Cost of Equity, Control Divergence, and Institutions

Teresa Chu
University of Macau

In-Mu Haw
Texas Christian University

Lee-Seok Hwang
Seoul National University

Woody Wu
Chinese University of Hong Kong

August 2008

Abstract

This study provides empirical evidence on the role of ultimate ownership structure in explaining the variations in firms' cost of equity capital across 21 countries. Using four implied cost of equity proxies, the results show that the large discrepancy between ownership and control rights of the ultimate owner has a positive and significant impact on the firm's cost of equity capital, after controlling for traditional risk factors known in empirical literature. The finding lends support to the entrenchment effect in that the expropriation of the minority investors by the controlling owners increases the systematic risk of the company thereby increases the firm's external financing cost. Further analyses demonstrate that both the legal and extra-legal institutions play an important task in constraining the higher equity cost as induced by the concentrated ownership structure. In particular, in countries with broad disclosure requirements, strong securities regulations enforcement, keen market competition and high tax compliance, the positive relation between the cost of equity capital and the ownership-control divergence of the ultimate owner is less pronounced. The findings suggest that the institutional factors are effective corporate governance mechanisms and are significant in explaining the international variations in the cost of equity capital.

We would like to thank Larry Lang for the data on the ownership and control structures of the firms in this study.

Cost of Equity, Control Divergence, and Institutions

1. **Introduction**

Recent studies show that the ultimate owners of those concentrated companies frequently possess control rights in excess of their ownership rights through various control enhancing mechanisms (e.g. Claessens et al. [2000] and Faccio and Lang [2002]). Such discrepancy between ownership and control rights is found to have detrimental effects on firms, manifesting in lower accounting earnings informativeness (Fan and Wong [2002]), enhanced earnings management incentives (Haw et al. [2004]), lower firm valuation (Claessens et al. [2002], Lins [2003] and Lemmon and Lins [2003]) and returns (Baek et al. [2004]), higher asymmetric information costs (Attig et al. [2006]), agency costs (Cronqvist and Nilsson [2003]) and external auditing costs (Fan and Wong [2005]). This study extends the current literature by investigating the impact of ultimate ownership structure on the firms' cost of equity capital in 9 East Asian and 12 Western European countries over the period from 1991 to 2003.

The ownership-control divergence of the ultimate owner has essentially transformed the principal-agent problem from being between managers and owners (Jensen and Meckling [1976]) to being between controlling owners and minority investors (La Porta et al. [1999]). Controlling owners with excess control rights have both the incentive and the ability to expropriate the minority investors (Shleifer and Vishny [1997]). Nevertheless, no evidence yet exists as to whether the expropriation of the minority shareholders is systematically related to the firms' external financing cost. It is possible to conceive that such a causal link may exist, based on the following. First, the firm's ultimate ownership structure is directly observable by all investors. If the shareholders rationally expect the controlling owner's divergent actions to be probable, they can price-protect themselves by lowering the stock price which should effectively increase the firm's external capital cost. Such expectation is rational since the opportunistic behavior by controlling owners at the expense of outside investors is documented to be rather prevailing in

many countries around the world. Moreover, the higher risk of expropriation should augment the different potential costs (e.g. auditing costs) faced by the company and should ultimately translate to higher equity cost. Taken together, the agency problem as induced by the ultimate ownership structure is empirically significant, and there is mounting evidence for the extraction of private benefits by the controlling owners. Therefore, the effect of the ownership-control divergence on the cost of equity capital is expected to be crucial.

On the other hand, there are benefits in having a concentrated ownership structure. For example, firms may increase the ownership concentration to provide private enforcement of property rights (La Porta et al. [1999]) or to preserve proprietary information to the best decision maker (Christie et al. [2003]). Claessens et al. (2002) show that firm value increases with the cash flow ownership of the largest investor due to the incentive alignment effect. Building on Claessens' findings, the cost of equity capital is therefore expected to be negatively related to the cash flow rights of the ultimate owner. Including both the cash flow rights and the ownership-control divergence in this study can disentangle the incentive alignment effect and the entrenchment effect on the external capital cost. Using four implied cost of equity proxies modeled by Claus and Thomas (2001), Gebhardt et al. (2001), Ohlson and Juettner-Nauroth (2005) and Easton (2004), the regression results show that a positive and significant relation exists between the cost of equity capital and the ownership-control divergence of the ultimate owner, in accordance with the entrenchment effect. Moreover, the ownership rights of the ultimate owner have a negative association with the cost of equity capital, consistent with the incentive alignment effect. Along with the traditional risk controls, the ultimate ownership variables explain about 44% of the variations in the external financing cost internationally. These findings are robust to alternative cost of equity proxies, specifications and sub-samples.

This study also attempts to investigate the role of legal and extra-legal institutions in reducing the firms' cost of equity. Strong investor protections are found to be effective in

lowering the cost of equity capital (Bhattachrya and Daouk [2002], Francis et al. [2004] and Hail and Leuz [2006a]). With good investor protection, the diversion techniques of ultimate owners become less cost effective and the controlling owners have fewer incentives to expropriate minority shareholders, thereby reducing the risk of expropriation. Strong legal and extra-legal institutions are also expected to lower the cost of equity indirectly by reducing the actual expropriation of minority shareholders (La Porta et al. [2002], Leuz at al. [2003], Lins [2003], Doidge et al. [2004] and Dyck and Zingales [2004]). This study confirms that both the legal and extra-legal investor protections are significant in limiting the increase in the cost of equity as induced by the ownership-control divergence of the ultimate owner. In particular, the prospectus disclosure requirements and securities regulations in securities offerings are effective legal institutional factors, while the level of product market competition and the enforcement quality of tax laws are effective extra-legal institutional factors. The results supplement prior findings on the corporate governance role played by a country's level of investor protection.

