareholders, but it also may result in a greater degree of managerial entrenchment.

The coefficients for *WEDGE* and the interaction term between *OWN_CASH* and *LEGAL* are negative and significant when investor protection score, *PROTECT*, is used as the dependent variable. Thus investor protection appears to improve with the concentration of cash flow rights but decreases as the controlling shareholder acquires more control rights in excess of her cash flow rights. Furthermore, the positive relation between investor protection and cash flow rights is stronger in weaker legal regimes. This is consistent with our hypothesis that in weaker legal regimes concentrated ownership of cash flow rights serves as a more important tool to resolve agency conflict between controlling and minority shareholders.

The magnitudes of the coefficients also indicate the effects are economically significant. For *PROTECT*, one standard deviation increase in cash flow rights increases the score by 12.67, a 21.02 percent increase relative to the 60.27 sample mean, while increasing control rights by ten percent above cash flow rights decreases the score by 8.64.

When we use S&P transparency scores as the dependent variable all the coefficients have the right signs but most lose significance. This is not surprising because as stated earlier, there is no

reason to expect firms with concentrated ownership to disclose more. The weaker results for *COMP* relative to *PROTECT* also may be due to the inclusion of transparency and other governance attributes that are not directly related to agency problems. Finally, regressions excluding financial firms (Panel B) show weaker results because of smaller sample sizes; however, the signs of coefficients are mostly in the right direction. The results with *PROTECT* are the strongest, as expected.

In sum, the regression estimates of [S1] suggest that not only the legal environment matters, but growth opportunities, external financing, and ownership concentration also matter in a firm's choice of governance practice. More important, these firm-specific factors matter more as the legal environment becomes less investor-friendly.

B. Relation between Valuation and Governance

To investigate the relation between governance and firm valuation, we estimate regression specification [S2] with Tobin's Q as the dependent variable. Independent variables are CLSA or S&P scores, legal regime, an interaction term of legal regime with corporate governance or disclosure scores, past sales growth, firm size, R&D expenditures, export, ADR and consolidation dummies, and industry dummies. Past sales growth is added to control for a possible spurious relation between governance and valuation because growth opportunities – proxied by sales growth – are related to both valuation and corporate governance.

Table IV reports results based on CLSA and S&P scores, where the coefficients on *CORP_GOV* and its interaction term with *LEGAL* are multiplied by 100.

[Table IV here]

Consistent with our hypothesis, firms with higher-quality corporate governance are valued higher. The CLSA composite score is positively related to firm valuation, as are measures of investor protection and transparency. These results are significant both statistically and economically. The coefficient on *COMP* indicates that one standard deviation increase in the overall governance score is associated with an increase in *Q* by 0.17, a nine percent increase

relative to the sample average of 1.89. The social awareness score, however, again shows no relation to valuation, providing no evidence that investors value corporate social responsibility as defined by CLSA.

The quality of legal environment, *LEGAL*, also has the expected positive sign, consistent with the findings of La Porta, et al. (2002) that firms located in better legal environments enjoy higher valuation. However, when it enters the regression with either CLSA or S&P scores (Panel A), its coefficient becomes insignificant. Only when the same regression is estimated without governance or transparency scores (Panel B), does the *LEGAL* coefficient become significant. Apparently, individual firms' governance and transparency scores contain relevant information on firm valuation that is not revealed by a country's legal framework.

The interaction term with *LEGAL* has the expected negative sign for *COMP, PROTECT*, and *TRAN,* and is significant for two out of three, consistent with our conjecture that the positive relation between governance and valuation is weaker in stronger legal regimes. The coefficient on the interaction term for *COMP* indicates that in a weak legal regime such as Mexico (*LEGAL* = 3.33), one standard deviation increase in the governance score is associated with an increase in *Q* by 0.24, a 13.2 percent increase relative to the average *Q* of 1.80 for Mexican firms. In a strong legal regime like Hong Kong (*LEGAL* = 41.65), the same increase in the governance score is associated with an increase in *Q* by 0.11, only a 4.6 percent increase relative to the average *Q* of 2.41 for firms in Hong Kong.

This helps explain why previous studies based on U.S. data show mixed results on the relation between firm valuation and corporate governance: U.S. firms are subject to one of the strongest legal frameworks worldwide.

Most of the control variables are of expected sign and highly significant. Firms with high growth opportunities are valued higher as are firms of smaller size, greater R&D expenditures, and more export orientation. The results also show no incremental ADR effect on firm valuation beyond the corporate governance and disclosure scores.[12] Finally, the significant negative

coefficients on the consolidation dummy are consistent with our suspicion that consolidation biases Tobin's Q downward.

IV. Robustness

Our results remain robust to a battery of checks on sample selection, endogeneity, regression model specification, alternative definitions of main variables, and outliers.

A. Sample Selection

As stated earlier, CLSA and S&P select firms based on size and investor interest, which subjects our results to a sample selection problem. We address the size problem by repeating regressions in Tables II, III, and IV using the Heckman (1979) two-step selection model. We find virtually no change in the magnitude or the significance of the coefficients and therefore conclude the results are robust to the sample selection problem.[13]

B. Endogeneity

Although our results are consistent with the predictions of the model, there is an endogeneity problem in the regression analyses. In specification [S1] it is possible that good corporate governance leads to greater investment opportunities rather than greater investment opportunities leading to good governance practice. Another plausible story is that companies that enjoy greater sales growth tend to be rated higher by CLSA, the reason why all the tests also are conducted with S&P data that are free from such subjectivity. Endogeneity is of less concern regarding external financing because our variable is the projected need, not outcome-based. We also are less concerned with ownership concentration because it is hard, at least for us, to build a plausible scenario of how good investor protection leads to more concentrated ownership.

In Specification [S2] firm governance and valuation may be related because high-value stocks in emerging markets attract international investors and greater foreign ownership may lead to better governance. One may also argue that analysts assign higher governance scores to firms that enjoy high valuation rather than corporate governance being priced in the stock market.

However, the results with S&P data are free from such subjectivity and it is not obvious why higher valuation would lead to more disclosure.

To address the unresolved endogeneity issues, we estimate [S1] and [S2] as a system of simultaneous equations using a three-stage least squares method.[14] While this estimation technique allows for endogeneity between governance and valuation, we need to identify some exogenous parameters that affect only governance or valuation, but not both. Identifying truly exogenous parameters is difficult; therefore, the results presented below must be interpreted with caution.

In the three-stage least squares estimation, the governance equation contains *COMP*, *PROTECT*, or *TRAN*, as the dependent variable, and *Q* as a simultaneously determined variable. We use the same set of control parameters used in Table II excluding industry dummies and interaction terms. Although not reported, the coefficients on industry dummies are jointly insignificant in regressions reported in Table II suggesting that R&D expenditures, export intensity, and size in the governance equation control for differences in tangibility and other industry characteristics that may affect governance. Thus, we assume that industry classification does not affect governance but does affects valuation.

