Corruption and International Valuation: Does Virtue Pay?

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Comments Welcome

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Abstract

This study integrates the valuation literature in finance with a vast literature in political science and economics on corruption. Using firm-level data from 43 countries, we investigate the relation between corruption and international corporate values. Our analysis shows that firms from more (less) corrupt countries trade at significantly lower (higher) market multiples. Further analysis shows that this result is attributable primarily to higher required rates of equity return in more corrupt countries, and is robust after the inclusion of numerous control variables. We conclude that corruption has significant economic consequences for shareholder value.

1. Introduction

Corruption, defined as the *misuse of public office for private gain,* has emerged as a major issue in the global economy. As international markets become more integrated, interest in (and awareness of) the effects of corruption is on the rise.[1] Recent academic studies have examined the effect of corruption on a wide range of social and economic phenomena, including economic growth, direct foreign investment, and the quality of health care and educational services.[2] A number of international organizations also have an on-going mandate to combat corruption.[3]

While presumption of the damaging effects of corruption is widespread, direct evidence on its economic consequences has been relatively scarce. Contributing to the problem is the pervasive nature of corruption. Because corruption is associated with a variety of other social and economic ills – including anemic economic growth, reduced foreign investment, reduced shareholder protection, lower healthcare and education spending – its direct impact on resource allocation in society, and various measures of economic well-being, can be difficult to isolate.

In this study, we examine the empirical relation between the level of corruption within a country, and the valuation of its corporations to shareholders. Specifically, we use firm-level data from 43 countries to evaluate the empirical relation between corruption, as measured by Transparency International's Corruption Perception Index (CPI), and

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[1] The international press is rife with coverage about corruption, ranging from drug-enforcement problems in Mexico, to Russia's vast gray economy, to Chinese peasant workers who have been swindled by government officials. Corruption has also been the subject of recent speeches by numerous world leaders, including Chinese Prime Minister Li Peng, South Korea's Kim Young Sam, and the president of the World Bank, who called corruption the single greatest obstacle to economic and social development. For information on the efforts of the World Bank and IMF to combat corruption, see Rose-Ackerman (1997, page 93).

[2] For example, Mauro (1995) investigates the effect of corruption on economic growth, Wei (1997) examines the effect of corruption on direct foreign investments, and Gupta et al. (2001) evaluates the association between corruption and the quality of healthcare and educational services.

[3] For example, the International Monetary Fund (IMF; www.imf.org), the World Bank (www.worldbank.org), the Organization for Economic Co-operation and Development (OECD; www.oecdwash.org), Transparency International (www.transparency.org) and Community Information, Empowerment and Transparency (CIET; www.ciet.org).

international corporate values.[4] Our research strategy is to exploit the increased power of firm- and industry-level analysis, while using recent advances in valuation theory and estimation techniques to control for country-, industry-, and firm-level characteristics that might affect cross-border valuation.

Our main conjecture is that investors will demand a higher rate of return from firms operating in more corrupt countries. The premise for this conjecture, developed more fully in the next section, is that the level of public corruption is broadly symptomatic of contracting and monitoring costs within a country. In more corrupt regimes, agents must expend higher costs and greater effort in all their contractual transactions – e.g., to reduce counter-party risk, to monitor performance, and to enforce property rights. These higher transaction costs, like the cost of illiquidity (Amihud and Mendelson (1986)) or elevated information risk (Easley and O'Hara (2004), Bhattacharya and Daouk (2002), Bhattacharya et al. (2003)), are not easily diversified away. We show in a simple model that, when even when global markets are reasonably integrated, increased contracting costs will lead to higher required rates of return on a country's equity investments.

We test our conjecture by assessing the role of corruption in explaining cross-border valuations (firms' price-to-book (PB) and price-to-earnings (PE) multiples), after controlling for factors associated with individual firms' expected cash flows. Key drivers for corporate values are: (1) expected future cash flows and (2) the required rate of return on equity. Our research design evaluates the role of corruption in firm valuation, while controlling for each firm's mean effect, expected earnings growth (based on firm-level analyst forecasts, or Forecastg), current profitability (based on return-on-equity, or ROE), level of R&D spending (R&D), as well as industry and country membership.

We find that firms from more (less) corrupt countries trade at significantly lower (higher) market multiples, after controlling for other factors. In further analysis, we find that this result derives mainly from the effect of corruption on required rates of return, rather than on expected earnings growth or future profitability. Firms in more corrupt countries do

[4] We discuss the composition of the CPI and the robustness of the results in detail later in the paper.

not generally earn lower nominal returns-on-equity (ROE), or have lower expected rates of growth in earnings (Forecastg). However, investors seem to demand a higher rate of return when discounting the expected cash flows of firms from more corrupt countries, leading to lower corporate values.

To disentangle the effect of corruption from other country characteristics, we evaluate our finding after controlling for a large number of metrics suggested by both international assess pricing theory and prior empirical research. We find that the country-level corruption variable is incrementally important in explaining firm values even after we control for year-, country-, and firm-level fixed effects, as well as the average multiple for each industry, country-level variations in inflation, real GDP growth, GDP per capita, Beta, and Currency Beta. Our main result is also robust to the choice of estimation procedure (random-effect, fixed-effect, or instrumental-variable (IV) estimation).

To better understand how corruption affects firm values, we also conduct a number of additional tests. First, to examine the effect of market segmentation, we partitioned our sample according to the degree to which each country's equity market is segmented from the world market. We find that the degree of market segmentation has little effect on our main result – i.e., corruption remains negatively correlated with firm values in both sub-samples. Limiting the analysis to the largest 100 firms in each country only slightly weakens these findings.

Second, to evaluate the extent to which corruption is substituting for other measures of corporate governance and minority shareholder rights, we include three variables suggested by La Porta et al. (1998): the efficacy of the judicial system (Judsys), a shareholder rights index (Antidir), and a crude measure of the quality of financial reporting standards (Accstand). We find that corruption is incrementally important to these variables, suggesting that it captures a broader concept than corporate governance.[5]

[5] The fact that these variables do not change from year-to-year likely accounts for their diminished explanatory power in our analyses.

Third, to better understand the channels through which corruption affects firm value, we introduce interaction terms between corruption and other key drivers of firm value (ROE, R&D, and Forecastg). We find that these interaction terms generally have significantly negative coefficients. In other words, investors demand a higher rate of return per unit of ROE, R&D expenditure, and earnings growth, when investing in firms that operate in more corrupt countries.

In sum, we show that the level of public corruption in a country is negatively correlated with the price investors are willing to pay for companies' earnings and book value. This result holds after controlling for a large set of factors that theory suggests will affect firms' expected future cash flows. This evidence is consistent with shareholders demanding a higher rate of return for equity investments in more corrupt countries. We conclude that corruption has significant economic consequences for firm value.

The remainder of the paper is organized as follows. In Section 2, we briefly review the vast literature on corruption, and discuss the theoretical link between corruption and shareholder value. In Section 3, we address issues in international valuation and the theory that underpins our empirical tests. This section also describes our sample, and motivates the various explanatory characteristics used in the study. Section 4 reports our empirical findings. Finally, in Section 5 we conclude with a discussion of the implications of our findings.

2. Corruption and Shareholder Value

2.1 Prior Research on Corruption

Corruption is most commonly defined as the *misuse of public office for private gain* ((Klitgaard (1991; page 221), Transparency International (1995; pages 57-58), and Shleifer and Vishny (1993; page 599)). It is a concept that extends beyond the act of bribery to encompass a wide range of behavior associated with the exercise of discretionary power in the public sector.[6]

[6] Elliott (1997) highlights the prominence of corruption in the global economy, and provides many examples.

Prior studies on corruption fall into two broad categories: (1) those interested in understanding the determinants of corruption, and (2) those aimed at evaluating its effect. Studies in the first camp show that the level of corruption in a country has historical, cultural, economic, and political roots. For example, Treisman (2000) finds that countries with lower corruption tend to be largely Protestant, former British colonies, have higher per capita income, a common law (versus civil law) legal system, a high ratio of imports to GDP, long exposure to democracy, and a unitary form of government. Other related studies document similar findings.[7]

Studies aimed at assessing the economic impact of corruption have documented country-level associations between it and a variety of social or economic ailments. For example, Mauro (1995) shows that corruption lowers investment and impedes economic growth. Wei (1997) finds that an increase in corruption lowers the amount of direct foreign investment. Corruption is also associated with reduced government tax revenue (Ul Haque and Sahay (1996), Tanzi and Davoodi (1997)), Johnson et al. (1999)), decreased spending on operations and maintenance, such as medicine and textbooks (Tanzi and Davoodi (1997)), increased military spending (Gupta, de Mello, and Sharan (2000)), higher child mortality rates and student dropout rates (Gupta et al. (2001)), as well as a larger unofficial economy (Johnson et al. (1998)).

Although these studies have helped us to better understand the pervasive nature of corruption, they provide little evidence on its implications for shareholder value. In two studies that are closer in spirit to ours, Ciocchini, Durbin and Ng (2003)) and Hall and Yago (2000) find that more corrupt countries have higher relative spread on their sovereign bonds. Their evidence hints at the possibility that the cost of equity capital could be higher as well in more corrupt countries. Building on this work, we directly test the effect of corruption on corporate values using firm-level data.

[7] In addition to Treisman (2000), La Porta et al. (1999) find that less developed countries, countries with higher Catholic or Muslim populations, and countries with French or socialist laws (in contrast to common laws), tend to have inferior measures of government performance, including higher corruption. Similarly,

2.2 Corruption and Shareholder Value

In this section, we discuss how corruption is related to firm value under different assumptions about global market integration. The dependent variables for our empirical analysis are the price-to-book (PB) and price-to-earnings (PE) ratios of individual firms. Our main proposition is that in more corrupt countries, investors will demand a higher cost of capital (r), leading to lower market multiples.

The basic premise for our proposition is that the level of public corruption is a broad barometer for a variety of contracting costs. If corruption has social and cultural roots, as prior research suggests, the exploitive behavior of government officials is likely symptomatic of broader problems beyond the public sector. Some measure of trust is needed in all economic transactions. We posit that the "price of trust" varies systematically across countries as a function of corruption.

In highly corrupt countries, agents routinely expend higher costs or more effort to mitigate counter-party risk before the contract, to monitor compliance during the contract, and to enforce property rights in the even of a contractual breach. Even routine transactions such as the cashing of personal checks or background checks on new employees, can be arduous. These higher transaction costs, like the cost of illiquidity (Amihud and Mendelson (1986)) or elevated information risk (Easley and O'Hara (2004), Bhattacharya and Daouk (2002), Bhattacharya et al. (2003)), are not easily diversified away. As a result, investors in more corrupt countries will demand a higher rate of return from their investment.

We illustrate this intuition with a simple model, derived from the theoretical work of Lombardo and Pagano (2000). Consider a two-country environment with three different types of investors. In home country h, there are N_h "domestic" investors. In the rest of the world there are N_w investors. A fraction, λ, of these N_w investors are able to invest in

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Rose-Ackerman (2001) shows that while the current degree of democracy is unimportant in explaining corruption, corruption does decrease after longer exposure to a democratic structure.

the home market. These investors are "global" investor, whose asset demands are denoted with the subscript g. The remaining (1-λ) N_w investors are non-global "foreign" investors who, for information or transaction costs reasons, are prevented from investing in the home market but can invest in foreign markets. The asset demands of foreign investors are identified by a subscript *f*.

In this setting, λ proxies for international integration, where λ=0 implies no international investment in the home market, and λ=1 implies perfect integration. The rate of return on home equity R_h has a mean of $(1+\mu_h)$ and a standard deviation of σ_h, while the rate of return on the equity on the world portfolio R_w has a mean of $(1+\mu_w)$ and a standard deviation of σ_w. The covariance between the two returns is σ_{hw}.

The portfolio choice problem of the representative type j investor (where j = h, g, and f stand for home investor, global investor and foreign non-global investor, respectively) involves maximizing the following objective function:

$$\underset{x_{hj},x_{wj}}{Max}\, E(W_{1j}) - \frac{b}{2}\mathrm{var}(W_{1j}) - cx_{hj} \qquad (1)$$

where W_{1j} is the value of investor j's terminal wealth; x_{hj} and x_{wj} are the amounts he invests in the home and the world market; b is a risk aversion parameter; and c is the cost associated with higher corruption in the home market.[8]

In this model, market clearing conditions (see Appendix A) lead to a required return on equity with four terms:

$$\mu_h = r + c + b(\sigma_h^2 - \frac{\sigma_{hw}^2}{\sigma_w^2})\frac{X_h}{N_h + \lambda N_w} + \beta_h(\mu_w - r) \qquad (2)$$

[8] For simplicity, we focus on the effect of corruption on the home equity market, and assume no corruption in foreign markets. Relaxing this assumption does not alter our analysis.

where $\beta_h = \frac{\sigma_{hw}}{\sigma_w^2}$ is the home country beta relative to the world market.

The first term in equation (2) is the risk-free rate. The second is the cost of corruption. The third term captures the effect of integration on the cost of capital. Specifically, it is a function of the supply of equity funding to domestic companies, X_h, and of the home country's own variance and covariance with the world stock market. The fourth term is the home country beta multiplied by the world market risk premium.