Three contributions are made in this study. First, prior evidence shows that firm value declines when the control rights exceed the ownership rights of the controlling owner (e.g. Claessens et al. [2002], Lins [2003]). However, the value discounts can be attributed to either a decrease in the firm's growth opportunities as insiders divert resources from outsiders, or to an increase in the risk premium demanded by investors. None of these studies investigate how the ownership-control divergence influences the cost of equity capital directly. By using the ex ante cost of equity capital implied in contemporaneous stock price and analysts' forecasts, this study attempts to separate the cash flow effect in the numerator of the valuation model from the cost of capital effect in the denominator. This study therefore provides direct empirical evidence on the relation between the ownership-control divergence and the cost of equity capital.

Second, Bhattacharya and Daouk [2002], Francis et al. [2004] and Hail and Leuz [2006a] use country-specific data to examine the relationship between corporate governance and the cost

of equity capital. Country-specific factors are losing their importance for a firm's cost of capital as capital markets around the world are becoming more integrated (Stulz [1999] and Hail and Leuz[(2006a)],. This study, in contrast, uses firm-level data for both the equity cost and the divergence between ownership and control rights. Firm-specific data is expected to be more pertinent and should better explain the variations in cost of equity worldwide,

This study examines not just the internal forces but also the external forces influencing the costs of equity capital. Most corporate governance studies focus on the effect of outside factors on the cost of equity, such as mandatory disclosure requirements and legal enforcement in Hail and Leuz (2006a) and insider trading requirement in Bhattacharya and Daouk (2002). On the contrary, the ultimate ownership structure is more internal in nature and this study sheds some light on how the internal factors affect the costs of external financing over and above the traditional risk factors documented in the literature. The notion is that mandatory disclosure and insider trading requirement may serve as external corporate governance mechanisms and can hinder the expropriation associated with ultimate ownership structure, but not necessarily vice versa. By incorporating the ultimate ownership variables and the legal or extra-legal institutions in a regression, both the sole effect and the interaction effect of the internal and external factors on the costs of equity are analyzed.

The paper is organized as follows. Section 2 reviews recent literature concerning the research questions and develops hypotheses. Section 3 describes the research design, the cost of equity estimation and the sample selection. Section 4 presents the main results and the robustness checks of the main model. Section 5 provides evidence on the cost of equity capital effects conditional on the legal and extra-legal institutional factors. Section 6 concludes the study.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1Ownership-control divergence and cost of equity capital

Outside the United States, the concentrated ownership structure and the large discrepancy between ownership rights and control rights are more prevalent than the widespread ownership structure, even in some of the developed countries (e.g. Japan and Canada)[1]. Large separation of ownership and control provides controlling owners both the motivations and the opportunities to expropriate minority owners (Shleifer and Vishny [1997]. Such discrepancy shifts the goal incongruence dilemma from between managers and owners to between controlling owners and minority investors. Although the positive incentive alignment impact is substantial when the ownership level of the largest shareholder increases, the negative entrenchment effect also exists as the largest shareholder's control rights significantly exceed his ownership rights. Evidence demonstrates that the greater the ownership-control discrepancy, the magnitude of the entrenchment effect may eventually overwhelm the size of the incentive alignment effect (Claessens et al. [2002]).

The corporate finance literature so far depicts no ideal ownership structure and agency problems are associated with both ownership structures, dispersed or concentrated. However, unlike managers, the controlling owner plays an active role in determining the distribution of shareholding sizes, that is, the design of the organizational structure. Entrepreneurs can set up a particular organizational structure to achieve different objectives. For example, firms may increase the ownership concentration so as to confront the poor judicial system which provides inefficient public enforcement of property rights (La Porta et al. [1999]). Other firms may use concentrated ownership in preserving proprietary knowledge to certain individuals to optimize the decision making process and preventing leakage of proprietary information to competitors (Christie et al. [2003]). Yet some controlling owners may want to gain corporate control so that they have the power to expropriate. Recent research provides evidence about different

[1] La Porta et al. (1999) is the first and foremost study to investigate ultimate control by tracing the control chains of firms in 27 countries. Claessens et al. (2000) and Faccio and Lang (2002) document evidence on separation of ownership and control for 9 East Asian and 13 Western European countries, respectively. Lins (2003) studies the ultimate ownership structure of firms in 18 emerging markets. Finally, Cronqvist and Nilsson (2003) carry out a detailed analysis on ultimate ownership in Sweden.

expropriation behavior or private benefits of control. In short, large ownership-control divergence can have a harmful impact on firm such as lower informativeness of accounting earnings (Fan and Wong [2002]), enhanced incentives for earnings management (Haw et al. [2004]), lower returns (Baek et al. [2004]), higher information asymmetry costs (Attig et al. [2002] and [2006]) and higher agency costs (Cronqvist and Nilsson [2003]).

The cost of equity capital is expected to be related to the expropriation of minority shareholders since the detrimental firm effect mentioned should increase the potential costs faced by the company. In particular, evidence shows that the risk of the opportunistic behavior as induced by the ownership-control divergence positively affects the bid-ask spread hence increases the asymmetric information costs and agency costs (Attig et al. [2006]). Likewise, Fan and Wong (2005) show that Big 5 auditors charge a fee premium to clients with controlling owners that have entrenchment problem and misalignment of interests with minority shareholders. Moreover, the agency costs of separating voting rights from ownership rights are likely to exceed the agency costs of attending highly leveraged capital structure (Bebchuk et al. [2000]). Considering the evidence together, the agency problem between controlling owners and minority investors is empirically significant and the effect of expropriation of minority shareholders on the cost of equity capital is expected to be momentous. We thus:

> *H1*: A positive relation exists between the firm's cost of equity capital and the level of ownership-control divergence of the ultimate owner, after controlling for traditional risk factors, industry factors and country factors.