The governance equation also controls for firms' *ALPHA* (as in Lins (2003)) and *BETA* (as in Demsetz and Villalonga (2001) and Lins (2003)) values in *Worldscope*. Values for *ALPHA* and *BETA* are computed over 23 and 35 consecutive month-end percentage price changes relative to a local market index during years from 1999 to 2001. To the extent that *ALPHA* proxies for excess returns, higher *ALPHA* values may make the controlling shareholder more willing to practice good governance. If higher market risk, proxied by *BETA,* provides better opportunities for the controlling shareholder to profit from inside information, high *BETA* may be negatively related to the quality of governance.[15]

The valuation equation contains *Q* as the dependent variable, governance or disclosure scores as a simultaneously determined variable, and the same control parameters as the governance

equation, adding industry dummies and excluding *EXT_FIN*, *SIZE*, *ALPHA*, and *BETA*. As in previous studies (see Demsetz and Villalonga (2001) and Lins (2003)), we assume that *ALPHA* and *BETA* affect governance but not valuation. We also assume that *SIZE* has no further incremental effect on valuation after controlling for R&D expenditures and growth opportunities (see Himmelberg, Hubbard, and Palia (1999) for possible justifications).

Table V reports three-stage estimation results for *COMP* (Panel A), *PROTECT* (Panel B), and *TRAN* (Panel C).

[Table V here]

The results are consistent with those reported in Tables II and IV. Both *INV_OPP* and *EXT_FIN* are positively and significantly related to governance and disclosure practices in all panels, except *INV_OPP* in Panel B, which shows the right sign but is not significant. Furthermore, *CORP_GOV* is positive and significant in valuation equations in all panels.

Therefore, to the extent that three-stage least squares estimation controls for simultaneity between governance and valuation, we conclude that companies with better investment opportunities and greater need for external financing practice better governance and disclose more, in turn leading to higher valuation.

C. Alternative Variables and Regression Specifications

Our results are also robust to alternative definitions of independent variables and to added control variables. As an alternative proxy for the strength of legal environment, we define *LEGAL* as the sum of *INVESTOR* and *ENFORCE*. The results are robust to this definition. Because using the sum of the two is equivalent to imposing a restriction that the coefficients on two variables are equal, we also enter *INVESTOR* and *ENFORCE* separately. The only noticeable change is that in both [S1] and [S2] the interaction term on *ENFORCE* is significant while that on *INVESTOR* is not, suggesting that *de facto* regulation captures the strength of legal framework better than *de jure* investor protection.

Additionally, following the principal component analysis outlined in Berkowitz, Pistor, and Richard (2003) we combine investor and creditor protection to construct a single capital providers' protection index. For enforcement, we combine efficiency of the judicial system, rule of law, absence of corruption, risk of expropriation, and risk of contract repudiation to derive a single index. (See La Porta, et al. (1998a) for definitions of these variables.) The results remain unchanged.

As another robustness check, we control for the tangibility of assets, defined as the ratio of property, plant, and equipment scaled by sales (PPE). Although not reported, when we include this control variable in [S1], its coefficient is negative for all specifications and significant when *COMP* is used as the dependent variable. This raises the possibility that firms with a higher proportion of tangible assets tend to establish weaker governance mechanisms because fixed assets are easier to monitor and harder to divert. The coefficient on PPE in [S2] is significantly negative for all specifications, indicating that firms with relatively more fixed assets tend to be valued less.

Our investment opportunities are measured by past growth in sales. When we replace it with a more direct measure of investment profitability, return on invested capital as defined by *Worldscope*, our results do not change. As mentioned earlier, we instrument current values of *INV_OPP* and *EXT_FIN* by their lagged values to reduce endogeneity. Using contemporaneous measures does not change our findings. The findings also remain valid when we include a dummy variable equal to one when R&D or export data is missing.

CLSA measure of investor protection, *PROTECT*, contains one company scoring zero (minimum possible) and six scoring 100 (maximum possible). Because this score is truncated, a limited dependent variable approach (Tobit regression) may be more appropriate for Specification [S1]. The results in Tables II and III do not change if we use Tobit regression.

Finally, consolidation may affect the variables in a non-trivial way, making the comparison across firms problematic. Although we include the consolidation dummy in all regressions, we

repeat regressions for the sub-sample of firms that fully consolidate their financial statements (78 percent and 87 percent in CLSA and S&P samples, respectively). This reduces both the sample size and the variation in *LEGAL*. In spite of this, overall results are similar, although the results on the interaction terms with *LEGAL* become weaker.[16]

V. Summary and Implications

This paper documents that a firm's choice of governance and disclosure practices is positively related to growth opportunities, need for external financing, and concentration of cash flow rights. The positive relations are stronger in countries with weaker legal frameworks. Apparently, firms in weaker legal frameworks improve governance practices more in the presence of good investment opportunities, as do firms with greater external financing needs to overcome the deleterious effects of poor legal protection on their ability to raise external capital. Furthermore, ownership concentration appears to be a more important tool to resolve agency conflict between controlling and minority shareholders when investor protection is weaker.

These results have implications for the debate concerning the Coase (1960) argument. While our results confirm the La Porta, et al. (1998a) basic thesis that law matters for corporate governance, firms seem to adapt to poor legal frameworks to establish efficient governance practices.[17]

We also find that the quality of governance and disclosure practices are positively related to firm valuation. In addition, the positive relation is weaker in stronger legal regimes. This may explain why previous studies based on U.S. data show mixed results, because U.S. legal framework for investor protection is one of the strongest in the world.

Consistent with previous findings, we find the strength of legal framework and firm values are positively related. However, the positive relation becomes insignificant when the scores on governance and transparency are added to the regression. The dominance of the individual firms' scores over the strength of legal framework is somewhat surprising, yet lends credence to these scores as measures of the quality of governance and disclosure practices.

One governance category that consistently shows no relation to firm attributes or to firm valuation is social awareness. It seems as if firms do not become more socially responsible when they have better growth opportunities, need more external financing, or have higher ownership concentration, perhaps because they believe social responsibility is not important to investors. Indeed, we find no evidence that investors value what CLSA defines as social awareness—child labor practices, political legitimacy, environmental responsibility, equal employment policy, and ethical behavior. These social responsibility criteria are contentious. For example, economists debate whether child labor in low-income economies is damaging to those societies as the alternatives could be starvation, prostitution, or drug peddling.

Our results imply that economic policies play an important role in guiding firms toward good governance practices. Policy makers often debate the merits of pro-growth *versus* distribution oriented policies. One important consequence they must consider in this debate is that pro-growth policies generate more profitable investment opportunities and stimulate external financing needs of corporations. Both of these conditions provide controlling shareholders incentives to improve governance practices. In contrast, distribution oriented policies tend to weaken property rights, reducing the incentives to increase cash flow rights for controlling shareholders. Any tax increase for redistribution purposes also decreases the cash flow rights of controlling shareholders. Such reductions in cash flow rights increase agency conflicts and may weaken investor protection.

Our results also have implications for the debate on whether globalization leads to convergence in corporate governance (see Bebchuk and Roe (1999), Coffee (1999), Berglöf and von Thadden (2000), Khanna, Kogan, and Palepu (2002)). With the increasing globalization of trade and capital flows, national boundaries and legal jurisdictions are becoming less effective in defining corporate behavior, making individual firm attributes more relevant in shaping corporate governance. Thus, the real issue is not whether globalization leads to convergence but how globalization affects individual firms' growth opportunities, external financing needs, ownership

concentration, and individual countries' economic policies, all of which may vary across firms and countries.