Notice that so long as some foreign investors are able to invest in the home market ($\lambda > 0$), as the number of foreign investors increases, the equity risk that each investor bears becomes smaller. If the number of foreign investors N_w becomes arbitrarily large relative to the funding to domestic companies, then $\frac{X_h}{N_h + N_w} = 0$. In other words, as world markets become fully integrated, the supply of equity becomes perfectly elastic and the second term approaches zero, thus lowering the cost of capital.

However, because the cost of corruption is essentially a transaction cost, it is unaffected by the degree of diversification with world markets. Even in the case of complete integration, the cost of corruption, *c*, still increases the required rate of return. As corruption cost is lowered, the required rate of return is also reduced.

Although our prior is that corruption increases transaction cost, theoretically *c* could also be negative. An early stream of theoretical work suggests that corruption might serve to "grease the wheels of commerce," thus reducing transaction cost and lowering the cost of capital (e.g., see Leff (1964) and Lui (1985); Kaufman and Wei (1999) and Aidt (2003) offer rebuttals). This efficiency-enhancing view of corruption has found little empirical support, and has largely fallen out of favor (Aidt (2003)). In any event, our tests treat the directional association between corruption and required rates of return as an open empirical question.

Several other academic studies lend support to our basic premise that transaction costs can affect expected rates of return. For example, Amihud and Mendelson (1986) find that firms with higher bid-ask spreads are associated with higher required rates of return in the U.S. Easley and O'Hara (2004) model the effect of information asymmetry risk on asset prices, and show that this risk can remain undiversified in equilibrium. More recently, two empirical studies using international data also find corroborating evidence. Specifically, failure to enforce insider trading laws (Bhattacharya and Daouk (2002)) and elevated levels of earnings opacity (Bhattacharya et al. (2003)) are both found to be associated with higher costs of equity capital across countries. In all these instances, the evidence indicates that higher contracting costs are reflected in higher costs of capital.

Also consistent with this basic argument, La Porta et al. (LLSV, 2001) show that firms from countries with better investor protection laws have higher Tobin's q. Their study uses the origin of a country's laws (Common versus Civil) and the index of specific legal rules as indicators of shareholder protection. As we have seen earlier, the origin of a country's law is correlated with corruption. It is difficult to distinguish whether corruption per se, or shareholder protection, is the primary theoretical construct that accounts for the results in La Porta et al. (2001). We address this issue by including the LLSV index of shareholder protection (Antidir), the efficiency of the judicial system (Judsys), and the level of Accounting Standards (Accstand) as control variables. We also include industry-level, as well as firm-level fixed effect controls.

In sum, our sense is that corruption encompasses a broader set of social behavior than is captured by shareholder protection. For example, public corruption is likely to be mirrored by similar behavior in the private sector. To the extent that unethical behavior in general increases contracting and monitoring costs, the adverse effect of corruption on corporate values will extend beyond legal protection of shareholders. In later tests, we include a large number of other country-level measures: Inflation, real GDP growth (GDPg), import as a percentage of GDP (Import/GDP), GDP per capita (GDP/cap), the country's stock market beta (Beta), as well as its currency exchange beta (Ex_beta). To the extent that these variables are affected by corruption, our results will understate the

total effect of corruption on firm valuation.

3. Valuation Theory and Model Estimation

The dependent variables for our analysis are the price-to-book (PB) and price-to-earnings (PE) ratios of individual firms. In this section, we present the valuation theory that identifies the economic determinants of these ratios. We also motivate the empirical constructs used to estimate our valuation model. Our discussion extends the multiple-based valuation approach in Bhojraj and Lee (2002) to an international setting.

3.1 Theoretical Determinants of Market Multiples

Valuation theory shows that explicit expressions can be derived for many market multiples using little more than the dividend discount model (DDM) and a few additional assumptions. For example, the residual income formula allows us to re-express the discounted dividend model in terms of the price-to-book ratio:[9]

$$\frac{P_t^*}{B_t} = 1 + \sum_{i=1}^{\infty} \frac{\left(ROE_{t+i} - r\right) B_{t+i-1}}{\left(1+r\right)^i \quad B_t} \tag{3}$$

where P_t^* is the present value of expected dividends at time t, B_{t+i} = expected book value at time t+i; r = cost of equity capital; and ROE_{t+i} = return-on-equity, the expected after-tax return on book equity for period $t+i$.

This equation shows that a firm's price-to-book ratio is a function of its expected return-on-equity (ROE), its cost-of-capital (r), and its future growth rate in book value (B_{t+i}/B_t). Firms that have higher expected ROE, lower r, and higher growth rates, will trade at higher price-to-book ratios. In other words, the primary drivers of the P/B ratio should be its expected ROE, its cost of capital, and its expected rate of growth.

[9] This equation can be derived from the DDM with the additional assumption of the "clean surplus relation" ($B_t = B_{t-1} + NI_t - DIV_t$). The resulting formula, often referred to as a "residual income" valuation model, has been the subject of considerable recent interest in the accounting literature. See Feltham and Ohlson (1995) or Lee (1999) and the references therein for details.

Accounting diversity problems across countries are minimized by the complementary nature of P/B and ROE. In brief, firms in countries with more conservative accounting practices will have lower book values (relative to their economic value). This results in higher P/B ratios, but also higher ROE measures. Therefore, at least in theory, this model is robust to differences in accounting practices across countries.[10]

In the same spirit, it is not difficult to derive the price-to-earnings ratio in terms of expected growth rates, the dividend payout ratio, and the cost of capital. In the case of a stable growth firm, the price-to-earnings ratio can be expressed as:

$$\frac{P_t^*}{E_t} = \frac{k\,(1+g)}{(r-g)} \tag{4}$$

where P_t^* is the present value of future dividends at time t, E_t = earnings at time t; k is a constant dividend payout ratio (dividends as a percentage of earnings); r = cost of equity capital; and g is the expected earnings growth rate.

In the more general case, we can model the firm's growth in terms of an initial period (say n years) of high growth, followed by a period of more stable growth in perpetuity. Under this assumption, a firm's price-to-earnings ratio can be expressed as:

$$\frac{P_t^*}{E_t} = k\left[\frac{(1+g_1)(1-((1+g_1)^n/(1+r)^n))}{r-g_1} + \frac{(1+g_1)^n(1+g_2)}{(1+r)^n(r-g_2)}\right] \tag{5}$$

where P_t^* is the present value of future dividends at time t, E_t = earnings at time t; k is a constant payout ratio; r = cost of equity capital; g_1 is the initial earnings growth rate, which is applied for n years; and g_2 is the constant growth rate applicable from period n+1 onwards.

[10] The theoretical model features an infinite horizon forecast of future cash flows. In practice, valuation models involve finite horizon forecasts, which introduce estimation errors that could be a function of a country's accounting practices. See Frankel and Lee (1999) for more details.

Equation (5) shows that a firm's P/E ratio should be a function of its dividend payout ratio (k), expected growth rates (g_1 and g_2), and cost of capital (r). If the market value of equity approximates the present value of expected cash flows, these variables should explain a significant portion of the cross-sectional variation in the P/E ratio. In the tests that follow, we employ a multiple regression model to explain cross-national P/B and P/E ratios. The explanatory variables we use in the model are empirical proxies for the key elements in the right-hand-side of Equations (3) and (5).

3.2 Sample Selection

Our initial sample of firms is derived from the Worldscope database. To complement the corruption index data from Transparency International, we focused our analysis on the 1995 to 1998 time period.[11] We required that each firm's home country (both country of origin and country of domicile) be clearly identified in the Worldscope database, and that the country is included in the Transparency International CPI rankings.[12]

We obtained the total market capitalization for each firm based on closing market prices as of June 30th of each year. In addition, we required the availability of the following data items, measured as of the most recent fiscal year end: total common equity, total long-term and short-term debt, operating income, total assets, research and development expenditure, fiscal year-end date, and currency denomination.[13] In addition, we required each firm to have a one-year-ahead and a two-year-ahead consensus earnings forecast in the I/B/E/S International database as of the June statistical period each year. We derive a forecasted growth rate from these two earnings forecasts (see Appendix C for details).[14]

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[11] We also had 1999 data. However, the introduction of the Euro in January 1999 complicated the computation of P/B and P/E ratios (accounting variables and prices were not always in the same currency). To avoid these problems, we limited our analysis to pre-1999 data.

[12] Because of their peculiar status, American Deposit Receipts (ADR's) are excluded. There are three ways by which we identify the ADR's. First, Worldscope marks some firms with an ADR indicator. Second, the names of some firms are clearly labeled as ADR's. Third, some firms have a country of origin that is different from their country of domicile. We exclude all three.

[13] To ensure that the accounting variables are available to the public and are reflected in firm price, the market price in June is matched to accounting data from a fiscal year that ended in the prior January or earlier.

[14] In an earlier draft, we also used a separate sample based on historical growth rates to proxy for expected growth. Firms in the historical growth sample were required to have three past years of operating income available from Worldscope. Since the number of observations was similar and the key results are

We exclude firms with negative common equity, negative current earnings, negative one-year-ahead forecasted earnings and negative earnings in year t+2. In addition, to facilitate the estimation of a robust model, we rank firms annually on various attributes and exclude observations in the top and bottom 3% by price-to-book, price-earning, leverage, return-on-equity, and forecasted growth rates. After these filters, we obtained 19,979 firm-year observations.

3.3 Model Estimation

Our research design involves the use of regression models that attempt to explain cross-national variations in P/E and P/B ratios. For this purpose, we compute four firm-level, and two industry-level, explanatory variables. We are guided in the choice of these variables by the valuation equations discussed earlier. Following the methodology developed by Bhojraj and Lee (2002), we attempt to estimate relatively simple models that capture the key theoretical constructs of growth, risk, and profitability.

Specifically, our model includes the following variables, which are also summarized and described in more detail in Appendix C:

Indpb – The harmonic mean of the price-to-book multiple for all the firms with the same two-digit SIC code for a given year.[15] This variable controls for industry-wide factors, such as growth rates and level of risk, and we expect it to be positively correlated with current year firm-specific PB ratios. It is used only in the PB regressions.

Indpe – The harmonic mean of the price-to-earnings multiple for all firms with the same two-digit SIC code for a given year. It controls for industry-wide factors and is only used in the PE regressions.

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unaffected, we do not report these results separately.

[15] We use the harmonic means of industry PB and PE ratios, that is, the inverse of the average of inversed ratios, because they are more robust results than industry medians in these applications (See Baker and Ruback (1999)).

Roe – Return on equity. This variable is net income before extraordinary items scaled by the end of period common equity. We expect this profitability measure to be a key driver of cross-sectional variations in the PB ratio. It is only used in the PB regression.

Forecastg – Forecasted earnings growth based on I/B/E/S estimates. This variable is computed as the percentage increase implicit in the two-year-ahead forecast relative to the one-year-ahead forecast. Higher growth firms merit higher PE and PB ratios.

Lev – Book leverage. This variable is computed as total debt expressed as a percentage of total book equity. Firms with no reported debt are assigned a value of zero. Levered firms are riskier, ceteris paribus. Moreover, Gebhardt et al. (2001) suggest this measure is correlated with a firm's implied cost of capital. We therefore expect this variable to be negatively correlated with the two dependent variables.

R&D – Total research and development expenditures divided by sales. Firms with higher R&D expenditures tend to understate current profitability relative to future profitability. To the extent that this variable captures expected earnings growth (and profitability) beyond Forecastg (and current ROE), we expect it to be positively correlated with the PE and PB ratios.

k – Dividend Payout ratio. This variable is computed as total cash dividend divided by net income. To mitigate small denominator problems, the most extreme upper 2% are windsorized, and assigned the top 2% value each year. Higher payout ratio are expected to be associated with higher PE and PB multiples.

In addition to these industry and firm level variables, we also include seven country-level metrics as control variables:

Inflation and **GDPg** – These two macro-economic variables are suggested by valuation theory as potential factors in international valuation. Inflation is the annual inflation rate and GDPg is the annual real growth rate for each country. We expect inflation to be

negatively correlated with firm values (see, for example, Nissim and Penman, 2001) and real GDP growth to be positively correlated. To ensure these measures were available to the public as of June each year, we used the prior year's numbers.

Judsys, Antidir, Acctstand – These three variables were featured in La Porta et al. (1998) as measures of the level of corporate governance and protection of minority shareholder rights. Judsys is a measure of the efficacy of the judicial system, ranging from 0 (least efficient) to 10 (most efficient). Antidir is an aggregate index developed by La Porta et al. (1998) to capture shareholder rights within a country. Acctstand is a crude measure of the quality of financial reporting in a country, based on the inclusion or omission of 90 items in seven categories.

Import/GDP and **GDP/cap** – We also include two variables identified by past studies to be correlated with corruption. Import/GDP is the proportion of annual country imports divided by the annual country GDP, and GDP/cap is a measure of the average level of individual wealth for a country. To ensure these measures are publicly available as of June 30th, we used measures that pertain to the prior calendar year.