2.2 Ownership-control divergence, cost of equity capital, and legal institutions

La Porta et al. (1997) establish empirically the link between legal environment and financial markets across countries. La Porta et al. (1998 and 2000) further show that legal investor protection is a potentially useful corporate governance mechanism in influencing the power and incentives of the controlling shareholders to expropriate minority shareholders, as reflected in higher value and broader capital markets, dispersed ownership of shares and efficient

allocation of capital across firms. When private benefits are curtailed, return on equity increases due to improved profitability and reduction in shareholders' auditing and enforcement costs (Lombardo and Pagano [2002]). Moreover, a good investor protection environment minimizes information asymmetries, narrows bid-ask spreads and augments stock liquidity (Brockman and Chung [2003]).

Strong investor protection environment is expected to reduce cost of equity *indirectly* through less expropriation of minority shareholders, which may include less earnings management (Leuz at al. [2003] and Haw et al. [2004]) and higher firm valuation (La Porta et al. [2002], Lins [2003] and Doidge et al. [2004]). The overall effect is less severe agency problem between the ultimate owners and the minority shareholders (La Porta et al. [1999]) as the opportunistic behavior by controlling shareholders at the expense of outside investors is less likely when the legal protection of the latter is strong. The agency problem due to the separation of ownership and control creates a role for international differences in legal rules and their enforcement in curtailing the cost of equity capital.

Investor protection is also *directly* related to the firm's external capital cost. Bhattachrya and Daouk (2002) show that insider trading enforcement has a negative and significant association with the cost of equity. Francis et al. (2004) provide empirical evidence that firms with high quality accounting standards can enjoy significantly lower equity cost. Moreover, Hail and Leuz (2006a) find that countries with extensive securities regulation and strong enforcement mechanisms exhibit a systematically lower cost of equity capital than countries with weak legal institutions. Not only the actual protection offered to investors can reduce the external financing costs but a stronger commitment to stricter regime of corporate governance can have a significant impact on the firm's external capital cost (Hail and Leuz [2006b][2]). Finally, Ashbaugh et al.

[2] Hail and Leuz (2006b) provide strong evidence that cross-listing on a U.S. stock exchange reduces firms' cost of equity. The effects are larger for firms with weaker institutional structure as those firms attempt to "opt out" of the home country's poor institutional framework. Doidge (2004) also confirms that cross-listing in the U.S. enhances the protection afforded to minority investors and reduces the private benefits of control.

(2004) document a significant association between a number of governance attributes and the firm's cost of equity capital. We thus test:

> *H2*: The positive relation between the firm's cost of equity capital and the level of ownership-control divergence of the ultimate owner is less pronounced in high legal investor protection countries.

We choose two legal institutional factors from La Porta et al. (2006) which examine the effect of securities laws on stock market development in 49 countries. The selection is based on the notion that securities regulations and enforcement should have more unswerving influence on investor protection than the overall quality of the legal system. The first variable is the disclosure requirements index (*DISRE*) which captures empirically the information provided in initial public offerings. *DISRE* measures the efficiency of the disclosure system because an effective system should be able to motivate the lowest cost agents to collect and deliver information to the investors and would hold the agents legally responsible if they do not do so.[3] The higher the index value in a particular country, the more legal protection is offered to investors, especially the minority ones thereby limiting the risk of expropriation of minority shareholders. The second legal protection variable is the securities regulations index (*SECRE*) which captures the overall effectiveness of a country's securities regulation and proxies for the complementary nature of law and enforcement.[4] It is assumed that the more effective is the securities' regulations and enforcements, the more difficult and risky for the controlling owners to engage in opportunistic behavior hence the expropriation of minority shareholders is less likely.

2.3 Ownership-control divergence, cost of equity capital, and extra-legal institutions

[3] The index is computed as the arithmetic mean of six sub-indices which measure the strength of affirmative disclosure requirements from six perspectives: (1) prospectus (2) insider's compensation (3) ownership by large shareholders (4) inside ownership (5) contracts outside the normal course of business and (6) transactions with related parties. Although prior studies generally support the prediction that disclosures directly influence the cost of equity capital on the firm-level (Botosan [1997], Botosan and Plumlee [2002], Hail [2002], Easley and O'Hara [2004], etc.), *DISRE* is used as a proxy for investor protection in the country-level.

[4] The index is measured as the average over the disclosure requirement index, the liability standard index and the public enforcement index. In addition to the prospectus disclosure requirements, *SECRE* encompasses the level of burden of proof required by the investors in recovering losses from the issuers, directors, distributors and accountants due to misleading statements in the prospectus as well as the power of the securities market supervisor in issuing rules, investigating violations and giving sanctions.

Empirical evidence documents that effective extra-legal investor protections are successful in further restraining private benefits of control (Dyck and Zingales [2004]). Haw et al. [2004]) provide evidence that income management is significantly limited in countries with strong statutory protection of minority rights and with effective extra-legal institutions. In particular, the extra-legal institutional factor (high tax compliance) outperforms the legal institutional factors (effects of a common law tradition and the efficiency of the judicial system) in constraining earnings management, implying that a high rate of tax compliance can limit private control benefits through the disciplinary power of the taxing authority. Although legal institutions are shown to be highly successful in restricting expropriation of minority shareholders, they argue that extra-legal factors may be of equal importance. The implication is that given corporate taxation system is more effective in curbing private control benefits and is less costly in overhaul than legal institutions, such corporate governance reforms seem to be feasible for many countries.