Finally, caveats are in order. Although we have attempted to address endogeneity, a full treatment requires time-series analyses of changes in corporate governance practices, a task we plan to pursue upon sufficient accumulation of data over time. On the theoretical level, we are able to identify three firm attributes related to corporate governance; however, further research may reveal the existence of other variables of greater importance.

Appendix A. A Model with Diversion Occurring after Investments

If the controlling shareholder diverts resources after investments are made, she will take all positive NPV projects because it will increase both her share of liquidating dividends and the amount of diversion. Thus the pre-diversion value of the firm is $\Pi = \int_0^{\overline{\pi}} (1 + \overline{\pi} - j)dj = \overline{\pi} + \overline{\pi}^2 / 2$. Her decision is then to maximize $\alpha(1-d)\Pi + d\Pi - C$, where C is the total dollar cost of diversion.

We assume C is convex in both the fraction, d, and the pre-diversion value of the firm Π. Previous authors have assumed a convex cost function in d (e.g., Johnson, et al. (2000), Shleifer and Wolfenzon (2002), and Doidge, Karolyi, and Stulz (2003)), with the rationale that hiding larger amounts of diversion gets increasingly harder as diversion increases. Notice that the amount of diversion is a function of both the fraction d and the size of the firm. Thus we assume $C = c(d\Pi)^p$, where $p > 1$. Another justification for this assumption is that larger firms tend to attract more investor interest and hence are under greater public scrutiny.

Solving for the first order condition with this cost function, we obtain:

$$(1-\alpha)\Pi - pcd^{p-1}\Pi^p = 0, \qquad [A1]$$

where the marginal benefit of diversion, $(1-\alpha)$, the minority shareholders' wealth loss, is equal to the marginal cost. The second order condition is satisfied because $-p(p-1)cd^{p-2}\Pi^p < 0$. From the first order condition we obtain the optimal diversion:

$$d^* = \frac{1}{\Pi}\left(\frac{1-\alpha}{pc}\right)^{\frac{1}{p-1}}. \qquad [A2]$$

Taking the partial and cross partial derivatives with respect to $\overline{\pi}$, c, and α, we obtain:

$$\frac{\partial d^*}{\partial \overline{\pi}} = -\frac{(1+\overline{\pi})}{\Pi^2}\left(\frac{1-\alpha}{pc}\right)^{\frac{1}{p-1}} < 0, \qquad [A3]$$

$$\frac{\partial d^*}{\partial \overline{\pi}\partial c} = \left(\frac{1}{p-1}\right)\frac{(1+\overline{\pi})}{\Pi^2}\left(\frac{(1-\alpha)}{c^p p}\right)^{\frac{1}{p-1}} > 0, \qquad [A4]$$

$$\frac{\partial d^*}{\partial \alpha} = -\left(\frac{1}{p-1}\right)\frac{1}{\Pi}\left(\frac{(1-\alpha)^{2-p}}{pc}\right)^{\frac{1}{p-1}} < 0, \qquad \text{[A5]}$$

$$\frac{\partial d^*}{\partial \alpha \partial c} = \frac{1}{(p-1)^2}\frac{1}{\Pi}\left(\frac{(1-\alpha)^{2-p}}{pc^p}\right)^{\frac{1}{p-1}} > 0. \qquad \text{[A6]}$$

Equations [A3] through [A6] are consistent with Equations [4] through [7]. Finally, the market-to-book value ratio, $(1-d)\Pi/\overline{\pi}$, is decreasing in d^*. Therefore, we obtain Hypotheses 1 through 5, and 7 stated in the text.

Appendix B. Relation between External Financing and Corporate Governance

Consider a firm that has decided to invest *I* but has no assets or internal funds to finance it. The firm's value derives solely from the market value*, MV,* of the project requiring *I*. The controlling shareholder owns α fraction of the firm and finances the project by selling 1-β fraction of the firm to new investors. The firm must raise *I/(1-d)* such that when the controlling shareholder diverts *dI/(1-d)*, the firm will be left with *I* for investment. Under these assumptions the controlling shareholder's payoff is

$$P = \alpha(\beta MV) + (1-c)\frac{dI}{1-d}. \qquad \text{[B1]}$$

Because the firm has to raise *I/(1-d)*,

$$1-\beta = \frac{I/(1-d)}{MV}. \qquad \text{[B2]}$$

Substituting equation [B2] to equation [B1] yields:

$$P = \alpha\left(MV - \frac{I}{1-d}\right) + (1-c)\frac{d}{1-d}I. \qquad \text{[B3]}$$

Differentiating [B3] with respect to *d*,[18] we obtain

$$\frac{\partial P}{\partial d} = \left[\frac{1-c-\alpha}{(1-d)^2}\right]I. \qquad \text{[B4]}$$

Because diversion takes place only when $c < 1-\alpha$, equation [B4] is non-negative. That is, if the controlling shareholder diverts, she has an incentive to maximize *d*. As can be seen from equation [B2],

however, increasing d means the controlling shareholder must sell a greater fraction of the firm, decreasing her ownership of the firm, $\alpha\beta$. Because she will lose control of the firm when β falls below a certain point, the maximum fraction of the firm she sells to new investors is bounded by a minimum β_{min}, below which the controlling shareholder loses the control of the firm.[19] Substituting β_{min} into equation [B2], we obtain

$$d^* = 1 - \left(\frac{1}{1-\beta_{\min}}\right)\frac{I}{MV} \quad . \qquad \text{[B5]}$$

Because I determines the amount of external financing needed, taking partial derivative of d^* with respect to I,

$$\frac{\partial d^*}{\partial I} = -\left(\frac{1}{1-\beta_{\min}}\right)\frac{1/2}{\left((1+\bar{\pi}) - I/2\right)^2} < 0 \quad . \qquad \text{[B6]}$$

Thus, the need for external financing is inversely related to d^*.

REFERENCES

Bebchuk, Lucian A., and Mark J. Roe, 1999, A theory of path dependence in corporate ownership and governance, *Stanford Law Review* 52, 127-170.

Berglöf, Erik, and Ernst-Ludvig von Thadden, 2000, The changing corporate governance paradigm: Implications for transition and developing countries, in Boris Pleskovic and Joseph E. Stiglitz, ed.: *Annual World Bank Conference on Development Economics* (World Bank, Washington, D.C.).

Berkowitz, Daniel, Katharina Pistor, and Jean-Francois Richard, 2003, Economic development, legality, and the transplant effect, *European Economic Review* 47, 165-195.

Bhagat, Sanjai, and James A. Brickley, 1984, Cumulative voting: The value of minority shareholder voting rights, *Journal of Law and Economics* 27, 231-284.

Bhagat, Sanjai, and Richard H. Jefferis, 1991, Voting power in the proxy process: The case of antitakeover charter amendments, *Journal of Financial Economics* 30, 193-226.

Black, Bernard S., 2001, Does corporate governance matter? A crude test using Russian data, *University of Pennsylvania Law Review* 149, 1231-2150.

Black, Bernard S., Hasung Jang, and Woochan Kim, 2002, Does corporate governance matter? Evidence from the Korean market, Unpublished manuscript.

Breusch, Trevor S., and Adrian R. Pagan, 1980, The Lagrange multiplier test and its applications to model specification in econometrics, *The Review of Economic Studies* 47, 239–253.

Campbell, John Y., 1996, Understanding risk and return, *Journal of Political Economy* 104, 298–345.