Prior studies found both variables to be positively correlated with corruption at the country level (Treisman (2000), Gupta et al. (2001)).[16] However, valuation theory does not suggest that they should affect cross-sectional firm valuation. Therefore, they are appropriate instrumental variables for corruption. In our two-stage least square regression, we use these two measures as instrumental variables (Tables 6 and 7). Just to be sure that corruption has incremental explanatory power, we also include them as control variables in our sensitivity analyses (Tables 5 and 6).

Beta and Ex_Beta – Finally, we include two measures of country-level systematic risk. Market Beta (Beta) refers to the beta of the country stock index relative to the Morgan Stanley Capital Index (MSCI) world stock index. Exchange rate beta (Ex_beta) refers to

[16] In our sample, when we conduct annual country-level regressions of Corruption on GDP_cap and Import_GDP, we find an average adjusted R-square of 62.3%.

the beta of the country stock index relative to an exchange rate index of the US dollar. To compute Beta and Ex_beta, we use the two-factor model:

$$r_{i,t} - r_f = a + \beta (r_{m,t} - r_f) + \beta^e \Delta e + \mu_{i,t}$$

The dependent variable is the monthly dollar return on the stock market index where the firm is located. We use returns on Morgan Stanley Capital Index (International Financial Corporation) country indices as proxies for country stock returns in industrial (developing) countries. The two factors on the right hand side of the regression are (i) the market factor ($r_m - r_f$), which is the excess dollar return of the value-weighted MSCI world market portfolio, and (ii) the currency factor (Δe), which is the return on the US dollar vis-à-vis the other six countries in the G7 (weighted by the relative stock-market capitalization).[17] An increase in the index implies US dollar depreciated against the basket of currencies. The rolling 60-month index returns is used; Beta and the Ex_beta are the estimated coefficients from this regression.

To recap, our research design involves estimating a series of regressions of either the PB or PE ratio on these control variables, together with the corruption variable (Corrupt), based on the reported CPI figure. Transparency International releases its annual CPI result around July of each year. This measure ranges between 9 (highly corrupt) and 0 (highly clean). Appendix C contains further details on how each of these variables is calculated.

4. Empirical Results

4.1 Descriptive Statistics

Appendix B presents descriptive statistics on the Transparency International data for our sample of 43 countries. The countries are listed in rank order by their average corruption score over the four annual surveys. Also reported in this table is the average number of firms per year, the standard deviation of the corruption score across different years, the number of surveys used to compile that country's CPI (based on 1998 data) and the

[17] Ferson and Harvey (1993) and Ng (2001) also use exchange rate betas.

standard deviation of the corruption score from the different surveys (again based on 1998 data).

Over our sample period, Denmark, New Zealand, and Finland received the best corruption rankings while Pakistan, Indonesia, and Venezuela received the worse. Most of the countries were ranked for four years. Only five countries were ranked for two years or fewer. The average number of firms per year ranged from 1 (Venezuela) to 1,690 (United States). The number of surveys used to compile a country's composite CPI score ranged from 3 to 12. The standard deviation of the scores from these surveys ranges from 0.4 (Malaysia) to 1.7 (Greece). These standard deviation statistics provide some indication of the degree of agreement among surveys as to a country's relative ranking.

Table 1 presents summary statistics on the two dependent and sixteen explanatory variables. Table values represent the means, standard deviations and various percentiles. We include one observation per firm-year, sampled as of June 30th. The sample is from 6/1995 to 6/1998. Notice that the country-level variables (Corrupt, GDPg, Inflation, GDP/cap, Import/GDP, Acctstand, Antidir, Judsys, Beta, and Ex_beta) are common across firms in the same country, and the industry-level variables (Indpb and Indpe) are common across firms in the same industry. Overall these statistics appear reasonable, with no indication that data errors are likely to be a serious problem.

4.2 Pairwise Correlations

Tables 2 reports the pairwise correlations among firm and industry level variables. Table values in the upper triangle are Spearman rank correlation coefficients, table values in the lower triangle are Pearson correlation coefficients. We compute the correlation table annually and report the time-series mean of the annual correlations. We report statistical significance on the basis of the consistency of the cross-sectional correlations over the four sample years.

The price-to-book ratio (PB) is correlated with all the other variables in the expected

direction. In particular, ROE is highly positively correlated with PB. PB is also positively correlated with both industry-level variables (Indpe and Indpb). Consistent with theory, PB is negatively correlated with Lev and K and positively correlated with R&D as well as forecasted growth.

The price-to-earnings (PE) ratio is also generally correlated with the other variables in the direction predicted by theory. In particular, as expected, firms with higher forecasted growth trade at higher PE multiples. PE is also positively correlated with R&D expense, K and industrial multiples (Indpb and Indpe). PE is negatively correlated with ROE, but some of the correlation is spurious (current earning appears in the numerator for the ROE calculation). Overall, Table 2 shows that most of the explanatory variables nominated by valuation theory operate as expected in the international setting.[18]

Table 3 reports the pairwise correlations among the country-level variables. This table illustrates the difficulty confronted by researchers seeking to isolate the effect of corruption. Four variables are significantly correlated with Corrupt: GDP/cap, Judsys, and Acctstand are negatively correlated, and Inflation is positively correlated. A fifth variable, Import/GDP, also exhibits marginal negative correlation with corruption. In short, more corrupt regimes tend to have weaker judicial systems, less transparent accounting standards, higher inflation, lower GDP per capita, and lower import as a ratio of GDP. Our challenge will be to disentangle, as much as possible, the effect of corruption on corporate values. Interestingly, corruption is not highly correlated with measures of growth – i.e., GDP growth (GDPg), higher rates-of-return (ROE), or higher forecasted growth (Forecastg). This suggests that whatever effect corruption has on firm value is unlikely due to its impact on expected cash flows.

[18] To check the robustness of these relationships (and to ensure that our results are not driven entirely by firms from the United States), we also examined the correlation coefficients for the three countries with the largest number of firms in the sample: the United States, the United Kingdom, and Japan. The results (not reported) generally confirm the findings in the overall sample. In each country, forecasted growth and industry multiples are positively correlated with firm level PE and PB ratios. ROE is always positively correlated with PB and R&D is always positively correlated with both dependent variables. The only exception is book leverage, which is positively correlated with PE and PB among Japanese firms.

4.3 Regression Analysis

Table 4 reports the results of a series of pooled time-series cross-sectional regressions estimated using data available as of June of each year. The dependent variable in these regressions is either the PB ratio (Panel A) or the PE ratio (Panel B). The independent variables are as described in the previous section. Table values represent estimated coefficients, based on a model with annual dummies and random country effects. Reported in the bottom rows are adjusted R-squares, the Hausman Chi-square statistic, and the number of observations per year.

We begin with a random effect model because it allows us to estimate the correlation matrix taking into account the country-level cross-correlations. The main advantage of this approach is that it produces a more efficient estimate than a fixed effect model. The main disadvantage is that the estimates are likely to be inconsistent. The random effect model maintains the severe assumption that any unobserved country effects in the error term are uncorrelated to the explanatory variables. In our case, the Hausman test statistics for these regressions show that the inconsistency introduced by the random effect model is severe for all four models. Therefore, for the remainder of our study, we use a fixed effect model with a separate dummy for each country.

Despite the known inconsistencies, Table 4 results are suggestive of a negative relation between Corrupt and firm values. In Models 1 and 3, we include only firm and industry control variables; in Models 2 and 4 we also include Inflation and GDPg. The results show that the estimated coefficient on Corrupt is significantly negative in all four models. Collectively, these variables explain around 39.7% of the variation in PB, and 10.7% of the variation in PE. The coefficients on the control variables are generally in the expected direction, with the exception of leverage, which is positive for the PE regressions. Models 2 and 4 show that, consistent with valuation theory, GDPg is positively correlated with the market multiples, while Inflation is negatively correlated with these multiples. The correlation of Corrupt with firm values is lower in the presence of GDPg and Inflation, but it remains negative and significant in both models.

Table 5 presents the main results for this paper. In this table, we examine PE and PB ratios using a pooled regression with fixed annual and country effects. For each ratio, we estimate five models. Models 1 and 2 are benchmark estimations, which document the explanatory power of firm and industry variables, with and without country and yearly fixed effects. Model 3 illustrates the incremental effect of the corruption variable; models 4 and 5 further introduce various additional country-level control variables. Huber-White t-statistics are reported in parentheses.[19]

Panel A shows that all the firm and industry level variables have the predicted sign. Even without country and annual dummy variables, over 39.7% of the variation in P/B ratios can be explained by Indpb, ROE, R&D, Forecastg, K, and Lev. With the addition of country and yearly fixed effects, the adjusted r-square increases to 42.6%. Model 3 shows that Corrupt is incrementally important after controlling for the other variables. Model 4 shows that the addition of GDPg and Inflation has little effect on the Corrupt variable. Finally, Model 5 shows that Corrupt survives even with the inclusion of two variables known to be highly correlated with country-level corruption (Import/GDP and GDP/cap). It is worthwhile to note that neither of these latter variables is nominated by valuation theory and their explanatory power is probably attributable, to a large extent, to Corrupt. We address this issue later with an instrumental variable regression.

Panel B shows that Corrupt is also important in explaining PE ratios. As expected, PE is positively correlated with R&D, forecasted growth, and Indpe. Somewhat surprisingly, higher levered firms also receive higher PE multiples. This is perhaps due to the fact that forecastg does not fully incorporate the value of expected growth firm values. More importantly, the corruption measure is negative and significant in all three models in which it appears. Apparently firms from less corrupt countries earn higher PE multiples, controlling for the other factors.

It might be useful to consider the economic magnitude of these estimated coefficients.

[19] To estimate a robust t-statistic, we use Huber-White estimation procedure as described in Huber (1967), White (1980), and Diggle et al. (1994). This procedure corrects for sample dependencies for the same

Panel A shows that a one unit increase in the corruption index corresponds to approximately a 0.18 decrease in the PB ratio. Panel B shows that a one unit increase in the corruption index corresponds to approximately a decrease of 2.9 in the PE ratio.

4.4 Further Robustness Checks

Because Corrupt is a country-level measure, its ability to explain firm-level variations in PE and PB will likely to be affected by the inclusion of other country-level variables. The models we estimated already include country-level fixed effect variables, which control for unidentified variation at the country level. In addition, we have included country-level variables such as: Inflation, GDPg, GDP/cap, and Import/GDP. However, it is still possible that Corrupt is serving as a proxy for another omitted country-level variable. Obviously, we run the risk of over controlling and thus eliminating the underlying theoretical construct of interest. Nevertheless, in this section, we explore variations in the basic model.

In Table 5, we did not include the three corporate control and shareholder right variables (Judsys, Antidir, and Acctstand), because these measures do not change from year-to-year. As a result, their explanatory power is subsumed by the country-level fixed effect variables. However, it is possible that these variables have differential effects on firm value across the four years in our sample. In Table 6, we conduct additional robustness checks that consider this possibility, as well as several instrumental variable regressions that attempt to disentangle the effect of corruption from that of GDP/cap and Import/GDP.

In Table 6, we introduce interaction variables created by multiplying the year dummies with the three corporate control and shareholder rights variables: Judsys, Acctstand, and Antidir. The F-statistics and P-values on these variables show that introducing a time-varying component modestly improves the overall fit. More importantly, Model 1 shows that the effect of corruption on PB (Panel A) and PE (Panel B) is unaffected by these perturbations. In fact, compared to Table 5, the estimated coefficients on Corrupt are

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firms with multiple observations.

slightly more negative for both PE and PB.

Model 2 of Table 6 includes Import/GDP and GDP/cap in the regression. Neither variable is nominated by valuation theory per se, but both have been identified with corruption in past studies. We find that firms in countries with higher GDP/cap and higher Import/GDP have higher valuation multiples. The estimated coefficient on the corruption variable is smaller after adding these measures, but it remains significant for both the PB and the PE regression.

In Models 3 and 4, we attempt to parse out the effect of Corrupt using Import/GDP and GDP/cap as instrumental variables. The first-stage results show a high degree of fit (the adjusted r-square, reported in the table, is over 0.97), and the second stage results show that the fitted variable for corruption is strongly correlated with both PE and PB. If we believe that corruption has some effect on both GDP/cap and Import/GDP, then these results suggest that our earlier findings likely understate the effect of corruption on firm values.

As a further robustness check, we examine the effect of including proxies of country-level systematic risk in our analysis. Table 7 reports the results when we include a country's market beta (Beta) and currency exchange beta (Ex_beta). However, a country's market beta (Beta) has no significant incremental power in explaining PB ratios, and, contrary to theory, it exhibits a positive correlation with the PE ratio. We find that Ex_beta is negatively correlated with market multiples. More importantly, the coefficient on Corrupt remains significantly negative even with the inclusion of Beta and Ex_beta, as well as GDPg and Inflation.

4.5 Additional Analyses

So far, our findings show that the Corrupt variable is negatively correlated with market multiples after controlling for a wide set of other variables. In this subsection, we attempt to shed more light on the source of the correlation.

