Corporate Governance and Regulation:

Can There Be Too Much of a Good Thing?

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Abstract

We investigate how company-level corporate governance practices and country-level legal investor protection jointly affect company performance. We find that in any legal regime a few specific governance practices improve performance. Companies with good governance practices operating in stringent legal environments, however, show a valuation discount relative to similar companies operating in flexible legal environments. At the same time, a stronger country-level regime does not reduce the valuation discount of companies with weak governance practices. Our analysis suggests a threshold level of country development above which stringent regulation hurts the performance of well governed companies or has a neutral effect for poorly governed companies.

1. Introduction

In the wake of widespread multi-country corporate governance failures (e.g., Enron, Tyco and Xerox in the US, Maxwell, BCCI, and Polly Peck in the UK, Parmalat in Italy, and Ahold in the Netherlands), critics have called for company law reforms and better corporate governance practices. Some countries have responded with strict mandatory regulations (e.g., the Sarbanes-Oxley Act in the US), whereas other countries have pursued more flexible, voluntary approaches to guiding corporate governance practices (e.g., the Cadbury recommendations in the UK). These country reforms, however, may not represent optimal public policy design to address corporate governance failures, but rather be due to other forces, including regulatory capture and political economy pressures. Consequently, country rules are not necessarily consistent with optimal contracting and company value maximization. The object of this paper is to empirically investigate the effects of the interaction between country rules and company corporate governance practices on performance to help policymakers and researchers better understand the optimality of various corporate governance mechanisms.

Existing literature has typically investigated the impact of corporate governance from either a country or a company viewpoint and posed the question whether it is mostly company- or country-level characteristics that affects companies' corporate governance choices and performance. There is much recent evidence, largely US-based, that supports that more stringent corporate governance practices lead to higher valuation and rates of return (Gompers et al., 2003; Bebchuk et al., 2009).[1] At the country-level, La Porta et al.

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[1] Studies for other countries (e.g., for the UK (Dahya and McConnell, 2007; Dedman, 2003); Korea (Black et al., 2006); Brazil (Nenova, 2005)) have found similar results.

(1998) found that stronger legal regimes are associated with higher growth and performance.

Recent studies, however, have highlighted that there can be a difference between strong and optimal corporate governance: stringent corporate governance, both at the country and company level, can have ambiguous effects on performance and may not be optimal for all corporations. For instance, Burkart et al. (1997) show that requiring high levels of shareholder monitoring and intervention may undermine managerial initiatives, like searching for new, profitable investment projects, and reduce managers' incentives to exert effort, hence lowering returns and worsening company valuation.[2] Chhaochharia and Grinstein (2007), Engel et al. (2007), and Zhang (2007) find that the adoption of the Sarbanes-Oxley Act in the US hurt small companies' performance, did not have significant effects on companies with good corporate governance practices in place, and encouraged companies going private. This evidence is consistent with the notion that stringent regulation positively impacts company performance only if the benefits of higher standards exceed the costs, including both the direct costs of implementing them and any indirect negative effects due to more rigid corporate structures.

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[2] Similarly, Kose and Kedia (2006) show that the optimal corporate governance system for a given economy depends on its financial and legal development. Acharya and Volpin (2009) argue that setting appropriate regulatory standards requires knowing the nature and extent of the externality of the rule imposed and that regulators may not have a relative advantage in acquiring such knowledge. Boot et al. (2006) find that when corporate governance is extremely stringent and leaves the manager little autonomy, the manager considers corporate governance to be too intrusive because it does not facilitates decisions that she believes are value maximizing, and this consequently affects the company's ownership mode.

On the other hand, Doidge et al. (2007) show that country characteristics and financial globalization explain the largest fraction of the variance in governance indicators and more than company-level characteristics do. However, they find some evidence that company-specific variables are more informative about governance choices for companies from developed countries. They suggest that this arises because better governance may reduce the cost of capital only if companies credibly commit to higher governance standards. Because this commitment is costly, companies in more developed countries will benefit more from governance arrangements and will invest in higher governance standards. Given the importance of both country and company-level corporate governance, studying their interactions and joint impact for performance in a financial and institutional developed setting is therefore an interesting question.

The Institutional Shareholder Services (ISS, now RiskMetrics) dataset provides us with a unique opportunity to investigate a comprehensive set of corporate governance characteristics for a large sample of companies from a cross-section of countries. ISS' coverage of companies and countries is very wide, approximately 5300 US companies and 2400 non-US companies from 22 advanced economies (Western and Northern Europe, Canada, Singapore, Hong Kong, New Zealand) for the period 2003 – 2005. The ISS dataset provides detailed information on specific corporate governance practices for each company. Amongst others, it covers information on the composition and independence of boards and committees, the level of shareholders' involvement in the company's decisions, and corporate relationships with the auditors. We can combine this information with country indicators on how institutional and legal frameworks differ to

determine their impact on performance and which corporate governance aspects matter for performance.

We find that companies with higher corporate governance standards and operating in stringent legal environments show a valuation discount relative to companies with higher governance standards and operating in more flexible legal environments. This is consistent with the hypothesis that "over-monitoring" and absence of flexibility in country regulations generate costs, harm managerial initiative, and lead to relative lower returns and valuations. On the contrary, stronger country-level investor protection does not reduce the valuation discount of companies with weak corporate governance practices. These results suggest the existence of a threshold level above which stronger regulation has either negative effects for company outcomes (when the company is well governed) or neutral effects (when the company is poorly governed). In addition, we find that board independence and the existence and independence of board committees positively affect company performance in any country legal regime, whereas less entrenched boards and better governance transparency practices have a significant performance impact only for companies operating in low investor protection countries.

We also investigate the relationship between corporate governance practices, legal regimes and companies' cost of capital to differentiate between governance effects on the efficiency by which companies are operated and the presence of unexploited investment opportunities. We find that, in line with the Tobin's Q results, better company-level corporate governance is associated with lower cost of capital but stronger country regulation is not, again suggesting that there are explicit and implicit costs associated with formal corporate governance requirements. We explore how companies commit to

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higher corporate governance standards and find that greater financial development and larger foreign ownership help spread good corporate governance practices across companies. Our results are robust using different control variables, different statistical techniques, samples of different company sizes (for the US, UK, and Japan), several performance variables (Tobin's Q, return on assets, and market to book ratio), and different country indicators of legal protection and institutional characteristics.

Our analysis complements and extends the existing literature on the associations between company-level corporate governance, country regulation, and valuation (Durnev and Kim, 2005; Klapper and Love, 2004; Durnev and Fauver, 2007; Dahya, Dimitrov and McConnell, 2008), and on the relevance of company- level corporate governance, which has been shown to significantly differ according to the level of country development (Doidge et al., 2007). The novel contribution of our paper is to show that the relationships between corporate governance and performance are more complex than the existing literature has found. In fact, the effects of corporate governance practices and legal regimes are the result of a complex system of interrelated mechanisms. While some shareholder-favorable company-level corporate governance practices increase valuation in any legal regime, strong legal investor protection has a negative performance effect on well-governed companies and a neutral effect on poorly-governed ones. This has important policy consequences since it suggests that regulations cannot be too stringent.

Two independent and contemporaneous cross-country studies (Chhaochharia and Laeven, 2009; Aggarwal et al., 2009) also use ISS data. They differ from ours, however, in the focus of investigation, definition of corporate governance variables, and methodology. Chhaochharia and Laeven (2009) focus on the independent effect on

company valuation of the governance attributes that companies voluntarily chose to adopt and find that adopted practices can add to company valuation. Aggarwal et al. (2009) show how the gap in corporate governance practices between US and non-US companies negatively affects performance and find that minority shareholders benefit from governance improvements at the expenses of controlling shareholders. By taking into account the joint interaction effects between country-level legal protection and company-level corporate governance, we do not limit our analysis to the performance effects of better corporate governance provisions, nor do we take the US as the corporate governance benchmark, a more prudent approach given the wide differences in the institutional characteristics and governance laws between the US and other countries. Differently, our analysis explicitly disentangles the various corporate governance mechanisms and analyzes their joint effect on performance to understand the optimality of different corporate governance combinations and their non-monotonic relationships. The above-mentioned studies, nevertheless, complement our finding of the crucial importance of company-level corporate governance practices.

The paper is structured as follows. Section 2 describes the corporate governance indicators and the financial data we use in our analysis. Section 3 describes the empirical methodology and shows the results, while Section 4 shows the various robustness tests we employ. Finally, Section 5 summarizes and concludes.

2. Data and Corporate Governance Indicators

2.1. Data on corporate governance practices

The corporate governance data we use come from the proxy voting agent ISS (since acquired by RiskMetrics). The data report corporate governance information of

approximately 5300 US companies and 2400 non-US companies from Canada, Europe, East Asia and Pacific and for the period 2003 – 2005. The non-US companies ISS covers are all large and belong to the main indexes of their respective country stock markets. The US coverage is wider as ISS also covers mid- and small-cap companies. Therefore, to avoid over-sampling the US, we select a sub-sample of US companies belonging to the S&P500 index. This is consistent with the sample selection for the other countries since those companies also belong to their country main index. The sample then reduces to 7078 total company-year observations.

Based on earlier work and theoretical analysis, we construct three main corporate governance practices indexes.

1. *Board-Committee Index.* Codes of best practices stress the importance of committees as a corporate governance device. In particular, the presence of a nomination, compensation, audit and governance committee should guarantee a more transparent procedure for directors' appointments, compensation approval and internal audit, respectively. We assign one point for each committee a company has. The resulting *Board-Committee Index* ranges from 0 to 4.