Claessens Stijn, Simeon D. Djankov, Joseph H. Fan, and Larry H. P. Lang, 2002, Disentangling the incentive and entrenchment effects of large shareholdings, *Journal of Finance* 57, 2741-2771.

Claessens, Stijn, Simeon D. Djankov, and Larry H. P. Lang, 2000, The separation of ownership and control in East Asian corporations, *Journal of Financial Economics* 58, 81-112.

Claessens, Stijn, Simeon D. Djankov, and Tatiana Nenova, 1999, Corporate growth and risk around the world, Unpublished manuscript.

Coase, Ronald H., 1960, The problem of social cost, *Journal of Law and Economics* 3, 1-44.

Coffee, John C. Jr., 1999, The future as history: The prospects for global convergence in corporate governance and its implications, *Northwestern University Law Review* 93, 641-707.

CLSA Emerging Markets, 2001, *Saints and Sinners: Who's got religion?*

Demirgüç-Kunt, Asli, and Vojislav Maksimovic, 1998, Law, finance, and firm growth, *Journal of Finance* 53, 2107-2137.

Demsetz, Harold, and Ken Lehn, 1985, The structure of corporate ownership: Causes and consequences, *Journal of Political Economy* 93, 1150-1177.

Demsetz, Harold, and Belen Villalonga, 2001, Ownership structure and corporate performance, *Journal of Corporate Finance* 7, 209-233.

Denis, Diane K, and John J. McConnell, 2003, International corporate governance, *Journal of Financial and Quantitative Analysis* 38, 1-38.

Doidge, Craig A., G. Andrew Karolyi, and René M. Stulz, 2003, Why are foreign firms listed in the U.S. worth more?, *Journal of Financial Economics*, forthcoming.

Faccio, Mara, and Larry H. P. Lang, 2002, The ultimate ownership of western European corporations, *Journal of Financial Economics* 65, 365-395.

Gompers, Paul A., Joy L. Ishi, and Andrew Metrick, 2003, Corporate governance and equity prices, *Quarterly Journal of Economics* 118, 107-155.

Greene, William, 1997, *Econometric Analysis* (MacMillan, New York).

Heckman, James J., 1979, Sample selection bias as a specification error, *Econometrica* 47, 153-161.

Himmelberg, Charles P., R. Glenn Hubbard, and Darius Palia, 1999, Understanding the determinants of managerial ownership and the link between ownership and performance, *Journal of Financial Economics* 53, 353-383.

Jensen Michael C., and William H. Meckling, 1976, Theory of the firm: Managerial behavior, agency costs and ownership structure, *Journal of Financial Economics* 3, 305-360.

Johnson, Simon, Peter Boone, Alasdair Breach, and Eric Friemdan, 2000, Corporate governance and the Asian financial crisis, *Journal of Financial Economics* 58, 141-186.

Johnson, Simon, and Andrei Shleifer, 2000, Coase and corporate governance in development, Unpublished manuscript.

Khanna, Tarun, Joseph Kogan, and Krishna Palepu, 2002, Globalization and corporate governance convergence? A cross-country analysis, Unpublished manuscript.

Klapper, Leora F., and Inessa Love, 2003, Corporate governance, investor protection, and performance in emerging markets, *Journal of Corporate Finance* 195, 1-26.

Kumar, Krishna B., Raghuram Rajan, and Luigi Zingales, 1999, What determines firm size?, NBER Working paper 7208.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny, 1997, Legal determinants of external finance, *Journal of Finance* 52, 1131-1149.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny, 1998a, Law and finance, *Journal of Political Economy* 106, 1113-1155.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny, 1998b, Corporate ownership around the world, *Journal of Finance* 54, 471-517.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny, 2002, Investor protection and corporate valuation, *Journal of Finance* 57, 1147-1170.

Lins, Karl, 2003, Equity ownership and firm value in emerging markets, *The Journal of Financial and Quantitative Analysis* 38, 159-184.

Lombardo, Davide, and Marco Pagano, 2002, Law and equity markets, a simple model, in Joseph A. McCahery, ed.: Corporate Governance Regimes: Convergence and Diversity (Oxford University Press, London, U.K.).

McConnell, John J., and Henri Servaes, 1990, Additional evidence on equity ownership and corporate value, *Journal of Financial Economics* 27, 595-612.

Morck, Randall, Andrei Shleifer, and Robert W. Vishny, 1988, Management ownership and corporate performance: An empirical analysis, *Journal of Financial Economics* 20, 293-315.

Pistor, Katharina, Martin Raiser, and Stanislaw Gelfer, 2000, Law and finance in transition economies, *The Economics of Transition* 8, 325-368.

Rajan, Raghuram, and Luigi Zingales, 1998, Financial development and growth, *American Economic Review* 88, 559-586.

Rajan, Raghuram, and Luigi Zingales, 2003, The great reversals: The politics of financial development in the 20th Century, *Journal of Financial Economics* 69, 5-50.

Shleifer, Andrei, and Robert W. Vishny, 1997, A survey of corporate governance, *Journal of Finance* 52, 737-783.

Shleifer, Andrei, and Daniel Wolfenzon, 2002, Investor protection and equity markets, *Journal of Financial Economics* 66, 3-27.

Siegel, Jordan, 2003, Can foreign firms bond themselves effectively by renting U.S. securities laws?, Unpublished manuscript.

Wurgler, Jeffry, 2000, Financial markets and the allocation of capital, *Journal of Financial Economics* 58, 187-214.

FOOTNOTES

[1] Rajan and Zingales (2003) also document substantial reversals in financial developments, which cannot be attributed directly to differences in legal origin. They argue rent-seeking incumbents oppose financial development, and explain the time-series variation by describing how the legal system affects interest group politics in hindering/promoting development of financial markets.

[2] The recent international studies include Black (2001) and Black, Jang, and Kim (2002), who demonstrate a strong relation between corporate governance and firm valuation in Russia and Korea; Doidge, Karolyi, and Stulz (2003), who show that foreign firms listed on U.S. stock markets are valued higher; and Klapper and Love (2003), who use CLSA data to document a positive relation between firm valuation and corporate governance similar to ours. A partial list of the U.S. data based studies includes Bhagat and Brickley (1984), Demsetz and Lehn (1985), Bhagat and Jefferis (1991), Demsetz and Villalonga (2001), and Gompers, Ishi, and Metrick (2003). See Denis and McConnell (2003) for a more complete list and recent review of the literature.

[3] Although the above derivations assume non-negative *e,* it is easy to show that all the results hold with negative *e*.

[4] Shleifer and Wolfenzon (2002) obtain a similar result under a more restrictive set of assumptions.

[5] Anecdotal evidence supporting CLSA's claim of objectivity is a report that CLSA has "lost quite a bit of corporate finance business" with companies that were assigned the worst corporate governance scores and that CLSA may stop compiling the scores. (South China Morning Post: Hong Kong; Nov 2, 2001).

[6] The regression is:

$$COMP = \underset{[0.05]}{0.16 \times TRAN} + \Sigma_i\, d_i + \Sigma_c\, d_c \qquad R^2 = 0.46,$$

where d_i and d_c are industry and country dummies (coefficients not reported), respectively, R^2 is the coefficient of determination, and the number inside brackets is the probability level at which zero coefficient can be rejected. Industries are classified into 13 groups as in Campbell (1996).