Table 8 further explores *how* corruption affects firm valuation. In this table, we introduce interaction terms between corruption and several firm-level value drivers. We are interested in understanding how corruption affects the relation between firm value and its key economic drivers, such as current profitability (ROE), R&D expenditures (R&D), and forecasted growth (Forecastg). For example, if current profitability erodes quickly in highly corrupt regimes, we should find a negative coefficient on Corrupt*ROE. Similarly, if the benefits of R&D expenditures or forecasted growth is lower in highly corrupt countries, we would expect negative coefficients on Corrupt*R&D and Corrupt*Forecastg, respectively.

Table 8 shows that markets generally discount ROE, R&D and forecasted growth at a higher rate in highly corrupt regimes. In Panel B, both Corrupt*R&D and Corrupt*Forecastg are significantly negative, suggesting that per unit of R&D expense and per unit of forecasted growth are both worth less in high corruption countries. These results are consistent with the view that the greater uncertainty (or contracting costs) associated with corruption reduces the corporate value of current R&D expenditures and expected growth rates. The results for the PB ratios (Panel A) are similar. In the base model (column 1), all three interaction terms Corrupt*ROE, Corrupt*R&D and Corrupt*Forecastg are significantly negative. After adding betas and exchange betas (column 2), the results are less statistically significant but they remain in the same direction.

To assess the sensitivity of our findings to different degrees of market integration, we also split our sample based on whether a country is integrated or segmented (e.g., Hail and Leuz (2004)). The first proxy for integration is whether a country is in the MSCI Developed Markets Index. The second proxy for integration is based on Erb et al. (1996)'s correlation of the country's equity market with the MSCI world market index. Countries with correlations above (below) the median are considered integrated (segmented).

Table 9 reports the results of separate regressions for countries with integrated or

segmented equity markets. Model 1 proxies for integration using membership to the MSCI developed market index, while model 2 proxies for integration using countries' correlations with MSCI world market index.

Table 9 shows that the degree of market segmentation has little effect on our main result – i.e., despite lower statistical power due to the partitioning, corruption remains reliably negatively correlated with both PB and PE in both sub-samples.[20]

Table 10 reports the results of estimations based on a maximum of 100 firms per country. One concern is that our results might be driven by a preponderance of firms from a few large countries. To construct this table, we limited our sample to the top 100 firms from each country by market capitalization. As expected, this restriction severely curtailed our sample (the total sample size decreases by more than 50%). Nevertheless, Table 10 shows that even in this highly restrictive sample, corruption is negatively correlated with firm values. As expected, both the statistical significance and the estimated coefficients are substantially lower than reported earlier, but the key inferences remain similar.

Finally, table 11 reports the results of estimations based on firm-level fixed effects. It is possible that country-level fixed effects and industry means might not be enough in capturing all the cross-correlations in the error structure. As a result, t-statistics may be biased. To investigate this potential problem, we repeat all our analysis including firm-level fixed effect variables. In this specification, each firm becomes its own control, so that the coefficients express the conditional relation between *changes* in each explanatory variable and *changes* in the PB and PE multiple.

Table 11 reports a summary of the main results. Our tests show that the key inferences are the qualitatively identical. The first three columns show the regressions with different control variables, while the last two columns show the instrumental variable regressions. As expected, the coefficients on the control variables change substantially. However, all

[20] Splitting the sample into rich versus poor countries yield similar findings in both sub-samples. This is not surprising, as per capita GDP is highly correlated with the degree of market integration.

the results remain qualitatively unchanged from their counterparts in earlier tables with fixed country effects. In particular, the corruption variable remains highly significant in every model.

5. Conclusion

This study integrates the valuation literature in finance with a vast literature in political science and economics on corruption. Valuation theory demonstrates that the key economic drivers of firm value are growth, profitability and risk. However, little is known about how these drivers are affected by country-level factors in cross-national settings. In particular, we have no evidence on how corruption might affect international valuation.

Our premise is that investors will demand a higher rate of return from firms operating in more corrupt countries. Specifically, we argue that the level of public corruption is broadly symptomatic of contracting and monitoring costs within a country. In more corrupt regimes, agents must expend higher costs and greater effort in all their contractual transactions – e.g., to reduce counter-party risk, to monitor performance, and to enforce property rights. These higher transaction costs are not easily diversified away. We show in a simple model that, when even when global markets are reasonably integrated, increased contracting costs will lead to higher required rates of return on a country's equity investments.

These arguments suggest that firms from more corrupt countries will trade at lower PE and PB multiples. Using firm-level data from 43 countries, we test this conjecture. Our tests show that firms from more (less) corrupt countries trade at significantly lower (higher) market multiples. This result is robust to the inclusion of many control variables suggested by valuation theory. The effect of corruption does not appear to derive from lower growth rates. Rather, consistent with our main proposition, markets seem to impose a higher required rate of return on firms operating in more corrupt regimes. Further analysis show that corruption lowers the price markets are willing to pay per unit

of current profits (ROE), R&D expenditure, and forecasted growth rate (Forecastg).

The robustness of the corruption measure as an explanatory variable for international valuation, after controlling for many other variables, suggests to us that it captures something beyond public sector misconduct. Although our corruption measures relate to a public sector phenomenon, this behavior is likely to be mirrored in private sector dealings. To our knowledge, the extent to which corruption in the public sector reflects corruption in the private sector has not been studied. However, if these two forms of corruption are positively correlated, it seems likely that both will affect contracting and monitoring costs within a country. We regard this as an interesting area for further research.

As a minimum, our results suggest that a country's level of corruption has significant economic consequences for the shareholder value of its firms. These findings add to the growing literature on the effects of corruption. They also demonstrate how valuation techniques developed using data from the United States might be extended to an international setting. Given the number of country-level control variables included in this analysis, it is unlikely that the empirical relation we report is due to correlated omitted variables. In fact, we believe it is more likely that the effect we document understates the true impact of corruption on corporate values across international boundaries.

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Appendix A
Details of Model Derivation

A.1 Portfolio Choice for Home and Global Investors

The portfolio allocation problems for the home investor and for the global investor who can invest globally are:

$$\underset{x_{hj},x_{wj}}{Max}\ E(W_{1j}) - \frac{b}{2}\text{var}(W_{1j}) - cx_{hj} \tag{A1}$$

where j = {h, g}, W_{1j} is the value of investor j's terminal wealth, x_{hj} and x_{wj} are the amounts he invests in the home and the world market, b is the risk aversion parameter, and c is the cost of corruption. The expected value of terminal wealth is:

$$E(W_{1j}) = (W_{0j} - x_{hj} - x_{wj})(1+r) + x_{hj}(1+\mu_h) + x_{wj}(1+\mu_w) \tag{A2}$$

and the variance is:

$$\text{var}(W_{1j}) = \sigma_h^2 x_{hj}^2 + \sigma_w^2 x_{wj}^2 + 2\sigma_{hw} x_{hj} x_{wj} \tag{A3}$$

The first order conditions of these maximization problems yield the following:

$$\mu_h - r = c + b\sigma_h^2 x_{hj} + b\sigma_{hw} x_{wj} \tag{A4}$$

$$\mu_w - r = b\sigma_w^2 x_{wj} + b\sigma_{hw} x_{hj} \tag{A5}$$

A.2 Portfolio Choice for the Foreign Investor

The portfolio allocation problem for the foreign investors who cannot diversify is:

$$\underset{x_{hj},x_{wj}}{Max}\ E(W_{1j}) - \frac{b}{2}\text{var}(W_{1j}) \tag{A6}$$

where j = {h, g}, subject to:

$$E(W_{1f}) = (W_{0f} - x_{wf})(1+r) + x_{wf}(1+\mu_w) \tag{A7}$$

and

$$\text{var}(W_{1f}) = \sigma_w^2 x_{wf}^2 \tag{A8}$$

The first order condition here implies:

$$\mu_w - r = b\sigma_w^2 x_{ww} \tag{A9}$$

We define the total investment in the two stocks h and w as:

$$N_h x_{hh} + \lambda N_w x_{hg} = X_h \qquad \text{(A10)}$$

and

$$N_h x_{wh} + \lambda N_w x_{wg} + (1-\lambda) N_w x_{wf} = X_w \qquad \text{(A11)}$$

Asset demands are aggregated as follows. Equation (A4) is multiplied first by N_h (when j = h) and then by λN_w (setting j =g), and substituting from equation (A10) and (A11), and adding up, we get:

$$(N_h + \lambda N_w)(\mu_h - r) = (N_h + \lambda N_w)c + b\sigma_h^2 X_h + b\sigma_{hw}(X_w - (1-\lambda)N_w x_{wf}) \qquad \text{(A12)}$$

Equation (A5) is multiplied by N_h (when j = h) and then by λN_w (when j = g), and equation (A9) by $(1-\lambda)N_w$, substituting from equation (A10) and (A11) and adding up:

$$(N_h + N_w)(\mu_w - r) = b\sigma_w^2 X_w + b\sigma_{hw} X_h \qquad \text{(A13)}$$

Substituting x_{wf} from equation (A9) and X_w from equation (A13) into equation (A12), we have the home market expected return as a function of the supply of equity funding to domestic companies X_h and of its beta with the world stock market:

$$\mu_h = r + c + b(\sigma_h^2 - \frac{\sigma_{hw}^2}{\sigma_w^2}) \frac{X_h}{N_h + \lambda N_w} + \beta_h(\mu_w - r) \qquad \text{(A14)}$$

where $\beta_h = \frac{\sigma_{hw}}{\sigma_w^2}$.

Appendix B: Sample countries ranked by corruption score

	Country	Sample Period	Average no. of firms per year	Average Corruption Score	Standard Deviation of Corruption Across Years	No. of surveys used in CPI (1998)	Standard Deviation across surveys (1998)
1	Denmark	1995-1998	77	0.35	0.32	9	0.7
2	New Zealand	1995-1998	33	0.60	0.11	8	0.7
3	Finland	1995-1998	42	0.69	0.23	9	0.5
4	Sweden	1995-1998	95	0.80	0.24	9	0.5
5	Canada	1997-1998	105	0.97	0.13	9	0.5
6	Singapore	1995-1998	90	1.05	0.24	10	1.0
7	Netherlands	1995-1998	95	1.14	0.16	9	0.7
8	Norway	1995-1998	40	1.15	0.15	9	0.7
9	Switzerland	1995-1998	81	1.24	0.10	10	0.6
10	Australia	1995-1998	117	1.26	0.10	8	0.7
11	United Kingdom	1995-1998	598	1.52	0.18	10	0.5
12	Ireland	1995-1998	25	1.63	0.14	10	1.4
13	Germany	1995-1998	164	1.87	0.14	10	0.4
14	United States	1995-1998	1690	2.36	0.10	8	0.9
15	Israel	1996-1998	6	2.41	0.36	9	1.4
16	Austria	1995-1998	37	2.54	0.19	9	0.8
17	Hong Kong	1995-1998	64	2.70	0.30	12	1.1
18	Chile	1995-1998	27	3.10	0.68	9	0.9
19	France	1995-1998	234	3.17	0.15	9	0.6
20	Japan	1995-1998	356	3.47	0.46	11	1.6
21	Portugal	1995-1998	27	3.61	0.51	10	1.0
22	Belgium	1995-1998	53	3.92	0.76	9	1.4
23	South Africa	1995-1998	65	4.64	0.30	10	0.8
24	Malaysia	1995-1998	142	4.77	0.13	11	0.4
25	Spain	1995-1998	75	4.84	0.84	10	1.3
26	Taiwan	1995-1998	111	4.91	0.12	11	0.7
27	Poland	1996-1998	40	4.92	0.40	8	1.6
28	Czech Republic	1997-1998	25	5.00	0.20	9	0.8
29	Greece	1995-1998	79	5.18	0.48	9	1.7
30	Hungary	1995-1998	10	5.21	0.40	9	1.2
31	South Korea	1995-1998	83	5.55	0.33	12	1.2
32	Italy	1995-1998	72	5.99	0.83	10	0.8
33	Argentina	1995-1998	13	6.39	0.96	9	0.6
34	Turkey	1995-1998	22	6.44	0.33	10	1.0
35	Mexico	1995-1998	15	6.89	0.26	9	0.6
36	Thailand	1995-1998	56	6.96	0.19	11	0.7
37	Philippines	1995-1998	38	7.05	0.24	10	1.1
38	India	1995-1998	17	7.24	0.10	12	0.6
39	China	1995-1998	31	7.26	0.51	10	0.7
40	Colombia	1995-1998	6	7.35	0.50	9	0.8
41	Venezuela	1996-1998	1	7.48	0.19	9	0.8
42	Indonesia	1995-1998	50	7.67	0.36	10	0.9
43	Pakistan	1995-1998	15	7.88	0.67	3	1.4