2. *Board-Entrenchment Index.* We follow Bebchuk et al. (2009) who show that only some anti-takeover provisions matter for performance, and we give one point each if a company has no poison pills in place, if the board is annually elected (no staggered), if a majority is required for mergers, and if a majority is required for

charter and bylaws amendments (no supermajority).[3] The resulting *Board-Entrenchment Index* ranges from 0 to 4.

3. *Board-Independence Index*. We construct a dummy that takes the value 1 if the board consists of a majority of independent members, as judged by ISS.

Additionally, we also create three further governance indexes that give points a) for strict independence of the nomination, compensation and audit committees (*Committee-Independence Index*, ranging from 0 to 3); b) to the separation between CEO and Chairman, board independence and presence of the former CEO on the board (*CEO-Power Index*, ranging from 0 to 3); and c) to the ratification of the auditors at the most recent annual meeting, if the fees are strictly audit fees, and if the CEO is not involved in related party transactions (*Board-Transparency Index*, ranging from 0 to 3).

2.2 Data on country-level indicator of investor protection

Consistently with the existing literature, we consider both de-jure and de-facto aspects of investor protection. We do so by using a combination of two main legal indexes: the La Porta et al. (1998) (LLSV) anti-director index (as revised by Djankov et al., 2008) and the International Country Risk Guide (ICRG) Law and Order index. The widely used LLSV anti-director index consists of six sub-indexes capturing the possibility of voting by mail and of depositing shares, aspects of cumulative voting, oppressed minority, preemptive rights, and the percentage of share capital to call a meeting. The LLSV index captures only de-jure regulation since it does not control for the level of regulatory enforcement. The ICRG Law and Order index assesses both the legal system and the de-facto law and order tradition of a country. For the ICRG index,

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[3] Differently from Bebchuk et al. (2009), we do not have data on golden parachutes and on charter and bylaws separately.

we take the average over the three years 2003-2005. We normalize these indexes to a scale from 0 to 1 and we sum them to construct the *Investor Protection Index*, so as to combine de-jure and de-facto aspects of investor protection (as also used by Atanassov and Kim, 2009).

2.3 Summary statistics

Of the total 7078 observations in the ISS dataset, we exclude financial companies, companies from countries with no LLSV index or for which we have only one year of observations. We are then left with a total of 5857 company-year observations in 23 countries for which we have a complete set of information in terms of the existence and independence of board committees (*Board-Committee Index* and *Committee-Independence Index*). We progressively lose observations in the construction of the other corporate governance indicators. In particular, we lose 228 observations in the creation of the *Board-Entrenchment Index*, 750 for the *Board-Independence Index*, 2348 for the *CEO-Power Index*, and 2829 for the *Board-Transparency Index*.[4]

Table 1 reports summary statistics of the governance indicators and the differences in corporate governance regimes and practices across countries. Ireland scores the highest (2) in the *Investor Protection Index*, followed by the UK (1.97) and Singapore (1.89). Greece and Italy are at the bottom of the ranking (0.98). On average, US companies tend to have all four board committees (*Board-Committee Index* = 3.94), similarly to Canadian companies (*Board-Committee Index* = 3.82). At the bottom in terms of board committees, we find Danish (*Board-Committee Index* = 0.11) and Austrian companies (*Board-*

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[4] Among others, we have very limited information on the level of board independence of Austrian companies (5 observations), and the separation of the roles between the Chairman and the CEO in Japan (3 observations), Portugal (3 observations), and Spain (5 observations).

Committee Index = 0.31). Danish companies stand out also for the absence of independent committees (*Committee-Independence Index* = 0), whereas US (*Committee-Independence Index* = 2.66) and Canadian (*Committee-Independence Index* = 1.97) companies score again well above the sample average (1.04). Companies in Hong Kong (*Board-Entrenchment Index* = 2.06) tend to give more power to shareholders. In terms of board independence, Italian and Japanese companies rank the lowest on the two corporate governance indicators (*Board-Independence Index*, *CEO-Power Index*). There is not much variation in the *Board-Transparency Index* across countries.

Table 2 shows the percentages of incidence of corporate governance provisions for the three main indicators. For the *Board-Committee Index* indicator, it shows that most companies have an audit committee (83%), in roughly half of cases do companies have a nomination committee (52%), and only 31% of companies have a governance committee. The absence of poison pills (80%) clearly stands out as the driver of the *Board-Entrenchment Index*, whereas in only very few cases (10%) a simple majority is required to amend the company charters/bylaws. Roughly half of the companies have a majority of independent board members (46%). Table 2 also shows the overlap (or lack thereof) between country-level requirements and the main corporate governance practices. It shows that, in countries with *Investor Protection Index* lower than 1.7 (the median), most companies have all board committees (20.45%) and an independent board (26.85%). However, companies in countries with high (above the median) *Investor Protection Index* tend to have only one board committee (25.7%) and a not independent board (46.33%). There is thus no clear and monotonic relationship between country-level investor protection and the existence of board committees. Independently of country-level regime,

most companies have a low *Board-Entrenchment Index* (0 or 1), again showing no straightforward relationship between corporate governance practices and country-level legal protection.

2.4 Financial data

For US companies financial data are obtained from COMPUSTAT, whereas for non-US companies we use Worldscope data. Raw statistics are presented in Table 3. We use Tobin's Q as our main performance measure. As in La Porta et al. (2002), Doidge et al. (2004), and Durnev and Kim (2005), we define Tobin's Q as the ratio of total assets plus market value of equity less book value of equity, over total assets. The average Tobin's Q of the companies in our sample is 1.66. In robustness tests, we also use the Return on Assets (ROA) and the Market to Book ratio, where ROA is defined as the ratio of earnings before interests, taxes, depreciation and amortization (EBITDA) to the book value of assets. The average ROA and Market to Book ratio in our sample are 0.06 and 2.94, respectively. The companies in the sample are generally large, with average total assets of $US10 billion and average total sales of $US7.9 billion.

We additionally use the logarithm of sales, the ratio of property, plants and equipments to sales, the 1-year growth of sales, the ratio of capital expenditures to sales, the ratio of total debt to common equity, and a dummy ADR equal to 1 if the company has American Depository Receipts traded.[5]

3. Corporate governance, investor protection and performance

3.1 The base model

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[5] We drop observations with negative values for common equity. We also winsorize at the 1% and 99% percentile Tobin's Q, market-to-book ratio, growth of sales, capital expenditures to sales ratio, and debt to equity ratio to limit the effects of outliers.

To capture the associations of country and company governance with performance, we regress Tobin's Q on the indicators of companies' corporate governance and the strength of the countries' legal environment, while controlling for industry, time, and other company characteristics. To analyze differences in valuation and to allow for the possible existence of non-monotonic relationships among the various combinations of country and company-level corporate governance, we divide companies according to their level of country- and company-level of corporate governance, i.e., above or below the respective medians. We thus create four groups: companies with both high (above the median) levels of country investor protection and company corporate governance (*HiHi*); companies with high country investor protection but low (below the median) company corporate governance (*HiLo*); vice versa (*LoHi*); and companies with low country investor protection and company corporate governance (*LoLo*).

Besides bivariate analyses, we use a panel regression approach to investigate the associations between corporate governance and performance. As common in this literature (Durnev and Kim, 2005; Doidge et al., 2004; Dahya et al., 2008), we use country random effects because the investor protection explanatory variables have no within-country variation, thus precluding the use of country fixed effects. Also, our sample is a sub-sample of the total population of companies within each country and a random effects specification is thus preferred (Green, 1997). Furthermore, the Breusch-Pagan (1980) test suggests the presence of unobserved country level heterogeneity. We do not use company fixed effects, as in Gompers et al. (2003), because we have little variation in the corporate governance indicators over the time period.

We thus conduct the following country random effects regression (with 2-digits SIC code industry dummies interacted with time dummies to reduce unobserved heterogeneity):

$$Y_{i,t}^c = \alpha + \beta_1 \cdot Hi^c Hi_{i,t}^c + \beta_2 \cdot Hi^c Lo_{i,t}^c + \beta_3 \cdot Lo^c Lo_{i,t}^c + (Firm\ controls)_{i,t}^c + \varepsilon_{i,t}^c, \quad (1)$$

where Y is Tobin's Q, and *HiHi, HiLo, LoLo* are dummy variables equal to 1 depending on the specific combination of country legal protection and company levels of corporate governance. The country-level split is based on the 23-countries' median level of the *Investor Protection Index* and the company-level governance splits are based on the overall sample medians of the corporate governance indicators. The estimated coefficients $\beta_1, \beta_2, \beta_3$ provide the differences in performance, all compared to the base case, i.e., companies with low country investor protection and high company corporate governance (*LoHi*).

We control for the variables usually found to be associated with performance, i.e., size, tangibility of assets, and cross-listing, for which we use respectively the logarithm of sales, the ratio of property, plants, and equipment to sales, and whether the company has ADRs traded.[6] Standard errors are clustered at the country level to deal with this source of possible correlation.

3.2 Bivariate Analysis

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[6] We use sales rather than assets because they are less affected by diversion, manipulation, and different accounting rules; however, our results are robust to the use of the logarithm of total assets. Companies operating with more fixed assets may find it less necessary to adopt stricter governance mechanisms since they may have less scope to misuse assets (Klapper and Love, 2004). Much evidence suggests that companies cross-listed on US exchanges are valued higher (Doidge et al., 2004; Coffee, 2002).