Dyck (2000) recommends that the extra-legal institutions may play an important role in constraining expropriation because the managerial discretion to extract private benefits may not be easily detected by courts. In such an environment, the extra-legal institutions provide auxiliary investor protections albeit the existence of legal protections. In countries where legal protections are nonexistent or not well enforced, the extra-legal institutions then serve as the surrogate for legal protections. Thus, the theoretical prediction between the cost of equity capital and the extra-legal institutional factors is consistent with the one for the legal institutional factors. We thus test

> *H3*: The positive relation between the firm's cost of equity capital and the level of ownership-control divergence of the ultimate owner is less pronounced in high extra-legal investor protection countries.

The two extra-legal institutional factors are obtained from Dyck and Zingales (2004). They are product market competition (*MKTCOM*) and tax compliance (*TAXCOM*). The degree of *MKTCOM* is expected to be effectual since keen competition should result in more objective

prices, which unavoidably raises the legal and/or reputational costs to controlling shareholders for diverting activities. In addition, the distortions produced by extraction of private benefits should more critically endanger the survival of firm in an aggressive environment. Higher score suggests agreement in survey that competition laws are effective. On the other hand, *TAXCOM* protects both the minority owners and the government. Government, being the tax collector, is a central stakeholder since their revenues are heavily affected by controlling owners' expropriation. By effectively prosecuting company which violates the tax law, the disciplinary role of government should be effective in limiting the private benefits of control. Tax enforcement is measured by an index that goes from zero to six where higher scores indicate higher tax compliance.

3. Research Design and Data

3.1 Cost of equity estimation

Following Hail and Leuz [2006a and 2006b]), four cost of equity models are selected to estimate a firm's cost of equity capital. They are the Claus and Thomas (2001) model, the Gebhardt et al. (2001) model, the Ohlson and Juettner-Nauroth (2005) model and the Easton (2004) model. The four models rely on the explicit analysts' forecasts in cost of equity estimation hence avoid the long time-series requirement of realized returns in order to estimate an unbiased expected return. Moreover, they do not have to specify an a priori assumption regarding the degree of market segmentation. Such an assumption is necessary when the international asset pricing model is used. All models are essentially variations of discounted cash flow valuation. They differ in terms of the duration of forecast horizons, assumptions about future earnings growth rate and the exploitation of analyst forecasts. The ex ante cost of equity in each model is the internal rate of return implied in contemporaneous stock price and future abnormal earnings. Appendix I provides a brief summary of each of the models and the model specific assumptions, and the estimation procedure in this study.

Panel A of Table 1 provides distributional statistics of the four cost of equity proxies. On average, the Gebhardt et al. (2001) model yields the lowest estimate while the Ohlson and Juettner-Nauroth (2005) model and the Easton (2004) model have relatively higher estimates. All four models provide estimates that are within reasonable ranges. The average standard deviation of the four proxies is around 4.56% indicating that there is substantial variation in the firm's cost of equity capital. As expected, the Easton (2004) model generates the most number of observations since it requires fewer parameters in the valuation[5].

Since there is no consensus as to the most reliable cost of equity proxy and most proxies are found to contain considerable measurement error (Botosan and Plumlee [2005], Easton and Monahan [2005] and Guay et al. [2005]), an average of the four proxies (r_{AVG}) are used in the analyses to avoid the potential measurement errors inherent in any single model. By averaging the four proxies for each firm-year, the mean cost of equity capital (r_{AVG}) is 10.89% in the final sample. The Pearson correlation coefficients in Panel B show that all equity proxies are indeed highly correlated. In particular, the correlation coefficients between r_{AVG} and the four estimates are highly significant. This implies that comparison between evidence in this study and prior studies is still feasible. As robustness checks, alternative cost of equity proxies are used in the sensitivity analyses.

3.2 Sample selection

The sample consists of both financial and industrial firms of 21 countries from 1991 to 2003. The major variable of study is the firm's ultimate ownership structure which is constructed by Claessens et al. (2000) and Faccio and Lang (2002). Claessens et al. (2000) provide cash flow rights and voting rights of 2,980 firms in nine East Asian countries as of 1996. The database includes Hong Kong, Indonesia, Japan, Korea, Malaysia, Philippines, Singapore, Thailand and

[5] For individual cost of capital proxies, *N* is after deleting 1% extreme observations of all firm-level attributes (except for *SIZE* which uses natural logarithm) and of that particular proxy. This sample size is used in the sensitivity analyses of the main model in testing different equity proxies. Except otherwise stated, all remaining statistics are based on r_{AVG} which has the final sample of 8,868 firm-year observations.

Taiwan. Faccio and Lang (2002) supply ownership data of 5,232 firms in 13 European countries, which are Austria, Belgium, France, Finland, Germany, Ireland, Italy, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom. The database consists of cash flow rights and voting rights from 1996 to 1999, depends on data availability[6]. All financial data as of the fiscal year end are from Worldscope while stock price and analyst forecasts data are from the historical I/B/E/S international database. Both databases are available from Thomson Financial.