Appendix C: Descriptions of Firm and Industry Specific Variables

Variables	Description	Calculation
Firm Level Variables:		
PB	Price-to-Book ratio	PB = Market value of equity/Total common equity.
PE	Price-to-Earnings ratio	PE = Market value of equity/Net Income before extraordinary items.
Roe	Return on Equity	Roe = Net Income before extraordinary items*100/Total common equity.
Lev	Book Leverage	Lev = Total debt*100/(Total assets-Total debt). Firms with no reported total debt are assigned a value of zero.
R&D	Research & Development-to-Net Sales	R&D = Research & development expense *100 / Net Sales. Firms with no reported R&D are assigned a value of zero.
Forecastg	Forecasted earnings growth rate (from I/B/E/S)	Computed from I/B/E/S. Forecastg = (Forecasted earnings $_{t+2}$ - Forecasted earnings$_{t+1}$) *100/Forecasted earnings$_{t+1}$
k	Dividend payout	K = Dividend/ Net Income
Industry Level Variables:		
Indpb	Industry PB ratio	Harmonic mean of the PB ratio for all firms in the same industry (based on 2-digit SIC code).
Indpe	Industry PE ratio	Harmonic mean of the PE ratio for all firms in the same industry (based on 2-digit SIC code).
Country Level Variables:		
Judsys	Efficiency of the Judicial System	Measure of the "efficiency and integrity of the legal environment as it affects business, particularly foreign firms" produced by the country-risk rating agency *Business International Corporation*. This measure ranges from 0 (less efficient) - 10 (more efficient). La Porta, et. al. (1998)
Antidir	Anti-director rights	Index of the aggregation of shareholders' rights ranging from 0 (less rights) - 5 (more rights). La Porta, et. al. (1998)
Acctstand	Accounting Standard	Index based on the inclusion or omission of 90 items in 7 categories: general information, income statements, balance sheets, funds flow statements, accounting standards, stock data, and special items. La Porta, et. al. (1998)
Imports/GDP	Imports-to-Gross Domestic Product	Annual country imports divided by the annual country gross domestic product. Imports and GDP were collected from International Financial Statistics.
GDP/cap	Gross Domestic Product per capita (in thousands of US dollars)	Annual Gross Domestic Product per capita as compiled from the International Financial Statistics by the PRS group.
GDPg	Annual real GDP Growth Rate (%)	Annual real GDP growth as compiled from the International Financial Statistics by the PRS group.
Inflation	Annual Inflation Rate (%)	Annual inflation rate as compiled from International Financial Statistics data by the PRS group.
Beta	Country stock beta	The 5-year rolling beta for returns on country stock indices vis-à-vis the MSCI world stock returns.
Ex_beta	Country currency beta	The 5-year rolling beta for returns on the country stock indices vis-à-vis a stock wealth-weighted exchange rate index of US dollar.
Corrupt	Transparency International's Corruption Perception Index (CPI).	CPI is a measure of the degree of corruption as perceived by business people, risk analysts and the general public. This measure ranges between 9 (highly corrupt) and 0 (highly clean). Each country receives a composite score based on up to 12 surveys (see Appendix B).

Table 1: Summary Statistics

Variables	Mean	Std Dev	1%	10%	25%	50%	75%	90%	99%
PB	2.72	1.97	0.62	0.99	1.41	2.13	3.36	5.25	10.10
PE	23.34	17.15	5.75	9.59	12.97	18.12	27.55	42.38	94.95
Roe	13.63	7.68	2.05	4.81	7.97	12.42	17.63	23.94	37.58
Lev	30.25	30.14	0.00	0.30	6.17	21.76	45.07	72.68	130.33
R&D	0.99	2.95	0.00	0.00	0.00	0.00	0.00	3.08	14.84
Forecastg	19.06	16.35	-7.89	4.06	9.64	15.38	24.30	38.12	83.56
k	0.30	0.29	0.00	0.00	0.04	0.25	0.44	0.70	1.25
Indpb	1.92	0.44	1.17	1.42	1.62	1.84	2.11	2.49	3.25
Indpe	16.91	2.97	11.85	13.69	14.88	16.52	18.42	21.30	26.37
Judsys	9.16	1.61	2.50	6.75	9.00	10.00	10.00	10.00	10.00
Antidir	3.52	1.41	0.00	2.00	2.00	4.00	5.00	5.00	5.00
Acctstand	69.65	6.67	51.00	62.00	65.00	71.00	74.00	78.00	83.00
Imports/GDP	0.31	0.51	0.08	0.12	0.12	0.22	0.30	0.46	1.49
GDP/cap	23.37	9.53	0.67	4.91	19.19	26.63	29.46	33.30	40.95
GDPg	0.04	0.02	0.01	0.02	0.03	0.04	0.05	0.07	0.10
Inflation	3.54	6.34	-0.10	1.10	2.00	2.50	3.10	5.80	23.50
Beta	0.87	0.33	0.31	0.63	0.68	0.78	0.96	1.30	1.82
Ex_beta	0.06	0.41	-0.77	-0.45	-0.18	0.03	0.29	0.46	1.17
Corrupt	2.81	1.64	0.40	1.14	1.73	2.39	3.43	5.00	7.37

This table reports the means and various percentiles of the variables used in this study. These variables are described in detail in Appendix C, briefly, they are: price-to-book ratio (PB), price-to-earning ratio (PE), return on equity (Roe), forecasted long-term growth (Forecastg), dividend-payout ratio (k), leverage (Lev), R&D-to-Net Sales (R&D), industrial harmonic mean of the price-to-book ratio (Indpb), industrial mean price-to-earnings (Indpe), efficiency of the judicial system (Judsys), anti-director rights (Antidir), accounting standards (Acctstand), annual imports-to-GDP (Imports/GDP), annual GDP per capita in dollars (GDP/cap), annual real GDP growth (GDPg), inflation, country-level stock return beta (Beta), country-level currency return beta (Ex_beta), and the Transparency-International Corruption Index (Corrupt). We include one observation per firm-year, sampled as of June 30th each year. Notice that certain variables (Corruption, Inflation, GDPg, GDP/cap, Imports/GDP, Acctstand, Antidir, Judsys) are common across firms in the same country, and others (Indpb and Indpe) are common for firms in the same industry. The sample period is from 6/1995 to 6/1998, inclusively.

Table 2: Firm-Level Correlations

	PB	PE	Roe	Lev	RandD	Forecastg	Indpb	Indpe	k
PB		0.46 ***	0.60 ***	-0.16 ***	0.15 ***	0.18 ***	0.35 ***	0.27 ***	-0.20 ***
PE	0.40 ***		-0.37 ***	-0.02 **	0.13 ***	0.27 ***	0.22 ***	0.29 ***	-0.05 ***
Roe	0.56 ***	-0.35 ***		-0.15 ***	0.04 ***	-0.05	0.17 ***	0.02	-0.15 ***
Lev	-0.14 ***	0.02	-0.13 ***		0.00	0.02	-0.14 ***	-0.06 *	0.07 ***
RandD	0.00	0.02	0.01	0.03 **		0.08 ***	0.27 ***	0.21 ***	-0.10 ***
Forecastg	0.12 ***	0.24 ***	-0.07 **	0.04 ***	0.03		0.20 ***	0.19 ***	-0.31 ***
Indpb	0.35 ***	0.20 ***	0.17 ***	-0.15 ***	0.02 **	0.15 ***		0.74 ***	-0.20 ***
Indpe	0.28 ***	0.26 ***	0.02 *	-0.06 **	0.01	0.16 ***	0.74 ***		-0.16 ***
k	-0.18 ***	0.05 ***	-0.17 ***	0.06 ***	0.01	-0.18 ***	-0.18 ***	-0.1385 ***	

This table reports the average pair-wise correlation (Pearson\Spearman) for firm-level and industry-level characteristics. The upper triangles reflect the Spearman correlation estimates; the lower triangles reflect the Pearson correlation coefficients. We compute the correlation table annually and report the time-series mean of the annual correlations. The asterisks represent the p-value of the correlation. (*** - p-value < 0.005, ** - p-value < 0.025, * - p-value < 0.05)

Table 3: Country-Level Correlations

	Judsys	Antidir	Acctstand	Imports/GDP	GDP/cap	GDPg	Inflation	Beta	Ex_beta	Corruptior	Roe	Forecastg
Judsys		0.20	**0.61**	0.13	**0.80**	-0.11	**-0.60**	0.12	-0.06	**-0.83**	-0.04	-0.16
		0.2336	**0.0001**	0.4363	**<0.0001**	0.5118	**<0.0001**	0.4634	0.7069	**<0.0001**	0.7965	0.3458
Antidir	0.15		**0.49**	0.05	-0.01	**0.37**	-0.08	0.26	0.27	-0.26	0.07	0.03
	0.3618		**0.0026**	0.7595	0.9722	**0.0207**	0.6320	0.1158	0.1054	0.1085	0.6742	0.8581
Acctstand	**0.57**	0.37		0.25	**0.42**	0.12	**-0.50**	**0.46**	-0.11	**-0.64**	-0.03	0.03
	0.0004	0.0279		0.1528	**0.0112**	0.4905	**0.0021**	**0.0054**	0.5475	**<0.0001**	0.8773	0.8798
Imports/G	0.13	0.09	0.29		0.17	0.20	-0.15	0.12	-0.07	-0.31	-0.02	-0.11
	0.4243	0.5835	0.0888		0.2723	0.2111	0.3295	0.4591	0.6763	0.0464	0.9233	0.4830
GDP/cap	**0.78**	0.01	**0.45**	0.09		**-0.40**	**-0.82**	0.13	-0.03	**-0.82**	-0.27	-0.17
	<0.0001	0.9714	**0.0063**	0.5680		**0.0081**	**<0.0001**	0.4239	0.8381	**<0.0001**	0.0848	0.2811
GDPg	-0.14	0.29	0.09	0.35	-0.38		0.23	0.14	0.19	0.14	0.04	0.14
	0.4124	0.0752	0.6009	0.0229	0.0138		0.1444	0.4103	0.2562	0.3764	0.7906	0.3916
Inflation	**-0.41**	-0.23	**-0.45**	-0.11	**-0.44**	0.00		-0.25	-0.01	**0.74**	0.19	0.25
	0.0106	0.1579	**0.0066**	0.5034	**0.0033**	0.9804		0.1281	0.9376	**<0.0001**	0.2230	0.1177
Beta	0.08	0.23	0.39	0.08	0.16	0.01	-0.38		0.26	-0.16	-0.03	-0.11
	0.6234	0.1663	0.0212	0.6192	0.3213	0.9300	0.0167		0.1066	0.3210	0.8746	0.4881
Ex_beta	-0.09	0.29	-0.07	0.09	0.05	-0.01	0.07	0.34		-0.02	0.05	0.07
	0.5965	0.0737	0.6786	0.5876	0.7497	0.9443	0.6571	0.0363		0.8852	0.7606	0.6745
Corruptio	**-0.83**	-0.27	**-0.59**	-0.22	**-0.80**	0.18	**0.45**	-0.20	-0.11		0.12	0.16
	<0.0001	0.1031	**0.0002**	0.1651	**<0.0001**	0.2673	**0.0028**	0.2126	0.5206		0.4326	0.3224
Roe	0.02	0.07	0.03	-0.11	-0.17	-0.05	0.17	-0.05	0.10	0.08		-0.15809
	0.9182	0.6704	0.8548	0.4855	0.2785	0.7648	0.2746	0.7441	0.5522	0.5930		0.3173
Forecastg	-0.27	-0.06	-0.11	-0.17	-0.18	0.01	**0.66**	-0.27	0.10	0.19	-0.07429	
	0.1031	0.7266	0.5376	0.2852	0.2626	0.9643	**<0.0001**	0.0971	0.5549	0.2197	0.6401	

This table reports the average pair-wise correlation (Pearson\Spearman) for country-level variables. The upper triangles reflect the Spearman correlation estimates; the lower triangles reflect the Pearson correlation coefficients. We compute the means of the variables across different years, with one observation per country, and calculate the correlation table of the means. The average p-value of these correlations is also reported.

Table 4: Random-Effect Regressions

	Panel A: Price-to-Book			Panel B: Price-to-Earnings	
	Model 1	Model 2		Model 1	Model 2
Intercept	-1.235	-1.376	Intercept	-3.371	-5.255
	(-11.03)	(-11.91)		(-2.54)	(-3.76)
Roe	0.138	0.139			
	(88.65)	(88.64)			
Lev	-0.001	-0.002	Lev	0.009	0.008
	(-3.96)	(-4.10)		(2.35)	(2.18)
R&D	0.047	0.047	R&D	0.381	0.381
	(12.17)	(12.16)		(9.79)	(9.80)
Forecastg	0.016	0.016	Forecastg	0.255	0.257
	(22.18)	(22.38)		(36.13)	(36.44)
k	0.010	0.014	k	8.943	8.984
	(0.23)	(0.34)		(22.17)	(22.29)
Indpb	0.926	0.924	Indpe	1.328	1.321
	(34.18)	(34.10)		(33.43)	(33.29)
GDPg		3.707	GDPg		56.403
		(3.67)			(5.30)
Inflation		-0.012	Inflation		-0.219
		(-2.96)			(-4.58)
Corrupt	-0.088	-0.065	Corrupt	-1.626	-1.222
	(-4.37)	(-3.07)		(-6.94)	(-4.83)
Year chi2(3)	206.032	199.208	Year chi2(3)	55.769	67.773
p-value	<0.0001	<0.0001	p-value	<0.0001	<0.0001
Overall R-sq	0.3967	0.4004	Overall R-sq	0.1071	0.1222
Wald chi2(9 & 11)	12580.9	12615.36	Wald chi2(9 & 11)	3602.113	3660.219
Hausman chi2(9 & 11)	25.5331	28.1456	Hausman chi2(8&10)	72.4300	55.0004
p-value	<0.0001	<0.0001	p-value	<0.0001	<0.0001
Observations	19,665	19,665	Observations	19,665	19,665

This following regression with random country effect is estimated using data as of June each year:

$$V_{i,t} = a_t + \sum_{j=1}^{n} \delta_{j,t} C_{j,i,t} + \mu_{i,t}$$

where V_{it} is PB_{it} in panel A and PE_{it} in panel B. PB_{it} (PE_{it}) is the year t price-to-book ratio (price-to-earning ratio) for firm i, and $C_{j,i,t}$ is the j^{th} characteristic of firm i in year t. The n firm-characteristics are: return on equity (ROE), leverage (Lev), R&D-to-Net Sales (R&D), forecasted long-term growth (Forecastg), dividend-payout ratio (k), and the industrial harmonic means of the price-to-book ratio and price-to-earning ratio (Indpb and Indpe). Country-level variables include Inflation, real GDP growth (GDPg) and Corruption. The sample is from 6/1995 to 6/1998, inclusive.