Table 4 provides an initial assessment of the associations between investor protection (*Investor Protection Index*), the three main corporate governance indicators (*Board-Committee Index*, *Board-Entrenchment Index*, and *Board-Independence Index*) and performance (Tobin's Q). For a given country regime, companies with high corporate governance practices always have higher Tobin's Q than companies with low corporate governance practices. On the contrary, companies in countries with high investor protection do not have higher Tobin's Q than companies in countries with low investor protection. For example, in case of *Board-Committee Index*, when both country legal protection and company corporate governance are high, companies do not have the highest average Tobin's Q (1.70). Rather, companies incorporated in a country with relatively low investor protection level and with high *Board-Committee Index* have on average the highest Tobin's Q (2.03). Surprisingly, the governance combination *Board-Committee Index* LOW and *Investor Protection Index* HIGH is not associated with a higher average Tobin's Q (1.42) than the combination *Board-Committee Index* LOW and *Investor Protection Index* LOW (1.53). This evidence is confirmed using *Board-Entrenchment Index* and *Board-Independence Index* as company-level indicators. We next check whether such associations still hold in multivariate analyses, controlling for other company characteristics.

3.3 Multivariate analysis: the base test

Table 5, columns I.a, II.a, III.a, show the results of the associations between the three main corporate governance combinations (*Board-Committee Index*, *Board-Entrenchment Index*, and *Board-Independence Index*), the *Investor Protection Index*, and Tobin's Q estimated using equation (1). Relative to the base case (*Lo* country investor protection

and *Hi* company governance practices), all other combinations have statistically significant lower Tobin's Q, with the difference being the highest for the combination *Hi* country investor protection regime and *Lo* company practices (β_2 ranging from -0.72 to -0.76, depending on the corporate governance measure). We obtain similar results also for the additional corporate governance indicators not shown in Table 5 (*Committee-Independence Index*, *CEO-Power Index,* and *Board-Transparency Index*).

The group of companies with *Hi* country investor protection and *Hi* company corporate governance practices has a discount between 0.51 and 0.68 (depending on the specification used) compared to the base case of *Lo* country investor protection and *Hi* company corporate governance practices. This suggests that a strong board coupled with stringent country legal investor protection is not necessarily optimal.

The coefficients β_3 of the combination when both country investor protection and company practices are *Lo* are between -0.47 and -0.62, not very different from those for the combination *Hi* country investor protection regime with *Lo* company practices. Indeed, the differences between the coefficients β_2 and β_3 are not statistically different for any corporate governance indicator. This lack of a significant difference between these two groups suggests that stronger country-level investor protection does not reduce the valuation discount of companies with weak corporate governance practices.

In terms of specific company practices, β_3 is negative for all corporate governance indexes and β_1 is statistically higher than β_2 for the *Board-Committee Index* (column I.a), *Board-Independence Index* (column III.a), and *Committee-Independence Index* (result not shown), but not for the *Board-Entrenchment Index* (column II.a), *CEO-Power Index*, and *Board-Transparency Index* (results not shown). This suggests that the

existence and independence of board committees and an independent board impact performance regardless of the level (*Hi* or *Lo*) of country investor protection. On the contrary, less entrenched boards and better governance transparency impact company performance positively only in countries with low country investor protection. The fact that the F-test does not reject the hypothesis of equal coefficients for the *Board-Entrenchment Index* could be because the impact of boards on management entrenchment varies across countries given differences in ownership structures. In other words, the US evidence documented by Bebchuk et al. (2009) does not necessarily translate to other countries.

In summary, the results of Table 5 show that the combination *Lo* country investor protection and *Hi* company governance practices has the highest Tobin's Q, followed by the combination *Hi* country investor protection and *Hi* company practices. This shows the benefits of having better corporate governance practices at the company-level, and specifically independent boards with many committees, regardless of the country legal regime (*Hi* or *Lo*). On the other hand, there can be overregulation effects when both company and country-level corporate governance are strong, negatively impacting valuation. Companies in the group *Lo* country investor protection and *Lo* company practices and in the group *Hi* country investor protection and *Lo* company practices are the worst performers, highlighting the negative performance effects of weak company-level corporate governance. Since there is no statistical difference between these two governance combinations, this result also suggest that, if companies tend to converge to low corporate governance standards, stricter country-level investor protection does not alleviate the negative performance discount. These results highlight the existence of a

threshold effect at high levels of country development beyond which country legal regulation has little (when company-level governance is poor) or even negative effects (when companies have high governance standards).[7]

4. Robustness checks and extensions

We perform several robustness checks to confirm both the significance of our results and their economic impact, focusing on the following aspects: 1) control variables and performance measures; 2) cost of capital effects as an alternative dependent variable; 3) total and incremental impact on performance; 4) country determinants of company-level corporate governance; and 5) corporate governance, country and company attributes. In subsection 4.6 we discuss the endogeneity problem. We report results in Tables 5-9, with only the main corporate governance indexes reported for space reasons.

4.1 Control variables and performance measures

It is possible that the positive valuation effect reflects not improved investment efficiency due to better corporate governance, but company's growth or future opportunities not due to corporate governance and other company-specific characteristics. We cannot use company fixed effects because there is too little variation in the time period studied. We therefore add several control variables that capture company-specific

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[7] This evidence though needs to be placed in context since the countries considered in our sample have relative high levels of legal investor protection compared to many emerging markets and developing countries. The average LLSV index for our sample of companies is 0.73, compared to 0.62 for their sample of developing and emerging countries. While for our sample of advanced countries it is the corporate governance at the company-level that matters most, it might well be that increases in country legal protection are effective in increasing performance for companies from other countries, where the issue of expropriation of minority shareholders is more serious (as other literature indeed suggests).

characteristics to check that our valuation results are not driven by these omitted variables. Specifically, we include in equation (1) the following three extra company-level variables: the one-year growth of sales to control for growth opportunities; the ratio of debt to equity to control for leverage and degree of debt financiers' monitoring; and the ratio of capital expenditures to sales to control for investment opportunities. Table 5 (columns I.b, II.b, III.b) reports the regression results with the *Board-Committee Index*, *Board-Entrenchment Index*, and *Board-Independence Index* (we find similar results for the other corporate governance practices indexes). The results confirm the earlier evidence: companies with poor corporate governance practices are lower valued and differences in legal regime do not reduce the discount for these companies; and for companies with strong corporate governance practices, a stricter regime can increase the discount. For the *Board-Entrenchment Index*, the F-test cannot again reject equality of the β_1 and β_2 coefficients.

Ownership structures could also affect valuation. In columns I.c, II.c, III.c, we add a proxy for block ownership, defined as closely held shares (shares held by insiders, corporation, pension funds and individuals who hold 5% or more of share outstanding, obtained from Worldscope). Results are confirmed.

When we use ROA as a performance measure instead of Tobin's Q (columns I.d, II.d, III.d), the three dummies are still negative and significant at the 1% or 5% level and the relative comparisons are still valid (as well as for the additional governance indicators, not reported).[8]

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[8] Our results are also robust to the following tests: a) inclusion of financial companies; b) use of two alternative country-level indicators of investor protection, constructed as the sum of the ICRG, LLSV, and Djankov et al. (2008) anti self-dealing indexes, and the product of the ICRG

4.2 Cost of capital effects

The previous evidence of a non-monotonic relationship between corporate governance and valuation is based on Tobin's Q as our main valuation measure. We next explore how different corporate governance mechanisms directly affect companies' cost of equity capital. Well-functioning legal systems and better corporate governance practices should make easier for companies to raise external capital and decrease their cost of capital. This will then be reflected in higher valuation (La Porta et al., 1998; Lombardo and Pagano, 2002; Hail and Leuz, 2005). We therefore use the cost of capital as another measure of the implications of different corporate governance practices and legal protection.[9]

Prior research suggests that it is difficult to measure the cost of equity capital, with various proxies each having different advantages and drawbacks. We start with the price to earnings (PE) ratio as a simple measure of the cost of equity capital, controlling for past and expected future growth. We also use an alternative approach based on the methodology in Easton (2004) that estimates the ex ante rate of return implied in

and the LLSV indexes, respectively. The correlation between these two alternative indexes and the *Investor Protection Index* is 0.90 and 0.98, and the three indexes lead to similar results; c) use of an overall corporate governance index, constructed as the sum of each company-level indicators; d) use of a smaller subset of US, UK, and Japanese companies, specifically those companies with above median market capitalization; e) substituting the missing data on the Chairman-CEO separation for Japanese companies with zero; f) use of the market-to-book ratio instead of Tobin's Q, and without winsorizing the outlier values of Tobin's Q; g) use of only 2005 ISS data or their average over 2003 to 2005; h) regression estimation as a linear function of the strength of the countries' legal regime, company corporate governance practices and their interaction.