[7] We exclude countries with only one or two firms in computing the average spread and mean scores.

[8] We formally examine the relations between the within-country (conditional) variation in governance practices and the strength of legal framework using the Glejser (1969) test. It regresses the absolute values of fitted

residuals of [S1] on *LEGAL* and control variables. The coefficient on *LEGAL* is negative and significant for all three measures of governance and transparency indicating that within-country variation in governance and disclosure practices is larger when legal environment is less investor-friendly. The results are not reported to conserve space and are available upon request from the authors.

[9] The external financing need of a firm growing at *g* percent a year can be expressed as

$$g*Assets - (1+g)*Earnings*b,$$

where *b* is the proportion of the firm's earnings retained for reinvestment. The first term is the required investment, and the second term is the internally available capital for investment. Because assets not financed by debt must be financed by equity, the first term becomes *g*E*, where *E* is the book value of equity. Assuming that the firm does not pay out dividends (*b = 1*), the sustainable growth rate is obtained as *ROE / (1- ROE)* by setting the external financing need equal to 0. See Demirgüç-Kunt and Maksimovic (1998) for additional assumptions/restrictions required for the derivation.

[10] When there is no shareholder that meets the ten percent cutoff point, we use the largest shareholder's cash flow rights for *OWN_CASH*.

[11] The groups are petroleum (SIC 13, 29), consumer durables (SIC 30, 36, 37, 50, 55, 57), basic industry (SIC 8, 10, 12, 14, 24, 26, 28, 33), food and tobacco (SIC 20, 21, 54), construction (SIC 15, 16, 17, 32), capital goods (SIC 34, 35, 38, 39), transportation (SIC 40, 41, 42, 44, 45, 47), textiles and trade (SIC 22, 23, 51, 53, 56, 59), services (SIC 7, 73, 75, 80, 82, 83, 87, 96), leisure (SIC 27, 58, 70, 79), unregulated utilities (SIC 48), regulated utilities (SIC 49), and financials (SIC 60, 61, 62, 63, 65, 67).

[12] Interestingly, La Porta, et al. (2002) find no valuation effect of ADR listing for firms in civil law countries and a small positive effect for common law countries.

[13] We estimate the selection equation using all companies covered in *Worldscope* for our sample countries that have sales data, the proxy for size, in either 1999 or 2000. There are 5,466 and 8,260 such companies for countries covered by CLSA and S&P, respectively. The coefficient on *SIZE* in the selection equation is positive and significant in all specifications, indicating that larger firms are more likely to be included in CLSA and S&P samples.

[14] A similar approach is used by Lins (2003) to address endogeneity problems arising in the relation between ownership and valuation.

[15] Data availability for *ALPH*A and *BETA* from *Worldscope* yield 302 and 296 firms for CLSA and S&P samples, respectively.

[16] The overall results are similar to those reported earlier. However, in Table II coefficients on *INV_OPP*LEGAL* and *EXT_FIN*LEGAL* with *PROTECT* as the dependent variable are negative but not significant at the conventional level (*p*-val = 0.22 and 0.30, respectively). In Table IV, the coefficient on *CORP_GOV*LEGAL* becomes insignificant (*p*-val = 0.17) when *COMP* is used as a proxy for firm governance.

[17] See Johnson and Shleifer (2000) for a literature review on the debate concerning the Coase argument in corporate governance.

[18] We obtain equation [B4] because I is given and $MV = \int_0^I (1+\overline{\pi} - j)dj = (1+\overline{\pi})I - I^2/2$; hence, $\partial MV / \partial d = 0$.

[19] We thank Daniel Wolfenzon for pointing this out.

Table I
Summary Statistics of Legal Regime Variables, CLSA Composite Governance Score and S&P Transparency Ranking by Country

This table reports the legal regime variables, the mean, standard deviation, minimum, and maximum of CLSA composite corporate governance scores, *COMP*, and S&P transparency rankings, *TRAN*, by country. *INVESTOR* is the anti-director index; *ENFORCE* is rule of law; *LEGAL* is *INVESTOR* × *ENFORCE*. *N* is number of firms in the country.

	Legal regime variables			**CLSA composite governance score,** *COMP*					**S&P transparency ranking,** *TRAN*				
Country	*INVESTOR*	*ENFORCE*	*LEGAL*	**Mean**	**St. Dev.**	**Min**	**Max**	**N**	**Mean**	**St. Dev.**	**Min**	**Max**	**N**
Argentina	4	8.33	33.32	60.00	.	60.00	60.00	1	23.44	8.37	12.00	35.00	9
Australia	4	10.00	40.00	.	.	.	.	.	56.69	7.19	37.00	66.00	26
Brazil	3	3.33	9.99	53.76	7.97	38.78	68.22	30	27.30	10.46	16.00	51.00	30
Chile	5	8.33	41.65	57.02	5.38	43.40	65.04	16	29.44	10.48	13.00	50.00	18
China	1	8.13	8.13	43.56	11.24	21.62	64.50	25	41.88	10.14	24.00	56.00	16
Colombia	3	2.64	7.92	47.87	.	47.87	47.87	1	.	.	.	.	.
Czech Rep.	2	8.33	16.66	51.42	.	51.42	51.42	1	.	.	.	.	.
Greece	2	5.07	10.14	52.11	5.15	48.47	55.76	2	.	.	.	.	.
Hong Kong	5	8.33	41.65	56.28	11.37	35.04	83.49	38	41.76	4.02	33.00	54.00	42
Hungary	3	8.61	25.83	49.49	8.33	43.61	55.38	2	.	.	.	.	.
India	5	6.67	33.35	47.58	10.03	29.10	83.27	79	33.66	9.58	15.00	55.00	41
Indonesia	2	3.33	6.66	33.56	11.00	10.59	56.57	18	32.73	6.36	22.00	43.00	11
Japan	4	9.24	36.96	.	.	.	.	.	44.30	7.87	19.00	59.00	150
Korea	2	6.67	13.34	38.57	6.35	29.70	52.86	24	39.49	10.25	12.00	54.00	47
Malaysia	4	5.28	21.12	50.65	13.65	19.47	72.83	47	39.54	6.73	30.00	56.00	50
Mexico	1	3.33	3.33	55.68	7.30	43.55	63.96	8	22.81	8.37	13.00	47.00	16
New Zealand	4	10.00	40.00	.	.	.	.	.	51.00	.	51.00	51.00	1
Pakistan	5	5.00	25.00	27.83	12.71	15.53	60.02	11	31.56	6.71	20.00	43.00	9
Peru	3	5.00	15.00	68.84	.	68.84	68.84	1	19.00	3.56	16.00	26.00	7
Philippines	3	5.90	17.70	36.03	12.16	17.46	57.92	20	23.44	5.73	11.00	30.00	9
Poland	3	7.15	21.45	34.53	0.81	33.96	35.10	2	.	.	.	.	.
Russia	5	5.00	25.00	13.77	.	13.77	13.77	1	.	.	.	.	.
Singapore	4	10.00	40.00	59.05	8.45	40.83	77.37	43	51.27	8.33	28.00	68.00	26
South Africa	5	3.54	17.70	61.01	7.96	38.36	75.90	40	.	.	.	.	.
Taiwan	3	6.67	20.01	47.16	8.85	25.80	67.07	47	18.33	6.23	13.00	31.00	39
Thailand	2	8.33	16.66	48.58	12.31	25.50	71.12	20	42.08	11.54	15.00	57.00	26
Turkey	2	6.04	12.08	36.23	9.87	21.09	51.09	17	.	.	.	.	.
Average	3.30	6.60	22.25	47.11	8.99	34.32	60.81	**Total:** 494	35.25	7.88	21.05	49.05	**Total:** 573