Table 5: Fixed-Effect Regression of PB and PE Ratios on Various Explanatory Variables

	Panel A: Price-to-Book						Panel B: Price-to-Earnings				
	Model 1	Model 2	Model 3	Model 4	Model 5		Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	-1.157	-2.368	-0.779	-0.723	-14.286	Intercept	-7.985	-15.778	11.047	30.818	-126.905
	(-13.29)	(-8.88)	(-2.17)	(-1.25)	(-5.18)		(-8.18)	(-3.89)	(2.15)	(4.33)	(-5.05)
Roe	0.132	0.139	0.139	0.139	0.139						
	(55.80)	(54.30)	(54.34)	(54.32)	(54.31)						
Lev	-0.002	-0.002	-0.001	-0.002	-0.002	Lev	0.021	0.008	0.008	0.008	0.008
	(-3.55)	(-3.35)	(-3.34)	(-3.37)	(-3.39)		(4.04)	(1.68)	(1.71)	(1.69)	(1.68)
R&D	0.055	0.047	0.047	0.047	0.047	R&D	0.535	0.381	0.378	0.379	0.382
	(7.97)	(6.86)	(6.85)	(6.86)	(6.87)		(8.75)	(6.15)	(6.10)	(6.12)	(6.18)
Forecastg	0.014	0.016	0.016	0.016	0.016	Forecastg	0.213	0.256	0.257	0.257	0.256
	(15.41)	(17.31)	(17.39)	(17.43)	(17.41)		(20.03)	(23.86)	(24.04)	(24.12)	(24.13)
k	-0.160	0.017	0.014	0.016	0.013	k	7.130	9.025	8.976	8.988	8.909
	(-3.51)	(0.37)	(0.30)	(0.36)	(0.29)		(11.44)	(14.35)	(14.27)	(14.33)	(14.22)
Indpb	0.973	0.924	0.925	0.925	0.923	Indpe	1.417	1.326	1.330	1.328	1.321
	(22.47)	(20.90)	(20.92)	(20.91)	(20.88)		(25.35)	(23.81)	(23.89)	(23.85)	(23.79)
GDPg					3.113	GDPg				52.760	36.430
					(3.32)					(4.95)	(3.37)
Inflation				-0.007	-0.006	Inflation				-0.413	-0.368
				(-0.86)	(-0.68)					(-4.31)	(-3.99)
GDP/capita					0.000	GDP/capita					0.001
					(3.78)						(7.25)
Imports/GDP					1.863	Imports/GDP					16.019
					(4.36)						(4.15)
Corrupt			-0.212	-0.184	-0.159	Corrupt			-3.588	-2.954	-2.108
			(-6.83)	(-5.44)	(-4.51)				(-9.22)	(-7.47)	(-5.60)
Year (F-stat)		85.093	89.943	90.265	32.236	Year (F-stat)		30.545	32.848	37.837	6.969
P-value		<0.0001	<0.0001	<0.0001	<0.0001	P-value		<0.0001	<0.0001	<0.0001	0.0001
Country (F-stat)		16.972	18.895	16.573	14.122	Country (F-stat)		32.509	33.875	28.432	19.561
P-value		<0.0001	<0.0001	<0.0001	<0.0001	P-value		<0.0001	<0.0001	<0.0001	<0.0001
Adj R-sq	0.3970	0.4261	0.4270	0.4273	0.4278	Adj R-sq	0.1353	0.2269	0.2302	0.2317	0.2341
Observations	19665	19665	19665	19665	19665	Observations	19665	19665	19665	19665	19665

Table 5 (Continued)

This table reports the results of a pooled time-series cross-sectional regression based on information available as of June each year:

$$V_{i,t} = a_t + \sum_{j=1}^{n} \delta_{j,t} C_{j,i,t} + \mu_{i,t}$$

where V_{it} is PB_{it} in panel A and PE_{it} in panel B. The dependent variable PB_{it} (PE_{it}) is the year t price-to-book ratio (price-to-earning ratio) for firm i in year t. The independent variable $C_{j,i,t}$ is the j^{th} characteristic of firm i in year t.

The explanatory variables (firm, industry, and country characteristics) that we used are described in detail in Appendix B. In brief, they include: return on equity (Roe), leverage (Lev), R&D-to-Net-Sales (R&D), forecasted earnings growth rate (Forecastg), dividend-payout ratio (k), the harmonic mean of the industrial price-to-book ratio (Indpb), the harmonic mean of the industrial price-to-earning ratio (Indpe), and corruption (Corrupt). Other control variables in the regression include GDP per capita (GDP/cap), Imports/GDP ratio (Imports/GDP), real GDP growth (GDPg), and inflation. Certain variables (Corrupt, GDP per capita, Imports/GDP ratio, real GDP growth, and Inflation) are common across firms in the same country, while other variables (Indpb and Indpe) are common across firms in the same industry. We use Huber-White estimation procedure to correct for sample dependencies for the same firms with multiple observations. Huber-White t-statistics of the coefficients are given in brackets below the estimates. Most models also include indicator variables for each country and year. F-statistics for the year and country dummies are reported, with corresponding p-values below them. The sample is from 6/1995 to 6/1998.

Table 6: Corporate Control, Shareholder Rights, and Instrumental Variable Estimations

	Panel A: Price-to-Book					Panel B: Price-to-Earnings			
	Model 1	Model 2	Model 3 (IV)	Model 4 (IV)		Model 1	Model 2	Model 3 (IV)	Model 4 (IV)
Intercept	1.302	6.086	5.556	5.382	Intercept	31.149	65.209	104.209	100.969
	(2.42)	(7.08)	(7.57)	(6.99)		(5.81)	(8.18)	(11.75)	(10.78)
Roe	0.140	0.139	0.140	0.139					
	(53.38)	(53.37)	(53.48)	(53.44)					
Lev	-0.002	-0.002	-0.002	-0.002	Lev	0.008	0.008	0.008	0.008
	(-3.35)	(-3.42)	(-3.31)	(-3.33)		(1.62)	(1.56)	(1.68)	(1.67)
R&D	0.047	0.047	0.047	0.047	R&D	0.373	0.376	0.370	0.370
	(6.79)	(6.82)	(6.77)	(6.77)		(6.0)	(6.05)	(5.94)	(5.94)
Forecastg	0.016	0.016	0.016	0.016	Forecastg	0.261	0.260	0.263	0.263
	(17.18)	(17.10)	(17.24)	(17.25)		(23.97)	(24.02)	(24.07)	(24.08)
k	0.015	0.005	0.010	0.012	k	9.179	9.051	9.091	9.097
	(0.33)	(0.12)	(0.22)	(0.26)		(14.37)	(14.26)	(14.16)	(14.19)
Indpb	0.921	0.917	0.918	0.918	Indpe	1.332	1.321	1.329	1.328
	(20.60)	(20.56)	(20.50)	(20.50)		(23.59)	(23.49)	(23.33)	(23.33)
GDPg				1.798	GDPg				13.792
				(1.62)					(0.96)
Inflation				0.016	Inflation				-0.031
				(1.50)					(-0.23)
GDP/cap		0.000			GDP/cap		0.002		
		(11.06)					(12.95)		
Imports/GDP		6.442			Imports/GDP		59.622		
		(8.28)					(8.06)		
Corruption	-0.286	-0.107	-0.936	-0.931	Corruption	-4.359	-1.276	-15.520	-15.075
	(-7.88)	(-2.70)	(-11.34)	(-10.37)		(-9.54)	(-2.86)	(-13.65)	(-12.40)
Judsys*Yr	19.586	41.087	38.876	29.374	Judsys*Yr	24.935	39.332	50.287	38.949
P-value	<0.0001	<0.0001	<0.0001	<0.0001	P-value	<0.0001	<0.0001	<0.0001	<0.0001
Antidir*Yr	7.970	39.299	20.501	34.488	Antidir*Yr	9.288	45.284	38.829	40.003
P-value	<0.0001	<0.0001	<0.0001	<0.0001	P-value	<0.0001	<0.0001	<0.0001	<0.0001
Acctstand*Yr	2.018	7.453	11.966	11.530	Acctstand*Yr	5.491	8.266	29.980	23.556
P-value	0.0891	<0.0001	<0.0001	<0.0001	P-value	0.0002	<0.0001	<0.0001	<0.0001
Year (F-stat)	2.558	4.077	13.218	12.677	Year (F-stat)	2.551	6.393	16.652	14.567
	0.0533	0.0067	<0.0001	<0.0001		0.0539	0.0003	<0.0001	<0.0001
Country (F-stat)	20.896	21.504	22.292	18.568	Country (F-stat)	37.478	30.677	39.583	30.817
	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001
Adj R-sq	0.4268	0.4299	0.4205	0.4206	Adj R-sq	0.2308	0.2390	0.2063	0.2082
Observations	19026	19026	19026	19026	Observations	19026	19026	19026	19026

Table 6 (Continued)

This table reports the results of a pooled time-series cross-sectional regression based on information available as of June each year:

$$V_{i,t} = a_t + \sum_{j=1}^{n} \delta_{j,t} C_{j,i,t} + \mu_{i,t}$$

where V_{it} is PB_{it} in panel A and PE_{it} in panel B. The dependent variable PB_{it} (PE_{it}) is the year t price-to-book ratio (price-to-earning ratio) for firm i in year t. The independent variable $C_{j,i,t}$ is the j^{th} characteristic of firm i in year t.

The explanatory variables (firm, industry, and country characteristics) that we used are described in detail in Appendix B. In brief, they include: return on equity (Roe), leverage (Lev), R&D-to-Net-Sales (R&D), forecasted earnings growth rate (Forecastg), dividend-payout ratio (k), the harmonic mean of the industrial price-to-book ratio (Indpb), the harmonic mean of the industrial price-to-earning ratio (Indpe), and corruption (Corrupt). Other control variables in the regression include GDP per capita (GDP/cap), Imports/GDP ratio (Imports/GDP), real GDP growth (GDPg), and inflation. Certain variables (Corruption, GDP per capita, Imports/GDP, real GDP growth, and Inflation) are common across firms in the same country, while other variables (Indpb and Indpe) are common across firms in the same industry.

We use Huber-White estimation procedure to correct for sample dependencies for the same firms with multiple observations. Huber-White t-statistics of the coefficients are given in brackets below the estimates. All models include indicator variables for each country and year. F-statistics for the year and country dummies are reported, with corresponding p-values below them. Some models also include the interaction variables created by multiplying the year dummies with the following three corporate control and shareholder rights variables: judicial efficiency (Judsys), accounting standard (Acctstand), and anti-director's rights (Antidir). The F-statistics and P-values for these variables are reported.

Models 3 and 4 in both panels are two-stage least squared (2SLS) regressions where GDP/cap and Imports/GDP ratio are used as instrumental variables for Corrupt. For these estimations, we report the first stage adjusted r-square, as well as the estimated coefficients and test-statistics from the second-stage. The number of observations is reported for each model. The sample period is from 6/1995 to 6/1998, inclusive.