[9] We thank the editor and an anonymous referee for suggesting this alternative specification.

contemporaneous stock price and analyst forecast data. This approach has been widely

used (see Hail and Leuz (2005) for an extensive discussion) and is an attempt to separate

cash flow (or growth) effects from cost of capital effects. It does require explicit

estimates about company's future growth in dividends. Specifically, the Easton (2004)

model assumes that earnings persist in perpetuity. By entering the market price and

analyst forecasts into the dividend discount valuation equation, one can then back out the

cost of capital as the internal rate of return that equates the current stock price with the

present value of expected future earnings. This rate of return is then the ex-ante estimate

of cost of equity capital, which controls for market expectations about company future

growth.[10]

Table 6 shows the results for the three main corporate governance indicators using the

PE ratio (columns I, II, and III) and the Easton (2004) modified PE Growth ratio

(columns IV, V, and VI) instead in equation (1). We find that companies with the

governance combination *Lo* country investor protection and *Hi* company corporate

governance have the lowest cost of capital. Companies in the group *Hi* country investor

protection and *Hi* company corporate governance have a higher cost of capital compared

to companies in the group *Lo* country investor protection and *Hi* company corporate

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[10] Following Easton (2004), the implied cost of capital is estimated from the following modified

price-earnings growth ratio: $P_t = (\hat{x}_{t+2} + r \cdot \hat{d}_{t+1} - \hat{x}_{t+1})/r^2$, where P_t is the market price of a

company's stock at date t, $\hat{x}_{t+j}$ is the expected future earnings per share (EPS) using the mean

I/B/E/S forecast, and $\hat{d}_{t+1}$ is the expected future net dividends per share derived from the dividend

payout ratio times the earnings per share forecast. The implied cost of capital is the internal rate

of return r that solves this equation. Due to fewer stock returns and EPS data in Datastream, we

lose some observations and we are left with a maximum of 3791 cost of capital estimates.

governance. This shows that stronger regulation coupled with high corporate governance practices increases the risk premium demanded by investors, which in turn is reflected in lower valuation, suggesting that this governance combination leads to inefficient investments. The tests of the differences in the coefficient estimates also confirm the previous Tobin's Q results about the impact of some company-level corporate governance (existence and independence of board committees and board independence) in any country legal regime.

4.3 Total and incremental effects on performance

So far, we have considered country and corporate governance practices through the four combinations of *Hi* and *Lo* company-level and country-level indexes. To confirm the incremental effect of higher country-level investor protection on company performance, we run the following alternative regression:

$$Y_{i,t}^c = \alpha + \beta_1 \cdot \text{Investor Protection Index}^c + \beta_i \cdot \text{Investor Protection Index}^c \cdot Hi_{i,t}^c + \gamma_i \cdot Hi_{i,t}^c$$
$$+ (\textit{Firm controls})_{i,t}^c + \varepsilon_{i,t}^c, \tag{2}$$

where *Y* is Tobin's Q, *Investor Protection Index* is the country-level legal regime indicator, and *Hi* is a dummy equal to 1 if the company-level corporate governance indicator is above the median, and 0 otherwise. The coefficient β_1 indicates the investor protection effect for companies with low (*Lo*), i.e., below the median, corporate governance practices. The coefficient β_i indicates the incremental valuation effect for companies with high (*Hi*) corporate governance practices *i*. The sum of the coefficients $\beta_1 + \beta_i$ indicates the *total* effect of country-level investor protection on performance for highly-governed companies (*Hi*), for the corporate governance practice *i*. Finally, the coefficient γ_i provides a test whether the performance of companies adopting high

standards of corporate governance practices is different from that of companies with weak practices. Regression results are reported in Table 7, where we run separate regressions for each corporate governance practice and for all corporate governance practices combined.

We find that *Investor Protection Index* is not significantly related to valuation when company-level corporate governance is weak for any of the three indexes. This once again confirms that country-level investor protection does not explain the relationship between weak company-level corporate governance practices and valuation. The incremental effects of investor protection on Tobin's Q for companies with high corporate governance practices (β_2, β_3, β_4), however, are always negative and significant, whereas the γ_i coefficients for these same corporate governance practices are always significantly positive. The total effect of country investor protection on Tobin's Q for companies with high corporate governance standards ($\beta_1 + \beta_2$, $\beta_1 + \beta_3$, $\beta_1 + \beta_4$) is always negative and significantly different from zero. The only exception is in column V where the total country legal effect ($\beta_1 + \beta_3$) for the *Board-Entrenchment Index* ceases to be significant, but entrenched boards still lower Tobin's Q for firms operating in low investor protection regimes.

In terms of economic impact and using the regression results of column V, the effect on Tobin's Q of one standard deviation increase in *Investor Protection Index* is 0.26*($\beta_1 + \beta_2$ Board-Committee Index Hi + β_3 Board-Entrenchment Index Hi + β_4 Board-Independence Index), which can be positive or negative. Still, for companies with good corporate governance practices, the effects of stronger legal regimes are negative. For companies with *Board-Committee Index* above the median, for example,

one standard deviation is associated with a decrease in Tobin's Q of 0.0624 (3.7% of the average). For companies with also an independent board, the decrease in Tobin's Q is 0.24 (14% of the average).

4.4 Country determinants of company-level corporate governance

We did not include country-fixed effects in equation (1) since there is too little time-variation in the country-level (and company-level) indicators. The Breusch-Pagan (1980) test also does not suggest the need for such fixed-effects. This, however, may introduce an omitted variable problem. Although we already control for the effects on companies' valuation of *de facto* and *de jure* legal institutional investor protection, the differences in the regression results between the various groups of companies could still be driven by other country characteristics associated with companies' valuation. We therefore now augment regression (1) with various other aspects of countries' institutional characteristics that have been found to be associated with companies' performance and growth. Since these other institutional country characteristics can be correlated with our indicators of company- and country-level corporate governance, the estimated coefficients have to be interpreted with caution. However, including them still serves as a robustness test.

For the choice of country variables, we follow the literature on finance and growth (see Levine, 2005). It has been found that countries with a higher degree of financial development, greater liquidity in their stock market, lower economic risk, and less corruption within their political system, attract more investment, have higher growth and higher valuation. We therefore include the ratio of stock market capitalization to GDP

and the stock market turnover ratio (Beck et al., 2000), the ICRG Economic Risk Rating, and the ICRG Corruption Indices.

The accounting regime has been found to be another important aspect of countries' institutional environment. Studies (Ball et al., 2003; Leuz et al., 2003) have found that the quality of corporations' financial reporting depends on underlying economic, political, and institutional factors influencing managers' and auditors' incentives, and not on accounting standards per se. These papers also show that investor protection is a fundamental determinant of earnings management and the quality of reporting standards across countries. Since we already include investor protection variables in our regressions, we can thus be less concerned that our results are biased by differences in accounting standards. Nevertheless, we do include the Earnings Management Index constructed by Leuz et al. (2003) that captures various dimensions along which insiders can exercise their discretion to manage reported earnings.

Table 8 shows that our previous results are robust to the inclusion of these country institutional indicators. Each cell shows the coefficient estimates for separate regressions of the base specification (1) with the inclusion of the respective country indicator. As expected, the level of stock market development and liquidity are positively and significantly associated with higher company valuation, but the effects of company and country corporate governance remain similar. We also find that the perception of economic risk of a country is not a significant determinant of company valuation, and that less corruption and fewer incentives to misrepresent company performance through earnings managements are associated with higher valuation. Importantly, the evidence on the negative effects of strong regulation and the positive impact of some corporate

governance practices (board committees and independence) under any country legal regime are all confirmed, even when including these various institutional factors.

4.5 Corporate governance, country and company attributes

The results so far show that country investor protection has either a negative or no impact on performance, whereas company-level corporate governance matters under any country regime. This raises the question of how companies can commit to higher corporate governance standards given country characteristics.

Theory suggests that companies with investment opportunities and needing access to capital markets have greater incentives to spend on corporate governance. Indeed, Durnev and Kim (2005) and Doidge et al. (2007) show that growth opportunities and dependence on external finance can explain company-level corporate governance practices. Ownership structures can matter as well, but in ambiguous ways: companies with greater concentration of ownership may invest more (Durnev and Kim, 2005) or less (Doidge et al., 2007) in costly governance practices. Our measure of external finance dependence is estimated as the projected need for outside capital (the difference between the company's actual growth rate and its sustainable growth) similar to Demirguc-Kunt and Maksimovic (1998). We obtain from Worldscope data on closely held shares, defined as shares held by insiders, corporation, pension funds and individuals who hold 5% or more of shares outstanding. We use size as a proxy for the ability to incur overall corporate governance costs.

We also investigate whether some country characteristics may have affected the spread of good corporate governance across companies. Dyck (2001) argues that foreign investors are a source of better governance and higher performance. For instance, Durnev

and Kim (2007) study the case of the Korean company Hana Bank and find that its corporate governance has improved following the active monitoring and intervention of the foreign block-owner participation. Becht et al. (2009) also show governance improvements following the presence of active shareholders. We use the percentage of all companies' free float that is held by U.S. investors obtained from the U.S. Treasury Department as our foreign investment proxy. U.S. investors comprise about half of all foreign portfolio invested worldwide and it is therefore a good proxy to measure the level of foreign investment (Leuz et al., 2009). Stock market development has also been found to explain differences in corporate governance choices (Doidge et al., 2007); we therefore include the ratio of stock value traded to GDP obtained from the World Bank WDI Database. Finally, we use *Investor Protection Index* to analyze how legal protection affects the company's corporate governance choices.

We then perform the following country random effects regressions with time and industry dummies:

$$CG_{i,t}^c = \alpha + \beta(Company\ Characteristics)_{i,t}^c + \gamma(Country\ Characteristics)_t^c + \varepsilon_{i,t}^c, \tag{3}$$

where CG are our corporate governance indicators; the company characteristics are proxies for investment opportunities (sales growth), external financing dependence, size (logarithm of sales), and ownership; the country variables are legal protection (*Investor Protection Index*), US foreign ownership, and stock market development to GDP. Regression (3) is run with industry dummies interacted with time dummies to reduce unobserved heterogeneity and the standard errors are country clustered adjusted. As in Durnev and Kim (2005), we do not include ownership and financial dependence in the

same regression, and we add the square of ownership to account for possible nonlinearity between ownership concentration and corporate governance.