Table II
Country Random-Effects Regressions of CLSA Governance and S&P Transparency Scores on Investment Opportunities, External Financing Needs, Legal Regimes, and Control Variables

This table reports the results of country random-effects regressions:

$$CORP\_GOV_j^c = \alpha + \beta_1 * INV\_OPP_j^c + \beta_2 * EXT\_FIN_j^c + \gamma_1 * LEGAL^c + \gamma_2 * INV\_OPP_j^c * LEGAL^c + \gamma_3 * EXT\_FIN_j^c * LEGAL^c + \sum_{k=1}^{K} \delta_k * Z_{k,j}^c + \sum_{i=1}^{I-1} d_i + \varepsilon_j^c ,$$

where *c* indexes country; *i* indexes industry; and *j* indexes firm. α is a constant, $E[\varepsilon_j^c] = 0$, $E[\varepsilon_j^c \varepsilon_k^c] \neq 0 \ \forall\ j$ and *k*, and E is the expectation operator. *CORP_GOV* is one of CLSA corporate governance scores (*COMP, PROTECT,* or *SOCIAL*) or S&P transparency ranking (*TRAN*) in 2000; *d* are industry dummies (coefficients are not reported); *INV_OPP* (investment opportunities) is 1998-to-2000 two-year geometric average of growth rate in net sales (winsorized at the 1st and 99th percentile); *EXT_FIN* (external financing needs) is the difference between 1998-to-2000 two-year geometric average growth rate in total assets minus 1998-to-2000 two-year geometric average maximum sustainable growth rate, where the latter is equal to *ROE* / (1 – *ROE)*, and *ROE* (return on equity) is net income over book value of equity (winsorized at the 1st and 99th percentile); *LEGAL* is *INVESTOR* × *ENFORCE*, where *INVESTOR* is the anti-director index and *ENFORCE* is rule of law; *INV_OPP *LEGAL* and *EXT_FIN *LEGAL* are interaction terms for investment opportunities and external financing needs with the quality of legal environment, respectively. *Z*s are control variables: *SIZE* is log of sales, 1999-to-2000 two-year average; *R&D* is research and development expenditures scaled by sales, 1999-to-2000 two-year average; *EXPORT* is export scaled by sales, 1999-to-2000 two-year average; *ADR* is a dummy variable, equal to one if a firm's shares are listed on U.S. stock exchanges in either 1999 or 2000, and zero, otherwise; and *CONSOL* is a dummy variable, equal to one if a firm consolidates its financial statements, and zero, otherwise. Numbers in parentheses are probability levels at which the null hypothesis of zero coefficient can be rejected. Coefficients significant at least at the ten percent level (based on two-tailed test) are in boldface. Firms that belong to financial industries (SIC 60, 61, 62, 63, 65, 67) are excluded from the sample. We drop firms from the sample if they do not have one of the following items in a given year of interest: total assets, sales, book value of equity, or net income. If all items, except R&D expenditures and export, are available, we set those two equal to zero.

Dependent Variables: CLSA Governance and S&P Transparency Scores	*COMP*	*PROTECT*	*TRAN*	*SOCIAL*
INV_OPP	**14.089**	**21.270**	**35.737**	6.421
	(0.00)	(0.02)	(0.00)	(0.44)
EXT_FIN	**4.363**	**16.223**	9.154	**-9.900**
	(0.08)	(0.01)	(0.14)	(0.09)
LEGAL	**0.490**	**1.013**	**0.352**	-0.091
	(0.00)	(0.00)	(0.00)	(0.49)
*INV_OPP *LEGAL*	**-0.525**	**-0.579**	**-1.125**	-0.466
	(0.00)	(0.06)	(0.00)	(0.16)
*EXT_FIN *LEGAL*	-0.083	**-0.443**	-0.302	0.258
	(0.24)	(0.04)	(0.19)	(0.25)
SIZE	**0.879**	**-3.325**	**1.235**	1.137
	(0.08)	(0.00)	(0.00)	(0.24)
R&D	19.874	-22.812	12.503	**139.853**
	(0.59)	(0.78)	(0.62)	(0.05)
EXPORT	**-6.240**	0.943	**-13.629**	9.981
	(0.09)	(0.91)	(0.00)	(0.17)
ADR	**6.668**	2.576	0.553	2.142
	(0.00)	(0.51)	(0.71)	(0.54)
CONSOL	**6.420**	4.333	**3.653**	**-12.992**
	(0.00)	(0.24)	(0.05)	(0.00)
Wald-test statistics of overall significance	**101.10**	**92.570**	**124.92**	**50.82**
	(0.00)	(0.00)	(0.00)	(0.00)
Regression R^2	0.240	0.224	0.231	0.137
Number of Companies	344	344	439	344

Table III
Country Random-Effects Regressions of CLSA Governance and S&P Transparency Scores on Ownership Concentration, Legal Regimes, and Control Variables

This table reports the results of country random-effects regressions:

$$CORP\_GOV_j^c = \alpha + \beta_1 * OWN\_CASH_j^c + \beta_2 * (OWN\_CASH_j^c)^2 + \beta_3 * WEDGE_j^c + \gamma_1 * LEGAL^c +$$
$$+ \gamma_2 * OWN\_CASH_j^c * LEGAL^c + \sum_{k=1}^{K} \delta_k * Z_{k,j}^c + \sum_{i=1}^{I-1} d_i + \varepsilon_j^c \quad ,$$

where *c* indexes country; *i* indexes industry; and *j* indexes firm. α is a constant, $E[\varepsilon_j^c] = 0$, $E[\varepsilon_j^c \varepsilon_k^c] \neq 0 \ \forall \ j$ and *k*, and E is the expectation operator. *CORP_GOV* is one of CLSA corporate governance scores (*COMP, PROTECT,* or *SOCIAL*) or S&P transparency ranking (*TRAN*) in 2000; *d* are industry dummies (coefficients are not reported); *OWN_CASH* is the share of cash flow rights held by the largest shareholder, defined as in Claessens, Djankov, Fan, and Lang (2002) in 1996; $(OWNER\_CASH)^2$ is a squared term for cash flow ownership; *WEDGE* is a dummy variable, equal to one if *CONTROL* - *OWN_CASH* ≥ 10% and zero, otherwise, where *CONTROL* is the share of voting rights held by the largest shareholder defined as in Claessens, Djankov, Fan, and Lang (2002) in 1996; *LEGAL* is *INVESTOR* × *ENFORCE*, where *INVESTOR* is the anti-director index and *ENFORCE* is rule of law; *OWN_CASH*LEGAL* is the interaction term for the share of cash flow rights held by the largest shareholder with the quality of legal environment. *Z*s are control variables: *SIZE* is log of sales, 1999-to-2000 two-year average; *R&D* is research and development expenditures scaled by sales, 1999-to-2000 two-year average; *EXPORT* is export scaled by sales, 1999-to-2000 two-year average; *ADR* is a dummy variable, equal to one if a firm's shares are listed on U.S. stock exchanges in either 1999 or 2000, and zero, otherwise; and *CONSOL* is a dummy variable, equal to one if a firm consolidates its financial statements, and zero, otherwise. Numbers in parentheses are probability levels at which the null hypothesis of zero coefficient can be rejected. Coefficients significant at least at the ten percent level (based on two-tailed test) are in boldface. Panel B excludes firms that belong to financial industries (SIC 60, 61, 62, 63, 65, 67). We drop firms from the sample if they do not have sales or ownership information in a given year of interest. If all items, except R&D expenditures and export, are available, we set those two equal to zero.