Table 7: Fixed-Effect Models with Country-level Market and Currency Betas

	Price-to-Book					Price-to-Earnings			
	Model 1	Model 2	Model 3	Model 4 (IV)		Model 1	Model 2	Model 3	Model 4 (IV)
Intercept	-0.779	-1.943	-2.140	-1.806	Intercept	11.047	-11.083	-9.775	67.781
	(-2.17)	(-8.24)	(-8.57)	(-9.40)		(2.15)	(-2.73)	(-2.30)	(6.16)
Roe	0.139	0.139	0.139	0.139					
	(54.34)	(54.20)	(54.17)	(54.20)					
Lev	-0.001	-0.002	-0.002	-0.002	Lev	0.008	0.008	0.008	0.008
	(-3.34)	(-3.42)	(-3.45)	(-3.42)		(1.71)	(1.56)	(1.54)	(1.61)
R&D	0.047	0.047	0.047	0.047	R&D	0.378	0.378	0.378	0.373
	(6.85)	(6.81)	(6.82)	(6.80)		(6.10)	(6.09)	(6.10)	(6.0)
Forecastg	0.016	0.016	0.016	0.016	Forecastg	0.257	0.258	0.258	0.261
	(17.39)	(17.37)	(17.42)	(17.52)		(24.04)	(24.0)	(24.07)	(24.32)
k	0.014	0.015	0.017	0.013	k	8.976	9.075	9.064	8.970
	(0.30)	(0.32)	(0.38)	(0.29)		(14.27)	(14.38)	(14.42)	(14.14)
Indpb	0.925	0.929	0.929	0.930	Indpe	1.330	1.328	1.327	1.336
	(20.92)	(20.89)	(20.89)	(20.90)		(23.89)	(23.81)	(23.79)	(23.83)
Beta		0.069	0.037	-0.066	Beta		3.735	3.675	1.038
		(1.12)	(0.58)	(-0.87)			(5.58)	(5.33)	(1.32)
Ex_beta		-0.170	-0.189	-0.095	Ex_beta		-0.971	-1.307	1.220
		(-3.72)	(-4.08)	(-1.56)			(-2.06)	(-2.76)	(1.78)
GDPg			4.696	3.361	GDPg			45.250	
			(4.88)	(3.44)				(3.97)	
Inflation			-0.007	0.010	Inflation			-0.514	-0.071
			(-0.72)	(0.83)				(-4.20)	(-0.56)
Corruption	-0.212	-0.183	-0.151	-0.501	Corruption	-3.588	-3.181	-2.537	-11.699
	(-6.83)	(-5.82)	(-4.40)	(-4.09)		(-9.22)	(-8.22)	(-6.37)	(-8.16)
Year (F-stat)	89.943	87.147	90.288	91.497	Year (F-stat)	32.848	34.133	38.852	35.763
	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001
Country (F-stat)	18.895	17.976	16.024	15.1503	Country (F-stat)	33.875	34.566	29.846	26.359
	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001
Adj R-sq	0.4270	0.4265	0.4270	0.4248	Adj R-sq	0.2302	0.2311	0.2326	0.2133
Observations	19665	19539	19539	19539	Observations	19665	19539	19539	19539

Table 7 (Continued)

Table 7 reports the results of a pooled time-series cross-sectional regression based on information available as of June each year:

$$V_{i,t} = a_t + \sum_{j=1}^{n} \delta_{j,t} C_{j,i,t} + \mu_{i,t}$$

where V_{it} is PB_{it} in panel A and PE_{it} in panel B. The dependent variable PB_{it} (PE_{it}) is the year t price-to-book ratio (price-to-earning ratio) for firm i in year t. The independent variable $C_{j,i,t}$ is the j^{th} characteristic of firm i in year t.

The explanatory variables (firm, industry, and country characteristics) that we used are described in detail in Appendix B. In brief, they include: return on equity (Roe), leverage (Lev), R&D-to-Net-Sales (R&D), forecasted earnings growth rate (Forecastg), dividend-payout ratio (k), the harmonic mean of the industrial price-to-book ratio (Indpb), the harmonic mean of the industrial price-to-earning ratio (Indpe), and corruption (Corrupt). Other control variables in the regression include country beta (Beta), exchange rate beta (Ex_beta), (see the following description), real GDP growth (GDPg), and inflation. Certain variables (Corruption, GDP per capita, Import/GDP ratio, real GDP growth, Inflation, Ex_Beta, and Beta) are common across firms in the same country, while other variables (Indpb and Indpe) are common across firms in the same industry. We use Huber-White estimation procedure to correct for sample dependencies for the same firms with multiple observations. Huber-White t-statistics of the coefficients are given in brackets below the estimates. Most models also include indicator variables for each country and year. F-statistics for the year and country dummies are reported, with corresponding p-values below them. The sample is from 6/1995 to 6/1998.

Country beta (Beta) refers to the beta of the country stock index relative to the MSCI world stock index. Exchange rate beta (Ex_beta) refers to the beta of the country stock index relative to an exchange rate index of the US dollar. To compute Beta and Ex_beta, we use the two-factor model:

$$r_{i,t} - r_f = a + \beta(r_{m,t} - r_f) + \beta^e \Delta e + \mu_{i,t}$$

The dependent variable is the monthly dollar return on the stock market index where the firm is located. The two factors on the right hand side of the regression are (i) the market factor (r_m - r_f), which is the excess dollar return of the value-weighted MSCI world market portfolio, and (ii) the currency factor which is the return on the US dollar vis-à-vis the other six countries in the G7 (weighted by the relative stock-market capitalization). An increase in the index implies US dollar depreciates against the basket of currencies. The rolling 60-month return of the indices are used, and the regression coefficients are the Beta and the Ex_beta.

Models 4 in both panels are two-stage least squared (2SLS) regressions where GDP/cap and Imports/GDP ratio are used as instrumental variables for Corrupt. For these estimations, we report the first stage adjusted r-square, as well as the estimated coefficients and test-statistics from the second-stage. The number of observations is reported for each model. The sample period is from 6/1995 to 6/1998, inclusive.

Table 8: The Differential Effect of Current ROE, R&D Expense, and Forecasted Growth in Countries with High and Low Corruption

	Panel A: Price-to-Book			Panel B: Price-to-Earnings	
	Model 1	Model 2		Model 1	Model 2
Intercept	-2.190	-2.553	Intercept	-14.069	-16.750
	(-2.92)	(-6.54)		(-1.86)	(-4.24)
Roe	0.143	0.141			
	(51.13)	(50.10)			
Lev	-0.001	-0.002	Lev	0.009	0.008
	(-3.93)	(-4.06)		(2.28)	(2.05)
R&D	0.095	0.093	R&D	0.629	0.578
	(7.56)	(7.42)		(4.99)	(4.58)
Forecastg	0.018	0.018	Forecastg	0.298	0.292
	(13.07)	(12.64)		(21.45)	(21.0)
k	0.015	0.018	k	9.041	9.101
	(0.37)	(0.43)		(22.35)	(22.46)
Indpb	0.920	0.925	Indpe	1.321	1.320
	(33.93)	(33.97)		(33.22)	(33.15)
GDPg		-0.013	GDPg		-0.633
		(-1.20)			(-5.86)
Inflation		5.226	Inflation		54.022
		(4.47)			(4.58)
Beta		0.071	Beta		4.354
		(0.99)			(6.06)
Ex_beta		-0.217	Ex_beta		-1.887
		(-4.26)			(-3.69)
CorrRoe	-0.002	-0.001			
	(-1.84)	(-1.01)			
CorrRandD	-0.020	-0.019	CorrRandD	-0.105	-0.084
	(-4.03)	(-3.89)		(-2.12)	(-1.70)
CorrForecastg	-0.001	-0.001	CorrForecastg	-0.014	-0.012
	(-1.98)	(-1.42)		(-3.54)	(-2.94)
Year (F-stat)	69.563	61.257	Year (F-stat)	18.364	24.692
	<0.0001	<0.0001		<0.0001	<0.0001
Country (F-stat)	20.377	17.263	Country (F-stat)	53.275	44.933
	<0.0001	<0.0001		<0.0001	<0.0001
Adj R-sq	0.4268	0.4271	Adj R-sq	0.2275	0.2315
Observations	19665	19539	Observations	19665	19539

Table 8 (continued)

This table provides evidence on the differential effect of ROE, R&D, and Forecast Growth on PB and PE in countries with different corruption levels. To construct this table, we estimated the following pooled time-series cross-sectional regression using data publicly available as of June each year:

$$V_{i,t} = a_t + \sum_{j=1}^{n} \delta_{j,t} C_{j,i,t} + \mu_{i,t}$$

where V_{it} is PB_{it} in panel A and PE_{it} in panel B. PB_{it} (PE_{it}) is the year t price-to-book ratio (price-to-earning ratio) for firm i, and $C_{j,i,t}$ is the j^{th} characteristic of firm i in year t. The n firm-characteristics are: return on equity (ROE), leverage (Lev), R&D-to-Net Sales (R&D), forecasted long-term growth (Forecastg), dividend-payout ratio (k), the harmonic mean of the industrial price-to-book ratio (Indpb), and the harmonic mean of the industrial price-to-earning ratio (Indpe). Other control variables in the regression include country beta (Beta), exchange rate beta (Ex_beta), (see the following description), real GDP growth (GDPg), and inflation. Certain variables (real GDP growth, Inflation, Ex_Beta, and Beta) are common across firms in the same country, while other variables (Indpb and Indpe) are common across firms in the same industry.

Corrupt*ROE refers to the interaction variable formed by Corrupt with ROE. Corrupt*R&D and Corrupt*Forecastg are the interaction variables formed by multiplying Corrupt with R&D and Forecasted growth.

The sample period is from 6/1995 to 6/1998. We use Huber-White estimation procedure to correct for sample dependencies for the same firms with multiple observations. Huber-White t-statistics of the coefficients are given in brackets below the estimates. Most models include indicator variables for each country and year. F-statistics for the year and country dummies are reported, with corresponding p-values below them.

Country beta (Beta) refers to the beta of the country stock index relative to the MSCI world stock index. Exchange rate beta (Ex_beta) refers to the beta of the country stock index relative to an exchange rate index of the US dollar. To compute Beta and Ex_beta, we use the two-factor model:

$$r_{i,t} - r_f = a + \beta(r_{m,t} - r_f) + \beta^e \Delta e + \mu_{i,t}$$

The dependent variable is the monthly dollar return on the stock market index where the firm is located. The two factors on the right hand side of the regression are (i) the market factor (r_m - r_f), which is the excess dollar return of the value-weighted MSCI world market portfolio, and (ii) the currency factor which is the return on the US dollar vis-à-vis the other six countries in the G7 (weighted by the relative stock-market capitalization). An increase in the index implies US dollar depreciates against the basket of currencies. The rolling 60-month return of the indices is used, and the regression coefficients are the Beta and the Ex_beta.

Table 9: Separate Regressions for Integrated and Segmented Countries

	Panel A: Price-to-Book					Panel B: Price-to-Earnings			
	Model 1	Model 2	Model 3	Model 4		Model 1	Model 2	Model 3	Model 4
Intercept	0.143	0.011	-0.255	-1.232	Intercept	19.960	16.482	5.724	-3.127
	(0.50)	(0.04)	(-0.48)	(-5.59)		(5.64)	(3.39)	(1.04)	(-1.13)
Roe	0.140	0.142	0.132	0.128					
	(49.21)	(48.92)	(22.99)	(23.62)					
Lev	-0.002	-0.002	0.000	0.000	Lev	0.002	0.001	0.038	0.038
	(-3.59)	(-3.57)	(-0.24)	(0.04)		(0.30)	(0.24)	(3.40)	(3.51)
R&D	0.046	0.044	0.069	0.106	R&D	0.354	0.345	0.680	0.821
	(6.52)	(6.20)	(1.80)	(2.71)		(5.61)	(5.43)	(1.33)	(2.07)
Forecastg	0.016	0.017	0.014	0.013	Forecastg	0.272	0.278	0.202	0.191
	(15.38)	(15.36)	(8.38)	(8.50)		(22.43)	(22.47)	(9.11)	(9.38)
k	0.039	0.055	-0.068	-0.018	k	9.838	10.436	5.455	4.956
	(0.75)	(1.03)	(-0.70)	(-0.22)		(14.07)	(14.50)	(3.96)	(4.09)
Indpb	0.941	0.970	0.758	0.608	Indpe	1.376	1.411	0.903	0.729
	(19.48)	(19.66)	(7.20)	(6.46)		(22.77)	(22.84)	(7.15)	(6.33)
GDPg	0.089	-0.657	5.180	4.642	GDPg	46.881	35.707	29.993	21.995
	(0.08)	(-0.59)	(3.24)	(2.98)		(3.14)	(2.34)	(2.13)	(1.61)
Inflation	-0.122	-0.168	-0.020	-0.019	Inflation	-1.769	-2.450	-0.403	-0.401
	(-6.91)	(-7.90)	(-2.13)	(-2.06)		(-8.60)	(-10.02)	(-3.47)	(-3.49)
Corrupt	-0.192	-0.167	-0.249	-0.217	Corrupt	-3.527	-3.046	-2.095	-1.954
	(-4.28)	(-3.73)	(-4.44)	(-3.89)		(-6.57)	(-5.81)	(-3.81)	(-3.58)
Year (F-stat)	108.356	104.745	4.115	4.732	Year (F-stat)	64.403	62.658	5.474	7.885
	<0.0001	<0.0001	0.0064	0.0027		<0.0001	<0.0001	0.0010	<0.0001
Country (F-stat)	12.747	12.875	12.838	16.498	Country (F-stat)	22.549	22.298	8.575	12.326
	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001
Adj R-sq	0.4308	0.4306	0.4216	0.4201	Adj R-sq	0.2499	0.2539	0.1692	0.1623
Observations	16161	15652	3504	4013	Observations	16161	15652	3504	4013

Table 9 (continued)

This following regression is estimated as of June each year:

$$V_{i,t} = a_t + \sum_{j=1}^{n} \delta_{j,t} C_{j,i,t} + \mu_{i,t}$$

where V_{it} is PB_{it} in panel A and PE_{it} in panel B. PB_{it} (PE_{it}) is the year t price-to-book ratio (price-to-earning ratio) for firm i, and $C_{j,i,t}$ is the j^{th} characteristic of firm i in year t.