Table 9 shows the results. Companies with growth opportunities and those more dependent on external financing have multiple board committees (column I.a) and independent boards (column III.a). These results are consistent with the evidence found in Durnev and Kim (2005) and Klapper and Love (2004) that better governance is particularly valuable for companies intending to raise funds, and with the evidence found in Doidge et al. (2007) that company characteristics matter more with greater economic and financial development. Greater ownership concentration leads to less investment in corporate governance (columns I.b and III.b), reflecting the desire to enhance a controlling shareholder's ability to expropriate minority shareholders (La Porta et al., 2002; Shleifer and Wolfenzon, 2002; Doidge et al., 2007). The evidence on the other governance indicators (*Board-Entrenchment Index*, columns II; *CEO-Power Index*, and *Board-Transparency Index*, not reported) is less clear and suggests that the company-level characteristics we consider explain little of the differences in the level of entrenchment or transparency.

The evidence on the impact of country characteristics is clear: legal protection is not a significant determinant of corporate governance for our sample of countries (columns c), which supports our previous results and the evidence in Doidge et al. (2007) that legal protection is a less important determinant beyond a development threshold, which is met in this sample. Interestingly, higher stock market development is correlated with a larger number of board committees (column I.d), whereas companies operating in countries with higher foreign ownership concentration have stronger and independent boards

(columns I.e and III.e). Once again, the evidence on the *Board-Entrenchment Index* is inconclusive.

When analyzing the subsample of companies operating in less stringent legal regimes (*Investor Protection Index* below the median) (columns f and g), our results show that stock market development is associated with boards that have more committees, less entrenchment and higher independence, whereas foreign ownership is associated with greater board independence. This evidence suggests that financial development and global investments may have spread good corporate governance practices in companies incorporated in advanced economies, even in those operating in an environment with more flexible regulation.

4.6 Endogeneity

An important caveat of our results is the possible endogeneity of corporate governance practices. If corporate governance is determined by a company's contracting environment, then the governance-performance regression could spuriously pick up the effect of unobserved factors causing both governance and profitability (Hermalin and Weisbach, 2003). For instance, a company with investment opportunities and large external financing needs has more incentives to adopt better governance practices, thus inducing a positive correlation between governance and performance. Similarly, country characteristics (financial and stock market development and other economic or cultural factors) may be correlated with both the country legal environment and companies' performance.

Recognizing the possible endogeneity of governance, but in the absence of appropriate instruments and with limited time variation (3 years), we would only be able

to interpret our results as partial correlations. However, we have already attempted to control for this problem in several ways. The dummy variables we used to group companies according to their corporate governance level (below or above both country- and company-sample median) are less subject to endogeneity problem than variables in levels. We have also included several control variables at both company- and country-level to control for various factors and growth opportunities. We used a non valuation-based outcome (cost of capital) to directly investigate the effects of corporate governance, which reduces concerns about results being driven by unobserved investment opportunities.

In untabulated results (available upon request), we further verified the robustness of our regression results for subsamples. If there is a causal connection between governance and Tobin's Q for some companies only and no similar connection for other companies, then OLS coefficients will overstate the connection. On the contrary, if the association between governance and Tobin's Q is robust across subsamples with different characteristics, endogeneity is less likely (Black et al., 2006). We run separate regressions for three sets of two subsamples of companies: large vs. small companies, high vs. low financing dependence needs, and high vs. low growth opportunities. We find that the importance of company-level corporate governance and the overregulation effect are confirmed for all the subsamples, suggesting results are not driven by these company characteristics determining corporate governance practices.

Finally, we ran a two-stage least squares instrumental variable analysis (available upon request), using a linear specification and the average corporate governance indicators per industry as our instruments (as in Aggarwal et al., 2009; John et al., 2008).

The regression shows that better corporate governance (more and independent committees and board independence) is positively and significantly associated with higher performance, whereas more stringent country regulations have no impact or are negatively associated with performance. The IV analysis thus confirms the OLS results. Nevertheless, since we have limited variability in the governance indicators and a short time period, and given the limitations of IV analysis in general, we cannot completely rule out the possibility that our results may be affected by endogeneity problems.

5. Summary and Discussion

Analyzing the effects of corporate governance practices and legal requirements on performance for about 2350 companies from 23 countries, we find consistent evidence that companies adopting good corporate governance practices in the form of independent boards with many committees perform the best in any legal regime. Less entrenched boards and better governance transparency positively impact performance only in countries with low country investor protection. The effects of stringent country legal corporate governance requirements are neutral or negative. Companies with strong boards are valued less in the presence of strong country legal investor protection, consistent with the hypothesis that excessive monitoring can harm managerial initiatives and hinder efficient company operations. At the same time, strong country legal investor protection does not reduce the valuation discount of companies with weak corporate governance practices.

Our analysis is consistent with the notion that there are explicit and implicit costs associated with formal corporate governance requirements. A straight-jacket of many corporate governance rules can, besides being costly in terms of direct outlays, impose

indirect costs, limit managerial freedom of initiative, and thereby negatively affect the efficiency of investments and companies' cost of capital. Thus, stronger legal protection does not necessarily increase performance. This evidence has important policy implications, because policymakers need to decide both whether to regulate, and if so, how to regulate to most effectively to improve companies' performance and shareholders' returns.

While robust to many permutations, our conclusions do come with some caveats. First, we only analyze companies incorporated in advanced economies. For these countries, the quality of the judicial system, public enforcement, and the issue of expropriation of minority shareholders are less a concern than for many emerging and developing countries. This may explain why we do not find significant positive effects from the strength of country legal investor protection. As such, our results should not be interpreted to negate the findings in the literature that in general, and for developing countries especially, better country legal investor protection improves company valuation and performance. Second, our conclusions have to remain limited to the type of regulatory intervention captured in our indices of countries' legal strength. Better indicators of country legal regimes may tell what legal requirements add value compared to companies' corporate governance practices, and shed light on the interaction between mandatory and voluntary corporate governance practices. These and other aspects remain unexplored and are left for further investigation.

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TABLE 1: CORPORATE GOVERNANCE INDICATORS BY COUNTRY

This table reports summary statistics of the country legal regime indicator (Investor Protection Index) and the company corporate governance indicators (Board-Committee Index, Board-Entrenchment Index, Board-Independence Index, Committee-Independence Index, CEO-Power Index, Board-Transparency Index). The Investor Protection Index is the sum of the revised LLSV index and the ICRG Law and Order Index. The company-level governance indicator Board-Committee Index considers the existence of board committees, whereas Committee-Independence Index their independence. Board-Entrenchment Index is constructed following the entrenchment index developed by Bebchuk et al. (2009). Board-Independence Index is a dummy equal to 1 if a board consists of a majority of independent directors. In addition to independence, CEO-Power Index takes into account the presence of the former CEO on the board and the separation of the roles between the CEO and the Chairman. Board-Transparency Index ranks the degree of potential account manipulation within the company.

		COUNTRY INDICATORS			FIRM INDICATORS											
		LLSV Anti-Director Index	ICRG Law and Order Index	Investor Protection Index	Board-Committee Index		Board-Independence Index		Board-Entrenchment Index		Committee-Independence Index		CEO-Power Index		Board-Transparency Index	
					Min: 0 Max: 4		Min: 0 Max: 3		Min: 0 Max: 4		Dummy		Min: 0 Max: 3		Min: 0 Max: 3	
Country	Obs.		Value		Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean
AUSTRALIA	205	0.8	1	1.80	205	2.77	205	0.85	205	1.02	203	0.57	203	2.23	145	1.30
AUSTRIA	47	0.5	1	1.50	47	0.31	47	0.00	47	1.00	5	0.80	5	2.60	7	1.85
BELGIUM	47	0.6	0.83	1.43	47	1.25	47	0.25	47	0.74	22	0.27	15	1.66	2	1.50
CANADA	466	0.8	1	1.80	466	3.82	466	1.97	466	1.99	465	0.86	461	2.20	157	1.89
DENMARK	61	0.8	1	1.80	61	0.11	61	0.06	58	1.56	18	0.88	18	2.11	29	1.62
FINLAND	81	0.7	1	1.70	81	0.86	81	0.48	77	1.80	44	0.65	44	2.04	12	1.41
FRANCE	215	0.7	0.81	1.51	215	2.34	215	0.33	211	0.83	194	0.26	185	1.47	189	1.19
GERMANY	217	0.7	0.83	1.53	217	0.65	217	0.01	217	1.05	57	0.75	55	1.94	29	1.58
GREECE	112	0.4	0.58	0.98	112	0.38	112	0.04	63	2.01	73	0.04	37	1.40	3	2.00
HONG KONG	140	1	0.75	1.75	140	1.48	140	0.62	110	2.06	136	0.08	135	1.57	47	1.85
IRELAND	33	1	1	2.00	33	3.09	33	0.90	33	1.00	32	0.31	32	1.59	10	1.90
ITALY	122	0.4	0.58	0.98	122	1.13	122	0.09	121	1.04	84	0.08	50	1.42	59	1.76
JAPAN	1409	0.9	0.83	1.73	1409	1.04	1409	0.01	1407	1.35	1408	0.00	3	1.00	932	1.89
NETHERLANDS	123	0.5	1	1.50	123	1.25	123	0.72	115	0.74	51	0.92	47	2.59	15	1.46
NEW ZEALAND	38	0.8	1	1.80	38	2.71	38	0.34	38	1.00	37	0.37	37	1.70	24	1.66
NORWAY	58	0.7	1	1.70	58	0.43	58	0.24	51	1.15	17	0.82	16	2.37	15	1.60
PORTUGAL	33	0.5	0.83	1.33	33	0.42	33	0.09	27	1.03	19	0.26	3	2.00	10	1.40
SINGAPORE	119	1	0.89	1.89	119	2.55	119	0.87	55	1.40	107	0.50	94	2.18	27	1.96
SPAIN	120	1	0.78	1.78	120	1.71	120	0.25	100	1.02	46	0.13	5	1.40	21	1.57
SWEDEN	102	0.7	1	1.70	102	0.89	102	0.16	101	2.01	62	0.53	56	2.32	25	1.48
SWITZERLAND	135	0.6	0.83	1.43	135	1.30	135	0.45	135	1.10	60	0.78	59	1.86	21	1.85
UK	787	1	0.97	1.97	787	2.98	787	1.59	785	1.05	780	0.35	770	1.34	457	1.88
USA	1187	0.6	0.83	1.43	1187	3.94	1187	2.66	1160	1.82	1187	0.97	1179	2.01	792	1.75
Total obs.	5857				5857		5857		5629		5107		3509		3028	
Average		0.73	0.89	1.61		2.25		1.04		1.41		0.46		1.85		1.76
Median		0.70	0.89	1.70		3		0		1		0		2		2