To begin with, financial data are first downloaded for all firms as contained in Worldscope from 1991 to 2003. There are 79,586 firm-year observations which have data available to compute the first three control variables (*SIZE*, *DB* and *ROAVAR*). Data are then merged with the other two control variables (*RETVAR* and *FBIAS*) and the average of the four cost of equity estimates (r_{AVG}), all of which require stock price and earnings forecasts data. Due to insufficient data to compute *RETVAR*, *FBIAS* and r_{AVG}, there are 34,362, 17,189 and 9,680 firm-year observations deleted, respectively, in this compilation as the sample requires all four equity proxies to compute r_{AVG}. The data are then matched with the ownership database, which further reduces the sample by 8,407 firm-years. To mitigate the effects of outliers, 1% of all firm-level attributes (except for *SIZE* which uses the natural logarithm) are eliminated. The sample also removes firm-years having inflation rates that are greater than 25% and having less than five observations in a country-year. There are altogether 1,080 firm-year observations eliminated under these three criteria. The final sample consists of 8,868 firm-years from 21 countries over the period from 1991 to 2003 and represents a total of 1,791 individual firms.

3.3 Data and Descriptive statistics

Table 2 reports the sample composition in terms of both firm-years and country-years. Out of the sample, nearly half of the observations (about 43%) are from Japan and the United

[6] Ireland is excluded in this study due to the problem in downloading the monthly exchange rate which is required to convert the I/B/E/S data from Euro to Irish Punt after Euro adoption in January 1999. For France, Germany, Italy, Switzerland and United Kingdom, data are as of 1996. For Portugal and Spain, data are as of 1997. For Norway and Sweden, data are as of 1998. Finally, for Austria, Belgium, Finland and Ireland, data are as of 1999.

Kingdom. The sample size of Asian firms and European firms are 3,333 and 5,535 firm-years, respectively. Except for a handful of economies, most countries have at least ten years coverage and the final sample consists of 231 country-years. The next column provides the time series mean coverage of each country which shows how representative the sample is. Coverage is measured as the sum of the sample US$ market capitalization divided by the sum of the overall US$ market capitalization in each respective country. The percentage varies from 3.18% (Switzerland) to 49.14% (Germany) and the average coverage is 31.24% across 21 countries. Appendix II provides the distribution of firm-year observations and coverage across the sample countries. Column 6 of Table 2 shows that Japan has the lowest country mean r_{AVG} (7.84%) and Indonesia has the highest (16.42%) among the sample. This is in accordance with the deflation in Japan and the exorbitant inflation in Indonesia during the sample period. Consistent with the statistics in Panel A of Table 1, the standard deviation of country mean r_{AVG} ranges from 2.69% (Japan) to 4.81% (Indonesia), which suggests that the cost of equity capital differs considerably both within and across countries.

The last four columns of Table 2 present the data of the two legal and two extra-legal investor protection variables. The two legal variables vary greatly among different countries. Singapore has the highest value of the disclosure requirement index (1.00) and Austria has the lowest (0.25). Combining the effect of both securities regulations and enforcement, surprisingly, Philippines are on the top of the list (0.89) while Austria is still at the bottom (0.18). Similarly, tax compliance index varies widely from 1.77 (Italy) to 5.05 (Singapore). Finally, market competition index has slightly lower variation and it ranges from 4.42 (Indonesia) to 5.91 (Germany).

Table 3 presents the descriptive statistics and the Pearson correlation coefficients of the four traditional risk controls: 1) *SIZE*, measured as the natural logarithm of US$ market capitalization as of fiscal year end capital, 2) *RETVAR*, the standard deviation of monthly stock

returns over the last 12 months and computed as of +10 months after fiscal year end, 3) *DB*, the ratio of total long-term debt to total common equity at fiscal year end, to measure the degree of financial leverage in a firm, and 4) *ROAVAR*, the variability in accounting earnings and computed as the standard deviation of accounting returns on total assets over the last five years. The other two controls are: 1) the degree of forecast bias, *FBIAS*, which captures the possible international differences in forecasting behavior (Hope, [2003]), and 2) the expected inflation rate (*INFL*), to control for the cross-country variation in inflation. *FBIAS* is the one-year ahead forecast error scaled by the forecast period stock price. *INFL* is proxied by the country specific one-year ahead realized annual inflation rate.

The major focus of this study is the ultimate ownership structure which is gauged by the cash flow rights and voting rights of the ultimate owner. *CASH* represents the ownership interest of the controlling owner. *DIV* is defined as one minus the cash flow rights divided by the voting rights of the ultimate owner and ranges from zero to one (as in Haw et al. [2004]). It measures the degree of control divergence and proxies for the risk of expropriation. The closer *DIV* is to one, the larger the divergence between cash flow rights and voting rights and the greater the agency conflicts between controlling owners and minority investors.

Panel A of Table 3 shows that the mean cash flow rights and voting rights in the sample are 20.93% and 25%, respectively. The mean *DIV* is 0.196 and about 60% of the firms in the sample have zero divergence (not tabulated). The last row in the Pearson correlation coefficients indicates that both *CASH* and *VOTE* are positively associated with r_{AVG} while *DIV* is negatively associated. Consistent with prior studies, all control variables have the expected relation with r_{AVG} and the correlations are all highly significant at 1% level.

4. Main Results

4.1 Ultimate ownership and the cost of equity capital

To test the first hypothesis as to whether a positive relation exists between the firm's cost of equity capital and the level of ownership-control divergence of the ultimate owner, regression analyses are conducted. In addition to the traditional risk and country controls described earlier, three groups of dummy variables are introduced. First, *YEAR*-fixed effects capture the time-series variation in risk-free interest rates. International studies generally use the U.S. Treasury bill rate to proxy for the risk-free interest rates for all countries (e.g. Harvey [1995]) and assume that real risk-free rates are similar across countries. In this study, it is assumed that the Treasury bill rate is a yearly constant therefore *YEAR* dummies proxy for the variation in risk-free interest rates over time. Second, *INDUSTRY*-fixed effects capture the possible industry effects on cost of equity capital (Fama and French [1997]). They are constructed using the one-digit primary SIC code from Worldscope. Finally, *COUNTRY*-fixed effects attempt to control for the potential variation in cost of equity due to different economic factors across nations. The regression equation of the main model is stated as follows (with predicted signs of the regression coefficients in parentheses but firm and time subscripts excluded):

$$r_{AVG} = \beta_0 + \underset{(+)}{\beta_1} DIV + \underset{(-)}{\beta_2} CASH + \underset{(+)}{\beta_3} INFL + \underset{(-)}{\beta_4} SIZE + \underset{(+)}{\beta_5} RETVAR + \underset{(+)}{\beta_6} DB + \underset{(+)}{\beta_7} ROAVAR + \underset{(+)}{\beta_8} FBIAS + \sum \beta_j YEAR + \sum \beta_k INDUSTRY + \sum \beta_l COUNTRY + \varepsilon \quad (1)$$