The n firm-characteristics are: return on equity (ROE), leverage (Lev), R&D-to-Net Sales (R&D), forecasted long-term growth (Forecastg), dividend-payout ratio (k), the harmonic mean of the industrial price-to-book ratio (Indpb), the harmonic mean of the industrial price-to-earning ratio (Indpe), and corruption (Corrupt). Other control variables in the regression include real GDP growth (GDPg), and inflation. Certain variables (Corruption, real GDP growth, Inflation) are common across firms in the same country, while other variables (Indpb and Indpe) are common across firms in the same industry. The sample is from 6/1995 to 6/1998.

The first two columns in each panel report results of the regressions for the more integrated countries. The last two columns in each panel report the results of the regressions for more segmented countries. In model 1, a country is considered integrated if it belongs to the MSCI developed country index, and segmented if it does not. In model 2, a country is considered integrated (segmented) if its correlation with the world market index is in the top (botoom) 50 percentile.

Table 10: Regressions Based on Top-100 Firms in Each Country

	Panel A: Price-to-Book				Panel B: Price-to-Earnings		
	Model 1	Model 2	Model 3		Model 1	Model 2	Model 3
Intercept	-2.693	-3.404	0.601	Intercept	4.568	1.077	18.090
	(-3.99)	(-4.16)	(1.05)		(0.63)	(0.13)	(3.36)
Roe	0.139	0.140	0.141				
	(37.06)	(37.01)	(35.67)				
Lev	-0.001	-0.001	-0.001	Lev	0.019	0.018	0.020
	(-2.18)	(-2.33)	(-2.24)		(3.02)	(2.81)	(2.98)
R&D	0.065	0.065	0.064	R&D	0.124	0.122	0.116
	(4.51)	(4.46)	(4.41)		(1.16)	(1.15)	(1.08)
Forecastg	0.016	0.016	0.016	Forecastg	0.227	0.230	0.235
	(12.26)	(12.34)	(11.87)		(14.36)	(14.42)	(14.19)
k	0.040	0.044	0.056	k	6.252	6.396	6.704
	(0.58)	(0.63)	(0.78)		(7.28)	(7.40)	(7.59)
Indpb				Indpe	1.048	1.050	1.046
					(13.17)	(13.15)	(12.78)
GDPg		-0.416	-0.575	GDPg		-1.264	-2.209
		(-5.46)	(-5.72)			(-1.76)	(-2.23)
Inflation		-0.315	-0.213	Inflation		-2.549	-1.737
		(-5.52)	(-3.42)			(-4.59)	(-2.82)
Beta	5.538	4.708	1.548	Beta	46.621	37.973	23.616
	(4.52)	(3.83)	(1.10)		(4.02)	(3.17)	(1.65)
Ex_beta	0.011	0.021	0.004	Ex_beta	-0.123	-0.099	-0.070
	(1.19)	(1.82)	(0.39)		(-1.59)	(-1.0)	(-0.67)
Corrupt	-0.072	-0.048	-0.171	Corrupt	-1.224	-0.950	-1.946
	(-1.90)	(-1.28)	(-4.05)		(-2.97)	(-2.34)	(-4.33)
Judsys*Yr			11.304	Judsys*Yr			8.830
P-value			<0.0001	P-value			<0.0001
Antidir*Yr			9.319	Antidir*Yr			9.397
P-value			<0.0001	P-value			<0.0001
Acctstand*Yr			2.492	Acctstand*Yr			3.405
P-value			0.0412	P-value			<0.0001
Year (F-stat)	63.076	44.660	4.355	Year (F-stat)	13.490	12.401	3.209
	<0.0001	<0.0001	0.0045		<0.0001	<0.0001	0.0221
Country (F-stat)	15.214	15.037	18.498	Country (F-stat)	19.056	19.446	23.546
	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001
Adj R-sq	0.4613	0.4637	0.4690	Adj R-sq	0.2368	0.2387	0.2448
Observations	8890	8765	8221	Observations	8890	8765	8221

Table 10 (continued)

Table 10 reports the regression results for the subset of the sample where each country is limited to only the top 100 largest companies. The following pooled time-series cross-sectional regression is estimated using data publicly available as of June each year:

$$V_{i,t} = a_t + \sum_{j=1}^{n} \delta_{j,t} C_{j,i,t} + \mu_{i,t}$$

where V_{it} is PB_{it} in panel A and PE_{it} in panel B. PB_{it} (PE_{it}) is the year t price-to-book ratio (price-to-earning ratio) for firm i, and $C_{j,i,t}$ is the j^{th} characteristic of firm i in year t.

The n firm-characteristics are: return on equity (Roe), leverage (Lev), R&D-to-Net Sales (R&D), forecasted long-term growth (Forecastg), dividend-payout ratio (k), industrial harmonic mean of the price-to-book ratio (Indpb), industrial harmonic mean of the price-to-earning ratio (Indpe), and corruption (Corrupt). Other control variables in the regression include country beta (Beta), exchange rate beta (Ex_beta), (see the following description), real GDP growth (GDPg), and inflation.

Certain variables (Corruption, real GDP growth, Inflation, Ex_Beta, and Beta) are common across firms in the same country, while other variables (Indpb and Indpe) are common across firms in the same industry. The sample is from 6/1995 to 6/1998. We use Huber-White estimation procedure to correct for sample dependencies for the same firms with multiple observations. Huber-White t-statistics of the coefficients are given in brackets below the estimates. The models include indicator variables for each country and year. F-statistics for the year and country dummies are reported, with corresponding p-values below them.

Country beta (Beta) refers to the beta of the country stock index relative to the MSCI world stock index. Exchange rate beta (Ex_beta) refers to the beta of the country stock index relative to an exchange rate index of the US dollar. To compute Beta and Ex_beta, we use the two-factor model:

$$r_{i,t} - r_f = a + \beta(r_{m,t} - r_f) + \beta^e \Delta e + \mu_{i,t}$$

The dependent variable is the monthly dollar return on the stock market index where the firm is located. The two factors on the right hand side of the regression are (i) the market factor ($r_m - r_f$), which is the excess dollar return of the value-weighted MSCI world market portfolio, and (ii) the currency factor which is the return on the US dollar vis-à-vis the other six countries in the G7 (weighted by the relative stock-market capitalization). An increase in the index implies US dollar depreciates against the basket of currencies. The rolling 60-month return of the indices is used, and the regression coefficients are the Beta and the Ex_beta.

Table 11: Firm Level Fixed Effect Model

	Panel A: Price-to-Book						Panel B: Price-to-Earnings				
	Model 1	Model 2	Model 3	Model 4 (IV)	Model 5 (IV)		Model 1	Model 2	Model 3	Model 4 (IV)	Model 5 (IV)
Intercept	-0.981	-1.189	3.535	22.297	23.128	Intercept	-4.497	-8.829	60.494	354.315	354.472
	(-6.62)	(-7.51)	(1.16)	(6.42)	(6.22)		(-2.88)	(-5.50)	(1.82)	(9.10)	(8.52)
Roe	0.099	0.098	0.098	0.098	0.097	Roe					
	(40.19)	(39.61)	(39.06)	(38.18)	(37.49)						
Lev	0.000	0.000	0.000	0.000	0.000	Lev	0.008	0.006	0.006	0.009	0.009
	(-0.20)	(-0.16)	(0.27)	(0.29)	(0.53)		(1.0)	(0.69)	(0.72)	(1.09)	(1.08)
R&D	0.059	0.058	0.058	0.058	0.058	R&D	1.068	1.070	1.055	1.047	1.050
	(7.16)	(7.0)	(6.95)	(6.85)	(6.78)		(11.90)	(11.91)	(11.70)	(11.05)	(11.04)
Forecastg	0.007	0.007	0.007	0.007	0.007	Forecastg	0.127	0.128	0.135	0.133	0.136
	(8.53)	(8.57)	(8.68)	(8.41)	(8.49)		(14.36)	(14.38)	(14.97)	(14.12)	(14.33)
k	0.441	0.418	0.417	0.384	0.393	k	21.076	21.255	21.446	20.810	21.252
	(7.45)	(6.99)	(6.85)	(6.18)	(6.26)		(35.16)	(35.19)	(34.95)	(32.42)	(32.82)
Indpb	1.122	1.140	1.141	1.111	1.113	Indpe	1.260	1.256	1.274	1.280	1.267
	(21.30)	(21.47)	(21.21)	(20.23)	(20.04)		(20.10)	(19.91)	(19.93)	(19.16)	(18.79)
GDPg	-0.001	-0.002	0.003		0.039	GDPg	-0.401	-0.526	-0.271		0.250
	(-0.08)	(-0.22)	(0.31)		(3.38)		(-4.54)	(-5.44)	(-2.34)		(1.94)
Inflation	6.364	7.159	7.090		3.330	Inflation	60.717	50.147	67.171		11.649
	(6.82)	(7.42)	(5.88)		(2.55)		(5.93)	(4.74)	(5.08)		(0.80)
Beta		0.086	0.184		-0.212	Beta		4.628	5.851		0.024
		(1.47)	(2.42)		(-2.39)			(7.23)	(7.03)		(0.02)
Ex_beta		-0.255	-0.154		0.100	Ex_beta		-1.108	0.329		4.061
		(-6.0)	(-3.01)		(1.69)			(-2.39)	(0.59)		(6.14)
Corrupt	-0.094	-0.060	-0.208	-1.063	-1.198	Corrupt	-1.717	-1.343	-2.499	-16.116	-17.033
	(-3.16)	(-1.99)	(-5.59)	(-12.63)	(-10.93)		(-5.26)	(-4.03)	(-6.14)	(-17.07)	(-13.90)
Judsys*Yr			19.318	190.201	158.051	Judsys*Yr			8.077	140.150	137.145
P-value			<0.0001	<0.0001	<0.0001	P-value			<0.0001	<0.0001	<0.0001
Antidir*Yr			8.768	19.483	22.735	Antidir*Yr			9.848	29.863	30.522
P-value			<0.0001	0.0006	0.0001	P-value			<0.0001	<0.0001	<0.0001
Acctstand*Yr			9.938	154.522	125.899	Acctstand*Yr			7.038	188.713	148.986
P-value			<0.0001	<0.0001	<0.0001	P-value			<0.0001	<0.0001	<0.0001
Year (F-stat)	23.758	23.117	3.167	60.397	64.726	Year (F-stat)	19.912	22.459	2.141	63.115	64.933
	<0.0001	<0.0001	0.0233	<0.0001	<0.0001		<0.0001	<0.0001	0.0928	<0.0001	<0.0001
Overall R-sq	0.3709	0.3733	0.2934	0.0765	0.0643	Overall R-sq	0.0723	0.0785	0.0744	0.0133	0.0126
Observations	19665	19539	18988	19026	18988	Observations	19665	19539	18988	19026	18988

Table 11 (Continued)

This table reports the results of a pooled time-series cross-sectional regression based on information available as of June each year:

$$V_{i,t} = a_t + \sum_{j=1}^{n} \delta_{j,t} C_{j,i,t} + \mu_{i,t}$$

where V_{it} is PB_{it} in panel A and PE_{it} in panel B. The dependent variable PB_{it} (PE_{it}) is the year t price-to-book ratio (price-to-earning ratio) for firm i in year t. The independent variable $C_{j,i,t}$ is the j^{th} characteristic of firm i in year t. Firm level fixed effects as well as year fixed effects are included.

The explanatory variables (firm, industry, and country characteristics) that we used are described in detail in Appendix B. In brief, they include: return on equity (Roe), leverage (Lev), R&D-to-Net-Sales (R&D), forecasted earnings growth rate (Forecastg), dividend-payout ratio (k), the harmonic mean of the industrial price-to-book ratio (Indpb), the harmonic mean of the industrial price-to-earning ratio (Indpe), and corruption (Corrupt). Other control variables in the regression include GDP per capita (GDP/cap), Imports/GDP ratio (Imports/GDP), real GDP growth (GDPg), and inflation. Certain variables (Corrupt, GDP per capita, Imports/GDP ratio, real GDP growth, and Inflation) are common across firms in the same country, while other variables (Indpb and Indpe) are common across firms in the same industry. Model 3 also includes the interaction variables created by multiplying the year dummies with the following three corporate control and shareholder rights variables: judicial efficiency (Judsys), accounting standard (Acctstand), and anti-director's rights (Antidir). The F-statistics and P-values for these variables are reported.
F-statistics for the year and country dummies are reported, with corresponding p-values below them. The sample is from 6/1995 to 6/1998.

Models 4 and 5 in both panels are two-stage least squared (2SLS) regressions where GDP/cap and Imports/GDP ratio are used as instrumental variables for Corrupt. For these estimations, we report the first stage adjusted r-square, as well as the estimated coefficients and test-statistics from the second-stage. The number of observations is reported for each model. The sample period is from 6/1995 to 6/1998, inclusive.