TABLE 2: CONSTITUENTS OF THE MAIN CORPORATE GOVERNANCE INDEXES AND DISTRIBUTION BY COUNTRY-LEGAL PROTECTION

This table shows the percentage of incidence of the three main corporate governance provisions (Board-Committee Index, Board-Entrenchment Index, and Board-Independence Index) and their distribution by country-legal protection strength.

Indicator	Constituents				Distribution	Investor Protection Index		
						HIGH (< 1.7)	LOW (>= 1.7)	Total
Board-Committee Index	Nomination committee	Compensation committee	Audit committee	Governance committee	**= 0**	9.44%	5.07%	15.51%
					= 1	1.69%	25.70%	27.39%
	52%	58%	83%	31%	**= 2**	2.12%	3.43%	5.38%
					= 3	4.51%	18.44%	22.94%
					= 4	20.45%	9.15%	29.60%
					Total	38%	62%	100%
Board-Entrenchment Index	Annually elected board	No poison pills in place	No supermajority for charters/ bylaws	No supermajority for merger	**= 0**	5.97%	0.12%	6.09%
	30%	80%	10%	20%	**= 1**	18.60%	40.06%	58.66%
					= 2	6.25%	19.26%	25.51%
					= 3	4.55%	2.45%	7.00%
					= 4	2.70%	0.04%	2.74%
					Total	38.07%	61.93%	100.00%
Board-Independence Index	Majority of independent board members				**= 0**	7%	46%	54%
	46%				**= 1**	26.85%	19.37%	46.21%
					Total	34.31%	65.69%	100.00%

TABLE 3: SUMMARY STATISTICS OF FINANCIAL DATA

This table gives summary statistics of the financial data use in the analysis. Tobin's Q, Return on Assets and Market to Book ratio are the performance variables. Total Assets, Sales, the ratio of Property-Plants-Equipments to Sales, 1 year growth of Sales, the ratio of total Debt to total Equity, and the ratio of Capital Expenditures to Sales are control variables. ADR is a dummy equal to 1 if a company had traded ADRs, 0 otherwise. Details on the data sources and how each variable is constructed are given in the text.

Variable	Obs.	Mean	Std. Dev.	Min	Max
Tobin' s Q	5773	1.66	0.94	0.45	5.76
Return on Assets	5778	0.06	0.1	-1.08	1.52
Market to Book ratio	5857	2.94	3.56	-2.21	20.26
Total Assets ($US) (mill)	5797	10031	28145	5.8	750507
Sales ($US) (mill)	5797	7940	19246	0	328213
Sales growth	5777	0.06	0.19	-0.49	1.09
Property, Plants, and Equipments to Sales ratio	5773	0.64	1.24	0	33.56
Debt to Equity ratio	5857	1.3	2.95	0	20.42
Capital Expenditures to Sales ratio	5857	0.1	0.19	0	1.09
ADR dummy	5857	0.19	0.39	0	1

TABLE 4: CORPORATE GOVERNANCE AND PERFORMANCE: BIVARIATE ANALYSIS

In this table we divide the company-year observations in four groups: companies with both high (above the median) levels of country legal investor protection and company corporate governance practices (HiHi), companies with high level of country investor protection but low (below the median) level of company corporate governance practices (HiLo) and vice-versa (LoHi), and finally companies with both low standards of country legal investor protection and company corporate governance practices (LoLo). We then compute the average Tobin's Q for each group. The total number of observations is in parentheses. T-tests of statistically significant differences are in bold in the columns/rows besides/below each matrix.

| | Investor Protection Index | | |
	HIGH	LOW	Difference
Board- Committee Index			
HIGH	1.70 *(1587)*	2.03 *(1427)*	**HiHi - LoHi= -0.33*****
LOW	1.42 *(1988)*	1.53 *(771)*	**HiLo - LoLo= -0.10*****
Difference	**HiHi - HiLo= 0.28*****	**LoHi - LoLo= 0.50*****	*HiLo - LoHi= -0.61**** *HiHi - LoLo= 0.17****
Board- Entrenchment Index			
HIGH	1.57 *(1212)*	2.16 *(735)*	**HiHi - LoHi= -0.59*****
LOW	1.53 *(2233)*	1.69 *(1370)*	**HiLo - LoLo= -0.15*****
Difference	**HiHi - HiLo**= 0.035	**LoHi - LoLo= 0.47*****	*HiLo - LoHi= -0.62**** *HiHi - LoLo= -0.12****
Board-Independence Index			
= 0	1.74 *(976)*	2.07 *(1338)*	**HiHi - LoHi= -0.32*****
= 1	1.46 *(2336)*	1.56 *(374)*	**HiLo - LoLo= -0.10****
Difference	**HiHi - HiLo= 0.28*****	**LoHi - LoLo= 0.50*****	*HiLo - LoHi= -0.61**** *HiHi - LoLo= 0.17****

TABLE 5: CORPORATE GOVERNANCE AND PERFORMANCE: BASE REGRESSION RESULTS

This table reports country random effects regressions of Tobin's Q (columns a, b, and c) or Return on Assets (ROA) (columns d) on 3 dummy variables equal to 1 if a company has high standards of corporate governance at both country and company level (HiHi), or has high legal protection at country level but low corporate governance at the company level (HiLo) (and vice-versa, LoHi), or has both low country legal and company governance levels (LoLo), 0 otherwise. The group LoHi is dropped as it is the reference. Investor Protection Index is the country indicator of legal protection. Board-Committee Index, Board-Entrenchment Index, and Board-Independence Index are the company level governance indicators. The logarithm of sales, the ratio property-plants-equipments (PPE) to sales, a dummy equal to one if a company has traded ADRs, one year growth of sales, debt to equity ratio, capital expenditures (CAPEX) to sales ratio, and closely held shares (ownership) are the control variables. Regressions are run with 2-digit SIC code industry dummies interacted with time dummies, and robust standard error clustered at country level (in parentheses). Significance levels are indicated by *, **, and *** for 10%, 5%, and 1% respectively. The F-test (p-values) indicates whether the estimated coefficients are significantly different.