	Panel A: Financial firms are included				*Panel B: Financial firms are excluded*			
Dependent Variable	*COMP*	*PROTECT*	*TRAN*	*SOCIAL*	*COMP*	*PROTECT*	*TRAN*	*SOCIAL*
OWN_CASH	**0.575**	**1.691**	0.192	-0.595	0.481	**1.477**	0.190	-1.071
	(0.04)	(0.01)	(0.15)	(0.26)	(0.11)	(0.03)	(0.21)	(0.11)
$(OWN\_CASH)^2$	**-0.005**	**-0.015**	-0.001	0.005	-0.004	**-0.014**	-0.001	**0.009**
	(0.05)	(0.01)	(0.12)	(0.30)	(0.13)	(0.02)	(0.17)	(0.10)
WEDGE	-0.829	**-8.640**	-0.803	1.371	0.141	-7.066	0.747	-0.871
	(0.70)	(0.08)	(0.69)	(0.74)	(0.95)	(0.21)	(0.76)	(0.87)
LEGAL	**0.864**	**1.447**	**0.599**	-0.220	**0.816**	**1.491**	**0.588**	-0.350
	(0.00)	(0.00)	(0.00)	(0.53)	(0.00)	(0.00)	(0.00)	(0.43)
*OWN_CASH *LEGAL*	-0.010	**-0.030**	-0.005	0.017	-0.006	-0.026	-0.004	0.022
	(0.18)	(0.08)	(0.25)	(0.24)	(0.49)	(0.17)	(0.38)	(0.23)
SIZE	1.085	-1.973	0.411	1.804	-0.857	**-6.847**	0.261	0.585
	(0.12)	(0.22)	(0.42)	(0.18)	(0.33)	(0.00)	(0.66)	(0.77)
R&D	-92.774	**-546.453**	22.817	-71.505	-120.102	**-602.535**	29.295	-63.469
	(0.49)	(0.08)	(0.52)	(0.78)	(0.36)	(0.04)	(0.40)	(0.83)
EXPORT	-0.388	13.545	**-24.857**	6.594	0.734	17.700	**-25.405**	7.756
	(0.95)	(0.38)	(0.00)	(0.61)	(0.91)	(0.23)	(0.00)	(0.60)
ADR	4.515	-8.561	-1.962	11.907	7.045	-6.147	-3.972	15.792
	(0.28)	(0.38)	(0.45)	(0.14)	(0.12)	(0.55)	(0.18)	(0.12)
CONSOL	2.442	4.567	0.238	-8.333	-1.296	-4.429	3.112	-2.656
	(0.54)	(0.62)	(0.95)	(0.28)	(0.77)	(0.66)	(0.49)	(0.79)
Wald-test statistics of joint significance	**3307.560**	**1049.20**	**3670.91**	**1601.170**	**1001.140**	**860.380**	**1000.160**	**992.150**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Regression R^2	0.442	0.326	0.344	0.118	0.500	0.461	0.391	0.127
Number of Companies	173	173	240	173	124	124	177	124

Table IV
Country Random-Effects Regressions of Firm Valuation on CLSA Governance and S&P Transparency Scores, Legal Regimes, and Control Variables

This table reports the results of country random-effects regressions:

$$Q_j^c = \alpha + \beta_1 * CORP\_GOV_j^c + \gamma_1 * LEGAL^c + \gamma_2 * CORP\_GOV_j^c * LEGAL^c + \sum_{k=1}^{K} \delta_k * Z_{k,j}^c + \sum_{i=1}^{I-1} d_i + \varepsilon_j^c ,$$

where *c* indexes country; *i* indexes industry; and *j* indexes firm. α is a constant, $E[\varepsilon_j^c] = 0$, $E[\varepsilon_j^c \varepsilon_k^c] \neq 0 \ \forall \ j$ and *k*, and E is the expectation operator. *Q* is 2000-to-2001 two-year average of Tobin's Q defined as total assets plus market value of equity less book value of equity over total assets, where the market value of equity is the number of common shares outstanding times year-end share price (winsorized at the 1st and 99th percentile); *CORP_GOV* is one of CLSA corporate governance scores (*COMP, PROTECT,* or *SOCIAL*) or S&P transparency ranking (*TRAN*) in 2000; *d* are industry dummies (coefficients are not reported); *LEGAL* is *INVESTOR* × *ENFORCE*, where *INVESTOR* is the anti-director index and *ENFORCE* is rule of law; *CORP_GOV * LEGAL* is the interaction term for *CORP_GOV* with the quality of legal environment. *Z*s are control variables: *INV_OPP* (investment opportunities) is 1998-to-2000 two-year geometric average of growth rate in net sales (winsorized at the 1st and 99th percentile); *SIZE* is log of sales, 1999-to-2000 two-year average; *R&D* is research and development expenditures scaled by sales, 1999-to-2000 two-year average; *EXPORT* is export scaled by sales, 1999-to-2000 two-year average; *ADR* is a dummy variable, equal to one if a firm's shares are listed on U.S. stock exchanges in either 1999 or 2000, and zero, otherwise; and *CONSOL* is a dummy variable, equal to one if a firm consolidates its financial statements, and zero, otherwise. Numbers in parentheses are probability levels at which the null hypothesis of zero coefficient can be rejected. Coefficients significant at least at the ten percent level (based on two-tailed test) are in boldface. Firms that belong to financial industries (SIC 60, 61, 62, 63, 65, 67) are excluded from the sample. In Panel B we exclude the governance and disclosure scores and the interaction terms for governance and disclosure scores with legal regime. We drop firms from the sample if they do not have one of the following items in a given year of interest: sales, total assets, book value of equity, number of common shares outstanding, or year-end share price. If all items, except R&D expenditures and export are available, we set those two equal to zero. Coefficients on *CORP_GOV* and *CORP_GOV * LEGAL* are multiplied by 100.