Table 4 presents the main results pertaining to the first hypothesis and reports OLS coefficient estimates. The t-statistics are based on Newey-West heteroscedasticity and autocorrelation corrected standard errors to control for the possible serial correlation caused by the pooled data. *Model One* serves as a validity check over the traditional risk controls being selected. Consistent with the univariate results, all variables are highly significant with expected signs. Along with the *YEAR*-, *INDUSTRY*- and *COUNTRY*-fixed effects, the risk and country factors explain about 44% variations in the firm-level cost of equity capital internationally, comparing to 36% in Hail and Leuz (2006a) with a similar research design. By introducing two ownership structure variables, *Model Two* shows that *CASH* is negatively associated with r_{AVG}

and *VOTE* is positively associated. Although the two variables have very high correlation of 0.93 (as shown in Panel B of Table 3), they capture totally different incentives of the controlling owner. *CASH* measures the incentive alignment effect while *VOTE* measures the opposite entrenchment effect. However, only *CASH* is significant (at 5%) in reducing the firm's cost of equity capital.

Model Three (also referred to as the main model) replaces *VOTE* by *DIV* and attempts to better proxy for the entrenchment effect of the ultimate owner. The coefficient of *DIV* is significant and positive which supports the first prediction that for firms having higher risk of expropriation of minority shareholders, the cost of equity capital increases. Comparing the coefficients of *VOTE* and *DIV* shows that both variables measure the expropriation risk but *DIV* is relatively more lucid in explaining the variations in cost of equity capital. *DIV* measures the magnitude of expropriation risk but mitigates the fact that the ownership rights and control rights generally increase simultaneously and the increase in control rights does not always imply a higher incentive to expropriate. The coefficient of *CASH* remains negative and is highly significant at 1%. These results suggest that both the incentive alignment effect and the entrenchment effect exist concurrently and influence the cost of equity capital significantly. The relationship between the cost of equity and the ownership-control divergence supplements the findings of Claessens et al. (2002) in that divergence raises the firm's cost of equity capital hence decreases firm values. The result also conforms to other expropriation evidence found in previous studies (Fan and Wong [2002 and 2005], Cronqvist and Nilsson [2003], Lemmon and Lins [2003], Lins [2003], Baek et al. [2004], Haw et al. [2004], Attig et al. [2006]) in that any possibly identified expropriation behavior should eventually translate to a higher cost of equity capital. As the coefficients in the pooled sample can be potentially overstated, the last model in Table 4 re-runs the main model using the Fama-MacBeth approach. Among the 13 annual regressions,

DIV and *CASH* have the expected relations in 10 and 11 regressions, respectively (not tabulated)[7]. The explanatory power of *Model Four* increases to about 49% and all variables (except inflation) are highly significant at 1% and have the expected signs.

4.2 Sensitivity analyses of main results

To begin with, five alternative cost of equity proxies are substituted for the average cost of equity capital (r_{AVG}) of the main model, and the results in Table 4a show that the magnitude and the level of significance of all coefficients are qualitatively similar. Regression (1) employs the median (r_{MED}) to avoid the possible distortion caused by any exceptional estimate which might be obscured in the mean computation. Regression (2) uses the first principal component (r_{PC}) of the four individual estimates to allow a linear combination of the four estimates rather than simply assigning an equal weight to each proxy as in r_{AVG}. Regression (3) uses the implied risk premium (r_{PREM}), measured by subtracting the country expected inflation rate from r_{AVG}, as the dependent variable to take in effect of inflation as an important determinant of the cost of equity when analyst forecasts are expressed in their native or legacy currencies. Regressions (4) and (5) utilize two non-accounting based valuation models to address the possible bias associated with analyst forecasts. r_{DP} is the dividend yield which is the actual dividends per share divided by the actual price taken +10 months after the fiscal year end.[8] r_{FF} is estimated from the global market return and the difference between the returns on global value (high book-to-market portfolios) and global growth (low book-to-market)[9].

[7] In the country-by-country analysis (unreported), *DIV* and *CASH* have the correct signs in 14 and 12 countries, respectively. In addition, seven countries have the expected signs for both variables and they include Austria, Malaysia, Norway, Portugal, Sweden, Taiwan and the United Kingdom. On the contrary, there are two countries (Hong Kong and Korea) with both signs incorrect.

[8] This short-hand valuation is widely used in current finance literature in the international context (e.g. Errunza and Miller [2000] and Lombardo and Pagano [2002]). Since Bekaert and Harvey (2000) show that dividend yields also reflect differences in growth expectations, the one-year ahead percentage change in analyst earnings per share forecast ($g_{Forecasts}$) is added to control for the variations in earnings growth.