		Board-Committee Index					Board-Entrenchment Index					Board-Independence Index			
		I.a	I.b	I.c	I.d		II.a	II.b	II.c	II.d		III.a	III.b	III.c	III.d
		Q	Q	Q	ROA		Q	Q	Q	ROA		Q	Q	Q	ROA
Investor Protection Index															
β_1 HIGH	HIGH	-0.51***	-0.48***	-0.48***	-0.063***	HIGH	-0.68***	-0.65***	-0.71***	-0.074***	=1	-0.53***	-0.50***	-0.53***	-0.070***
		(0.12)	(0.11)	(0.14)	(0.02)		(0.13)	(0.11)	(0.12)	(0.01)		(0.09)	(0.08)	(0.09)	(0.01)
β_2 HIGH	LOW	-0.72***	-0.62***	-0.73***	-0.079***	LOW	-0.73***	-0.68***	-0.73***	-0.082***	=0	-0.76***	-0.72***	-0.78***	-0.085***
		(0.15)	(0.14)	(0.16)	(0.02)		(0.13)	(0.11)	(0.13)	(0.01)		(0.13)	(0.11)	(0.13)	(0.01)
β_3 LOW	LOW	-0.62***	-0.58***	-0.61***	-0.065***	LOW	-0.47***	-0.44***	-0.47***	-0.050**	=0	-0.59***	-0.55***	-0.59***	-0.069***
		(0.12)	(0.11)	(0.15)	(0.02)		(0.11)	(0.10)	(0.10)	(0.02)		(0.07)	(0.07)	(0.10)	(0.012)
Log of Sales		-0.12***	-0.11***	-0.11***	0.008**		-0.09***	-0.08***	-0.10***	0.011**		-0.13***	-0.12***	-0.13***	0.005
		(0.01)	(0.01)	(0.01)	(0.003)		(0.02)	(0.02)	(0.02)	(0.004)		(0.01)	(0.01)	(0.02)	(0.003)
PPE to Sales ratio		-0.06***	-0.06***	-0.05***	-0.003*		-0.05***	-0.05***	-0.05***	-0.002		-0.05***	-0.05***	-0.05***	-0.003**
		(0.01)	(0.01)	(0.01)	(0.001)		(0.01)	(0.01)	(0.01)	(0.002)		(0.01)	(0.01)	(0.01)	(0.001)
ADR dummy		0.08	0.09	0.11	-0.021**		0.05	0.06	0.09	-0.027**		0.10	0.11	0.14	-0.018**
		(0.07)	(0.07)	(0.08)	(0.009)		(0.10)	(0.08)	(0.08)	(0.012)		(0.08)	(0.07)	(0.08)	(0.009)
Sales growth			0.69***					0.74***					0.67***		
			(0.14)					(0.16)					(0.15)		
Debt to Equity ratio			-0.01**					-0.01***					-0.01**		
			(0.006)					(0.005)					(0.006)		
CAPEX to Sales ratio			0.12					0.05					0.03		
			(0.15)					(0.26)					(0.26)		
Ownership				0.00					-0.002					0.00	
				(0.001)					(0.002)					(0.002)	
Constant, Industry-Year dummies		Y	Y	Y	Y		Y	Y	Y	Y		Y	Y	Y	Y
Obs.		5749	5749	4794	5757		5526	5526	4620	5531		5002	5002	4204	5009
Number of countries		23	23	23	23		23	23	23	23		23	23	23	23
Number of companies		2353	2353	2004	2359		2335	2335	1988	2340		2232	2232	1901	2238
R squared (overall)		0.23	0.25	0.23	0.19		0.21	0.23	0.22	0.18		0.24	0.25	0.24	0.22
F-test $\beta_1=\beta_2$		p<0.01	p<0.01	p<0.01	p=0.04		p=0.49	p=0.57	p=0.76	p=0.33		p<0.01	p<0.01	p<0.01	p=0.08
$\beta_1=\beta_3$		p=0.01	p=0.04	p=0.11	p=0.87		p=0.26	p=0.20	p=0.13	p=0.39		p=0.50	p=0.51	p=0.57	p=0.93
$\beta_2=\beta_3$		p=0.21	p=0.23	p=0.19	p=0.33		p=0.18	p=0.16	p=0.12	p=0.22		p=0.10	p=0.07	p=0.10	p=0.26

TABLE 6: CORPORATE GOVERNANCE AND THE COST OF CAPITAL

This table reports country random effects regressions of the companies' cost of capital on 3 dummy variables equal to 1 if a company has high standards of corporate governance at both country and company level (HiHi), or has high legal protection at country level but low corporate governance at the company level (HiLo) (and vice-versa, LoHi), or has both low country legal and company governance levels (LoLo), 0 otherwise. The group LoHi is dropped as it is the reference. Investor Protection Index is the country indicator of legal protection. Board-Committee Index, Board-Entrenchment Index, and Board-Independence Index are the company level governance indicators. The cost of capital is estimated as the inverse of the price-earnings (P/E) ratio (columns I, II, III) or following the methodology in Easton (2004) based on the modified price-earnings growth ratio (columns IV, V, VI). One year sales growth, the expected one-year future earnings per share using the mean I/B/E/S forecast (Future Earnings), the logarithm of sales, the market to book ratio, and a dummy equal to one if a company has traded ADRs are the control variables. Regressions are run with 2-digit SIC code industry dummies interacted with time dummies, and robust standard error clustered at country level (in parentheses). For expositional purposes, we multiply all coefficients by 100. Significance levels are indicated by *, **, and *** for 10%, 5%, and 1% respectively. The F-test (p-values) indicates whether the estimated coefficients are significantly different.

Dependent variable: Cost of Capital		P/E Ratio					Modified P/E Growth Ratio				
		I Board-Committee Index		II Board-Entrenchment Index		III Board-Independence Index		IV Board-Committee Index		V Board-Entrenchment Index	VI Board-Independence Index
Investor Protection Index											
β_1 HIGH	HIGH	1.011***	HIGH	1.512***	=1	1.069***	HIGH	1.955***	HIGH	2.304***	=1	1.277**
		(0.21)		(0.56)		(0.41)		(0.43)		(0.29)		(0.56)
β_2 HIGH	LOW	1.833***	LOW	1.112***	=0	2.186***	LOW	2.678***	LOW	2.445***	=0	2.296***
		(0.49)		(0.35)		(0.53)		(0.47)		(0.21)		(0.44)
β_3 LOW	LOW	1.886***	LOW	0.860**	=0	1.097***	LOW	2.425***	LOW	1.287**	=0	1.378**
		(0.22)		(0.28)		(0.30)		(0.52)		(0.63)		(0.56)
Sales growth		-0.411		0.267		0.542						
		(0.51)		(0.41)		(0.55)						
Future Earnings		-0.001		0.181**		-0.083						
		(0.16)		(0.081)		(0.18)						
Log of Sales								-0.292*		-0.343**		-0.318*
								(0.16)		(0.17)		(0.18)
Market to Book ratio								-0.005**		-0.005**		-0.003*
								(0.002)		(0.002)		(0.02)
ADR dummy		0.482**		0.439*		0.523***		-0.149		-0.051		0.244
		(0.22)		(0.25)		(0.19)		(0.28)		(0.40)		(0.30)
Constant, Industry-Year dummies		Y		Y		Y		Y		Y		Y
Obs.		4239		4068		3730		3791		3645		3323
Number of countries		23		23		23		23		23		23
Number of companies		1883		1866		1651		1876		1847		1767
R squared (overall)		0.16		0.15		0.16		0.16		0.14		0.16
F-test $\beta_1 = \beta_2$		p=0.07		p=0.38		p=0.08		p=0.07		p=0.62		p<0.01
$\beta_1 = \beta_3$		p<0.01		p=0.27		p=0.95		p=0.17		p=0.18		p=0.85
$\beta_2 = \beta_3$		p=0.92		p=0.47		p=0.11		p=0.58		p=0.09		p=0.06

TABLE 7: CORPORATE GOVERNANCE AND PERFORMANCE - ROBUSTNESS CHECKS OF THE IMPACT MAGNITUDE

This table reports country random effects regressions of Tobin's Q on the country legal indicator Investor Protection Index, a dummy variable equal to 1 if the company corporate governance index is above the median (Hi) or equal to 1, and 0 otherwise, and their interaction term. Board-Committee Index, Board-Entrenchment Index, and Board-Independence Index are the company level governance indicators. The logarithm of sales, the ratio property-plants-equipments (PPE) to sales, and a dummy equal to one if a company has traded ADRs are the control variables. Regressions are run with 2-digit SIC code industry dummies interacted with time dummies, and robust standard error clustered at country level (in parentheses). Significance levels are indicated by *, **, and *** for 10%, 5%, and 1% respectively. The F-test (p-value) indicates the total country legal effect for companies with an above the median governance level.

	Dependent variable: Tobin's Q	I	II	III	IV	V
β_1	Investor Protection Index	-0.13	-0.23	-0.003	0.005	0.11
		(0.13)	(0.34)	(0.16)	(0.16)	(0.20)
β_2	Investor Protection Index * Board-Committee Index HIGH	-0.91***			-0.80***	-0.35*
		(0.23)			(0.25)	(0.20)
	Board-Committee Index HIGH	1.96***			1.76***	0.85**
		(0.45)			(0.48)	(0.35)
β_3	Investor Protection Index * Board-Entrenchment Index HIGH		-0.94*		-0.63***	-0.53***
			(0.49)		(0.22)	(0.20)
	Board-Entrenchment Index HIGH		1.72**		1.17***	0.97***
			(0.82)		(0.37)	(0.33)
β_4	Investor Protection Index * Board-Independence Index			-1.16***		-0.72***
				(0.20)		(0.14)
	Board-Independence Index			2.37***		1.47***
				(0.39)		(0.25)
	Log of Sales	-0.11***	-0.07**	-0.12***	-0.11***	-0.13***
		(0.01)	(0.03)	(0.01)	(0.01)	(0.01)
	PPE to Sales ratio	-0.06***	-0.05***	-0.05***	-0.06***	-0.05***
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
	ADR dummy	0.09	-0.005	0.11	0.11*	0.14**
		(0.07)	(0.12)	(0.07)	(0.06)	(0.06)
	Constant, Industry-Year dummies	Y	Y	Y	Y	Y
	Obs.	5749	5526	5002	5526	4854
	Number of countries	23	23	23	23	23
	R squared (overall)	0.22	0.18	0.23	0.23	0.24
	F-test: effect of country investor protection on Q for highly governed firms	$\beta_1 + \beta_2$	$\beta_1 + \beta_3$	$\beta_1 + \beta_4$	$\beta_1 + \beta_2$	$\beta_1 + \beta_2$
		-1.05***	-1.18*	-1.16***	-0.80***	-0.24*
		p<0.01	p=0.06	p<0.01	p<0.01	p=0.06
					$\beta_1 + \beta_3$	$\beta_1 + \beta_3$
					-0.63**	-0.42
					p=0.03	p=0.16
						$\beta_1 + \beta_4$
						-0.60***
						p=0.01

TABLE 8: CORPORATE GOVERNANCE AND PERFORMANCE - ROBUSTNESS CHECKS: COUNTRY CHARACTERISTICS

This table reports country random effects regressions of Tobin's Q on 3 dummy variables equal to 1 if a company has high standards of corporate governance at both country and company level (HiHi), or has high legal protection at country level but low corporate governance at the company level (HiLo) (and vice-versa, LoHi), or has both low country legal and company governance levels (LoLo), 0 otherwise. The group LoHi is dropped as it is the reference. Investor Protection Index is the country indicator of legal protection. Board-Committee Index, Board-Entrenchment Index, and Board-Independence Index are the company level governance indicators. The logarithm of sales, the ratio property-plants-equipments (PPE) to sales, and a dummy equal to one if a company has traded ADRs are the control variables. An indicator of specific country characteristics (stock market capitalization or turnover, economic risk, corruption, earnings management) is added to each regression. Each cell represents separate regressions and reports coefficient estimates of the governance groups (HiHi), (HiLo), (LoLo), the specific country institutional indicator used, and the F-Test indicating whether the estimated governance coefficients are significantly different. Regressions are run with 2-digit SIC code industry dummies, time dummies, and robust standard error clustered at country level (in parentheses). Significance levels are indicated by *, **, and *** for 10%, 5%, and 1% respectively.