	Panel A				*Panel B*
Dependent variable	*Tobin's Q*				
COMPOSITE	**1.950**	-	-	-	-
	(0.06)				
PROTECT	-	**1.711**	-	-	-
		(0.05)			
TRAN	-	-	**0.905**	-	-
			(0.04)		
SOCIAL	-	-	-	0.436	-
				(0.44)	
LEGAL	0.010	0.005	0.016	0.001	**0.017**
	(0.67)	(0.75)	(0.20)	(0.99)	(0.00)
*CORP_GOV *LEGAL*	**-0.026**	-0.012	**-0.006**	0.030	**-**
	(0.10)	(0.12)	(0.00)	(0.19)	
INV_OPP	**0.820**	**0.840**	**0.843**	**0.888**	**0.854**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
SIZE	**-0.104**	-0.074	**-0.113**	**-0.098**	**-0.087**
	(0.02)	(0.11)	(0.00)	(0.03)	(0.06)
R&D	**5.711**	**6.371**	**5.075**	4.292	**6.147**
	(0.09)	(0.06)	(0.01)	(0.20)	(0.07)
EXPORT	**1.795**	**1.629**	**1.226**	**1.479**	**1.625**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
ADR	-0.137	-0.081	-0.037	-0.044	-0.069
	(0.41)	(0.62)	(0.76)	(0.79)	(0.67)
CONSOL	**-0.513**	**-0.422**	0.104	-0.228	**-0.404**
	(0.00)	(0.00)	(0.47)	(0.15)	(0.01)
Wald-test statistics of joint significance	**1287.280**	**1248.080**	**1500.73**	**1330.270**	**1239.530**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Regression R^2	0.344	0.328	0.282	0.361	0.321
Number of Companies	344	344	438	344	344

Table V
Three-stage Least Squares Regression Estimation of the Relation between Valuation and CLSA Governance and S&P Transparency Scores

This table reports the results of three-stage least squares estimation of the following system of equations:

$$\begin{cases} CORP\_GOV_j^c = \alpha_1 + \beta_1 * Valuation_j^c + \gamma_{1,1} * INV\_OPP_j^c + \gamma_{1,2} * EXT\_FIN_j^c + \gamma_{1,3} * LEGAL^c + \gamma_{1,4} * SIZE_j^c + \gamma_{1,5} * R\&D_j^c + \gamma_{1,6} * EXPORT_j^c + \gamma_{1,7} * ADR_j^c + \gamma_{1,8} * CONSOL_j^c + \gamma_{1,9} * ALPHA_j^c + \gamma_{1,10} * BETA_j^c + \varepsilon_{1j} \\ Q_j^c = \alpha_1 + \beta_2 * CORP\_GOV_j^c + \gamma_{2,1} * INV\_OPP_j^c + \gamma_{2,3} * LEGAL^c + \gamma_{2,5} * R\&D_j^c + \gamma_{2,6} * EXPORT_j^c + \gamma_{2,7} * ADR_j^c + \gamma_{2,8} * CONSOL_j^c + \sum_{i=1}^{I-1} d_i + \varepsilon_{2j} \end{cases},$$

where *c* indexes country; *i* indexes industry; and *j* indexes firm. *Q* is 2000-to-2001 two-year average of Tobin's Q defined as total assets plus market value of equity less book value of equity over total assets, where the market value of equity is the number of common shares outstanding times year-end share price (winsorized at the 1st and 99th percentile); *CORP_GOV* is one of CLSA corporate governance scores (*COMP* or *PROTECT*), or S&P transparency ranking (*TRAN*) in 2000; *d* are industry dummies (coefficients are not reported); *LEGAL* is *INVESTOR* × *ENFORCE*, where *INVESTOR* is the anti-director index and *ENFORCE* is rule of law; *INV_OPP* (investment opportunities) is 1998-to-2000 two-year geometric average of growth rate in net sales (winsorized at the 1st and 99th percentile); *EXT_FIN* (external financing needs) is the difference between 1998-to-2000 two-year geometric average growth rate in total assets minus 1998-to-2000 two-year geometric average maximum sustainable growth rate, where the latter is equal to *ROE* / (1 – *ROE)*, and *ROE* (return on equity) is net income over book value of equity (winsorized at the 1st and 99th percentile); *SIZE* is log of sales, 1999-to-2000 two-year average; *R&D* is research and development expenditures scaled by sales, 1999-to-2000 two-year average; *EXPORT* is export scaled by sales, 1999-to-2000 two-year average; *ADR* is a dummy variable, equal to one if a firm's shares are listed on U.S. stock exchanges in either 1999 or 2000, and zero, otherwise; and *CONSOL* is a dummy variable, equal to one if a firm consolidates its financial statements, and zero, otherwise. *ALPHA* and *BETA* values are obtained from *Worldscope*, which are computed using between 23 and 35 consecutive month end percentage price changes relative to a local market index during years from 1999 to 2001. Numbers in parentheses are probability levels at which the null hypothesis of zero coefficient can be rejected. Coefficients significant at least at the ten percent level (based on two-tailed test) are in boldface. Firms that belong to financial industries (SIC 60, 61, 62, 63, 65, 67) are excluded from the sample. We drop firms from the sample if they do not have one of the following items in a given year of interest: sales, total assets, book value of equity, net income, number of common shares outstanding, or year-end share price. If all items, except R&D expenditures and export, are available, we set those two equal to zero. Regression R^2 is not reported because it has no statistical meaning in case of three-stage least squares estimation. The coefficient on *CORP_GOV* is multiplied with 100.

	Panel A *CLSA Sample, COMP*		*Panel B* *CLSA Sample, PROTECT*		*Panel C* *S&P Sample, TRAN*	
	Governance Equation: Dep. Variable, COMP	*Valuation Equation: Dep. Variable, Q*	*Governance Equation: Dep. Variable, PROTECT*	*Valuation Equation: Dep. Variable, Q*	*Governance Equation: Dep. Variable, TRAN*	*Valuation Equation: Dep. Variable, Q*
Q	0.878	-	2.932	-	**-4.662**	-
	(0.59)		(0.42)		(0.03)	
CORP_GOV	-	**4.680**	-	**3.198**	-	**0.566**
		(0.00)		(0.00)		(0.04)
INV_OPP	**6.323**	**1.030**	1.859	**0.982**	**12.719**	0.105
	(0.05)	(0.00)	(0.15)	(0.00)	(0.01)	(0.27)
EXT_FIN	**2.098**	-	**9.208**	-	**11.272**	-
	(0.05)		(0.01)		(0.00)	
LEGAL	**0.339**	-0.002	**0.806**	-0.134	**0.307**	0.072
	(0.00)	(0.85)	(0.00)	(0.20)	(0.00)	(0.00)
SIZE	**-0.815**	-	**-2.475**	-	**1.010**	-
	(0.06)		(0.01)		(0.01)	
R&D	-8.045	4.273	-31.268	4.797	-26.396	4.051
	(0.81)	(0.21)	(0.68)	(0.23)	(0.31)	(0.20)
EXPORT	-4.356	**1.753**	-1.449	**1.186**	**-18.898**	-0.345
	(0.29)	(0.00)	(0.88)	(0.00)	(0.00)	(0.68)
ADR	**6.519**	**-0.318**	-3.252	0.099	-1.052	-0.240
	(0.00)	(0.09)	(0.38)	(0.64)	(0.49)	(0.24)
CONSOL	**6.511**	**-0.883**	2.164	**-0.580**	1.655	0.279
	(0.00)	(0.00)	(0.58)	(0.00)	(0.42)	(0.39)
ALPHA	0.251	-	0.442	-	0.480	-
	(0.38)		(0.40)		(0.18)	
BETA	**-5.450**	-	**-8.508**	-	-1.186	-
	(0.00)		(0.00)		(0.26)	
Industry dummies	no	yes	no	yes	no	yes
χ^2 *statistics*	**103.230**	**173.904**	**885.140**	**112.046**	**138.454**	**59.746**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Number of Companies	302		302		396	