[9] The US one-month Treasury bill rates are the Fama risk free rates taken from the Wharton Research Data Services (WRDS). The global market returns, the global value and growth portfolio returns are downloaded from the Kenneth French's homepage (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data.library.html). Only 15 of the countries in

The rest sensitivity tests in Table 4a exclude from the sample: 1) eight Euro-in countries due to the potential error in converting the I/B/E/S forecast earnings and stock price from Euro to the legacy currency after the Euro participation, 2) South East Asian firms during 1997 financial crisis, and 3) and 4), Japan and the United Kingdom to address the concern that the reported results may be potentially driven by these two countries as they constitute about 43% of the overall sample.

To shed some light on the plausible argument that a firm's cost of equity capital could exert influence on its ownership structure, new explanatory variables are added singly in the regressions (10) – (13) of Table 4b: 1) *Group affiliation*, an indicator variable taken from the Journal of Financial Economics which is equal to one for firms with business group membership and zero for independent firms, to serves as a crude measure to proxy for the likelihood of internal financing, 2) *Diversification*, measured by counting the number of different SIC codes in a firm, as firm-level diversification may substitute or complement group structure in creating internal markets for raw materials, labor and financial capital (Khanna and Palepu [1997]), 3) *External capital need*, proxied by the amount of positive cash flow from sale of common and preferred stock from the cash flow statement, [10] and 4) *Financial constraint*, an indicator variable which is equal to one if a firm pays cash common dividends in a particular year, since firms with cash dividends payment or no stock issuance for cash in a certain year are assumed to be less financially constrained than those otherwise. The first four columns in Table 4b show that *DIV* continues to be positive and significant whereas the additional variables have mixed results.

---

the sample have the value and growth portfolios returns available hence observations of Indonesia, Korea, Portugal, Philippines, Taiwan and Thailand are excluded from this sensitivity analysis. The estimation is based upon the rolling regressions of 60 monthly excess returns (with 36 monthly returns as a minimum) on the global market premium and the value-growth premium as the second explanatory return. portfolios since Fama and French (1998) suggest a two-factor intertemporal capital asset pricing model (ICAPM) better explains the value premium in country and global returns than the international capital asset pricing model

[10] On the other hand, the variations in the demand for external capital are expected to have vital impact on the results if the reverse causality described in the hypothesis development is true. Firms with modest capital requirements should be less likely to form groups than those firms with immense capital requirements and facing comparable external financing costs. *External capital need* and *Financial constraint* are used to capture the extent to which a firm is financially constrained. Although these tests provide no direct evidence that the reverse causality is invalid, they essentially demonstrate that the inclusion of additional variables do not alter the major findings of this study.

As a final attempt to mitigate concern about the endogeneity of ownership structure, two-stage regressions are implemented to instrument the ownership-control divergence variable. The first-stage regression is estimated using ordinary least square and includes five instruments: (1) number of years the firm went public, (2) natural logarithm of market capitalization, (3) return on total assets, (4) capital expenditure as a percentage of sales and (5) nominal GDP per capita averaged from 1981 to 1990. The first four variables are firm-level attributes which attempt to capture the different aspects of the company (i.e. firm age, size, profitability and growth) while the last variable aims to proxy for the level of economic development in a particular country. In unreported results, the adjusted R^2 of the first-stage regression is 11.71% and all instrumental variables are highly significant at 1% (except for capital expenditures as a percentage of sales which is significant at 5%). Regression (14) shows that inference remains similar in the two-stage regressions.

The final batch of robustness checks addresses concern over the spurious correlation caused by the omitted variables: 1) *Foreign listing*, a dummy variable which equals one if a firm is ADR-listed, since firms that cross-listed in the U.S. strengthen outside investor protection through stringent U.S. disclosure requirements, larger exposure to SEC enforcement and greater threat of shareholder litigation (Stulz [1999]), 2) *Big-5 auditor*, an indicator variable which takes the value of one if a firm employs Big-5 auditors or its affiliates, because firms may improve their corporate governance mechanisms through the appointment of a reputable external auditor (Becker et al. [1998] and Fan and Wong [2005]), and 3) *CIFAR* voluntary disclosure score[11]. Regressions (15) to (17) in Table 4b demonstrate that the major findings are insensitive to the inclusion of different potentially correlated omitted variables.

[11] The score is a 90-point index created by rating a company's annual report for the inclusion or omission of 90 accounting items. CIFAR (1993) reports data for the fiscal year 1991. Data is not available for Hong Kong, Indonesia, Taiwan, Thailand and Switzerland hence only 16 countries are included in this sensitivity. Due to data limitation, the sample in this analysis consists of only 364 firms and just 1,283 firm-year observations. Francis et al. (2005) show that disclosure policies can mitigate information asymmetry and significantly reduce both the cost of debt and equity around the world. Firm-level disclosures are included to test if the original results still hold.

In sum, these results support the conclusion that for firms with higher ownership-control divergence, they exhibit significant increase in the cost of equity capital whereas firms having higher cash flow rights exhibit significant reduction in the cost of equity. The results are robust to alternative cost of equity proxies, specifications, sub-samples and with or without the potentially correlated omitted variables. [12]

5. Role of Legal and Extra-legal Investor Protections

5.1 Partition sample into sub-samples

To find evidence to support the second and third hypotheses, the sample is divided into sub-samples using several criteria. The purpose is to examine whether the legal and extra-legal institutions influence a firm's cost of equity capital by constraining controlling owners' expropriation incentive and limiting their private control benefits. Partitioning variables are employed and separate regressions of the main model are run for each sub-sample. Table 5 provides coefficient estimates using OLS with Newey-West standard errors and significance tests conditional on the legal institutional variables.