COUNTRY CHARACTERISTIC	Board-Committee Index				Board-Entrenchment Index				Board-Independence Index			
	β_1 Hi Hi	β_2 Hi Lo	β_3 Lo Lo	country variable coeff.	β_1 Hi Hi	β_2 Hi Lo	β_3 Lo Lo	country variable coeff.	β_1 Hi Hi	β_2 Hi Lo	β_3 Lo Lo	country variable coeff.
Stock market capitalization	-0.49***	-0.67***	-0.55***	0.14***	-0.66***	-0.66***	-0.43***	0.21***	-0.48***	-0.70***	-0.47***	0.17***
	(0.11)	(0.14)	(0.12)	(0.04)	(0.09)	(0.09)	(0.10)	(0.09)	(0.08)	(0.10)	(0.06)	(0.04)
	$\beta_1=\beta_2$ p<0.01	$\beta_1=\beta_3$ p=0.30	$\beta_2=\beta_3$ p=0.09		$\beta_1=\beta_2$ p=0.97	$\beta_1=\beta_3$ p=0.13	$\beta_2=\beta_3$ p=0.12		$\beta_1=\beta_2$ p<0.01	$\beta_1=\beta_3$ p=0.90	$\beta_2=\beta_3$ p=0.01	
Stock market turnover	-0.45***	-0.67***	-0.57***	0.25*	-0.58***	-0.66***	-0.46***	0.38**	-0.40***	-0.66***	-0.46***	0.41**
	(0.12)	(0.14)	(0.13)	(0.14)	(0.11)	(0.10)	(0.11)	(0.17)	(0.09)	(0.11)	(0.10)	(0.18)
	$\beta_1=\beta_2$ p<0.01	$\beta_1=\beta_3$ p=0.05	$\beta_2=\beta_3$ p=0.28		$\beta_1=\beta_2$ p=0.17	$\beta_1=\beta_3$ p=0.41	$\beta_2=\beta_3$ p=0.18		$\beta_1=\beta_2$ p<0.01	$\beta_1=\beta_3$ p=0.36	$\beta_2=\beta_3$ p=0.06	
Economic risk	-0.52***	-0.72***	-0.62***	0.007	-0.73***	-0.74***	-0.50***	0.02	-0.58***	-0.75***	-0.59***	0.017
	(0.13)	(0.15)	(0.12)	(0.14)	(0.11)	(0.12)	(0.12)	(0.01)	(0.11)	(0.12)	(0.06)	(0.01)
	$\beta_1=\beta_2$ p<0.01	$\beta_1=\beta_3$ p=0.03	$\beta_2=\beta_3$ p=0.20		$\beta_1=\beta_2$ p=0.83	$\beta_1=\beta_3$ p=0.20	$\beta_2=\beta_3$ p=0.20		$\beta_1=\beta_2$ p<0.01	$\beta_1=\beta_3$ p=0.92	$\beta_2=\beta_3$ p=0.09	
Corruption	-0.54***	-0.72***	-0.61***	0.06	-0.72***	-0.74***	-0.47***	0.12**	-0.60***	-0.73***	-0.44***	0.13**
	(0.12)	(0.14)	(0.13)	(0.04)	(0.10)	(0.10)	(0.12)	(0.06)	(0.10)	(0.11)	(0.07)	(0.06)
	$\beta_1=\beta_2$ p<0.01	$\beta_1=\beta_3$ p=0.44	$\beta_2=\beta_3$ p=0.18		$\beta_1=\beta_2$ p=0.64	$\beta_1=\beta_3$ p=0.17	$\beta_2=\beta_3$ p=0.12		$\beta_1=\beta_2$ p=0.01	$\beta_1=\beta_3$ p=0.16	$\beta_2=\beta_3$ p<0.01	
Earnings Management Index	-0.50***	-0.59***	-0.50***	-0.17**	-0.57***	-0.63***	-0.39***	-0.13***	-0.53***	-0.63***	-0.48***	-0.22***
	(0.12)	(0.12)	(0.11)	(0.07)	(0.06)	(0.06)	(0.10)	(0.07)	(0.09)	(0.11)	(0.05)	(0.05)
	$\beta_1=\beta_2$ p=0.04	$\beta_1=\beta_3$ p=0.99	$\beta_2=\beta_3$ p=0.13		$\beta_1=\beta_2$ p=0.22	$\beta_1=\beta_3$ p=0.17	$\beta_2=\beta_3$ p=0.07		$\beta_1=\beta_2$ p<0.01	$\beta_1=\beta_3$ p=0.63	$\beta_2=\beta_3$ p=0.13	

TABLE 9: CORPORATE GOVERNANCE, COMPANY AND COUNTRY CHARACTERISTICS

This table reports country random effects regressions of the company level governance indicators Board-Committee Index, Board-Entrenchment Index, and Board-Independence Index on various company-level variables (sales growth, external financing dependence, logarithm of sales, ownership, ownership squared) and country-level indicators (legal protection, stock market value traded, percentage of foreign ownership). Columns f. and g. are run for the subsample of companies operating in low (below median) country legal investor protection. Regressions are run with 2-digit SIC code industry dummies interacted with time dummies, and robust standard error clustered at country level (in parentheses). Significance levels are indicated by *, **, and *** for 10%, 5%, and 1% respectively.

	I Board-Committee Index							II Board-Entrenchment Index							III Board-Independence Index						
	a.	b.	c.	d.	e.	f. Investor Protection Index LOW	g.	a.	b.	c.	d.	e.	f. Investor Protection Index LOW	g.	a.	b.	c.	d.	e.	f. Investor Protection Index LOW	g.
Sales growth	0.90***	0.92***	0.93***	0.70***	0.38***	0.81**	-0.08	0.26**	0.18	0.24**	0.24**	0.12	0.31**	-0.06	0.20	0.17*	0.16*	0.14*	0.25	-0.01	-0.01
	(0.35)	(0.30)	(0.29)	(0.21)	(0.14)	(0.33)	(0.10)	(0.11)	(0.12)	(0.11)	(0.10)	(0.09)	(0.14)	(0.09)	(0.13)	(0.10)	(0.10)	(0.07)	(0.04)	(0.03)	(0.05)
External Financing Dependence	0.25***		0.26***	0.11*	-0.02	0.25*	-0.02	0.02		0.02	0.01	0.007	0.01	-0.02	0.07***		0.06***	0.04***	-0.004	0.02	-0.01
	(0.07)		(0.06)	(0.06)	(0.06)	(0.15)	(0.05)	(0.02)		(0.02)	(0.02)	(0.02)	(0.04)	(0.03)	(0.01)		(0.01)	(0.01)	(0.02)	(0.01)	(0.02)
Log of Sales	0.20	0.11	0.22**	0.13*	0.05	0.37***	0.21**	0.03	0.04	0.02	0.02	-0.02	0.04	-0.02	0.06*	0.039	0.04	0.05	0.01	0.04**	0.01
	(0.13)	(0.09)	(0.11)	(0.08)	(0.04)	(0.10)	(0.09)	(0.05)	(0.04)	(0.03)	(0.04)	(0.03)	(0.04)	(0.02)	(0.04)	(0.03)	(0.03)	(0.03)	(0.01)	(0.01)	(0.01)
Ownership		-0.06***							-0.004							-0.02**					
		(0.01)							(0.004)							(0.007)					
(Ownership)^2		0.0005**							0.00							0.0002**					
		(0.0002)							(0.00)							(0.0001)					
Investor Protection Index			0.47							-0.29							-0.44				
			(1.38)							(0.39)							(0.46)				
Stock Market Value				0.01**		0.01**					0.001		0.003*					0.003		0.004***	
				(0.005)		(0.006)					(0.01)		(0.001)					(0.002)		(0.001)	
Foreign Ownership				7.57***			-0.01				-0.039			-1.33				2.42***			4.83***
				(2.34)			(0.69)				(1.26)			(1.10)				(0.69)			(0.90)
Constant, Industry-Year dummies	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Obs.	5778	4819	5778	5778	4618	2442	2685	5552	4642	5552	5552	4417	2337	1202	5030	4228	5030	5030	3870	1840	2082
Number of countries	23	23	23	23	22	13	13	23	23	23	23	22	13	12	23	23	23	23	22	13	13
Number of companies	2371	2018	2371	2371	1950	906	1010	2371	2001	2371	2371	1933	889	470	2250	1915	2250	2250	1829	810	914
R squared (overall)	0.15	0.30	0.16	0.31	0.36	0.54	0.18	0.06	0.06	0.06	0.06	0.07	0.17	0.16	0.13	0.28	0.17	0.23	0.29	0.49	0.45