The first two regressions examine the effect of disclosure requirements in securities offerings on the cost of equity capital. *DISRE* equals low for countries with less than or equal to the median of disclosure requirements index values in 49 countries as provided in La Porta et al. (2006). The coefficients of ownership variables have the correct signs in both regressions. Comparing the coefficients of *DIV* of the sub-samples indicates that ownership-control divergence is significant only in the low sample and the magnitude is more than twofold of the high sample. The results are consistent with the second hypothesis that the positive relation

[12] This study matches 13 years of financial data with ownership variables taken from 1996 to 1999 based upon the assumption that ownership structure changes slowly and can reasonably be treated as exogenous in the sample period. To address the possible effects of data misalignment, the sample is split into pre- and post-1996 periods with 1996 data included in both samples as majority of the observations (14 out of 21 countries) are gathered in that particular year. Unreported results show that the phenomenon remains the same in both periods. These results are opposite to the view that ownership structure is endogenous and firms change the ownership structure precisely because of concern over high cost of equity capital. Last of all, untabulated analyses show that the main model remains unchanged when each of the four cost of equity estimates are used instead.

between the firm's cost of equity capital and the ownership-control divergence is less pronounced for countries having sound disclosure requirements in the securities laws. In contrast, the coefficient of *CASH* is negative and significant merely in the high sample suggesting that countries with weak disclosure requirements cannot benefit from the reduction in the cost of equity capital. Taken together, the results essentially show that the entrenchment problem is more severe in the low disclosure requirements group whereas the incentive alignment effect is only realized in the high disclosure requirements group.[13] Except for inflation and return variability, all other controls have the expected signs and are highly significant at 1% in both regressions.

The second partitioning variable is the securities regulations index (*SECRE*) which attempts to capture the combined impact of law and enforcement. Prior studies document that laws are hardly effective in the absence of enforcement (e.g. Bhattacharya and Daouk [2002]). *SECRE* proxies for both aspects and includes the disclosure requirement index, the liability standard index and the public enforcement index, all from La Porta et al. (2006). The index is equal to low for countries with less than or equal to the median index value of securities regulation in 49 countries. Similar to the results obtained for *DISRE*, firms in the low sample exhibit higher positive and significant association between *DIV* and the cost of equity whereas the association is insignificant in the high sample. While the coefficients of *CASH* are negative in both sub-samples, the magnitude and statistical significance are more influential for countries with stronger securities regulations. The results demonstrate that the second hypothesis holds when the effect of securities laws and enforcement are considered simultaneously.

[13] Hail and Leuz (2006b) also use *DISRE* as one of the partitioning variables in testing the role of institutional characteristics in the cost of capital effects of cross-listing. They find that the decline in cost of equity capital is greater for firms from countries with weaker institutional structures as cross-listings are means to elude the home country's poor institutional framework. The second hypothesis in this study is that firms with high equity costs as induced by ownership-control divergence are constrained in countries with better investor protections. Though the interpretations differ, the results in the two studies should be in accordant as firms with poor investor protection have higher cost of equity capital and the improvements of those firms (that is, the reduction in cost of capital) in migrating from a deficient to an efficient governance system are indeed larger.

Table 6 presents the differences in the cost of equity capital effects conditional on the extra-legal institutional variables. The two extra-legal institutional factors are obtained from Dyck and Zingales (2004). Employing the same research design, firms are classified as low for countries with less than or equal to the median index value of market competition or tax compliance in 39 countries. In line with expectations, the coefficient of *DIV* is positive and significant only for firms from low product market competition and weak tax enforcement countries. Moreover, the coefficient of *DIV* is always larger than its counterpart[14]. The coefficients of *CASH* are constantly negative but significant at 5% or better just in the high sub-samples. Consistent with earlier findings, the results show that the extra-legal institutions also play a role in influencing the firm's cost of equity capital. More specifically, in countries with weak extra-legal investor protections, the positive relation between the ownership-control divergence and the cost of equity capital is more significant and firms from those countries are exposed to higher expropriation risk hence are suffering from excessive equity cost than firms that are well protected extra-legally.

5.2 Additional analyses

This section presents additional evidence to support the findings in the previous section. Instead of dividing the sample into sub-groups, the whole sample is tested by adding the interaction between ownership variables and each of the two legal and two extra-legal institutions in the regression analyses as following:

$$
\begin{aligned}
r_{AVG} = {} & \beta_0 + \underset{(+)}{\beta_1} DIV + \underset{(-)}{\beta_2} DIV \times INSTITUTION + \underset{(-)}{\beta_3} INSTITUTION \\
& + \underset{(-)}{\beta_4} CASH + \underset{(-)}{\beta_5} CASH \times INSTITUTION \\
& + \underset{(+)}{\beta_6} INFL + \underset{(-)}{\beta_7} SIZE + \underset{(+)}{\beta_8} RETVAR + \underset{(+)}{\beta_9} DB + \underset{(+)}{\beta_{10}} ROAVAR + \underset{(+)}{\beta_{11}} FBIAS \\
& + \sum \beta_j YEAR + \sum \beta_k INDUSTRY + \varepsilon
\end{aligned}
$$

[14] In unreported results, significant difference in *DIV* (at 5% using *t*-test) is found between the high and low *MKTCOM* sub-samples. Nevertheless, no significant differences in *DIV* between sub-samples are documented if the partitioning variables are *DISRE*, *SECRE* and *TAXCOM.*

where *INSTITUTION* represents (1) disclosure requirements, (2) securities regulations, (3) market competition and (4) tax compliance. All β_2, β_3 and β_5 are expected to be negative.

Table 7 presents the regression results for the association between r_{AVG} and *DIV* conditioned by the legal investor protection variables. In both regressions, *DIV* and *DIV* × *INSTITUTION* have the predicted signs and are significant at 5% or better. The positive signs for *DIV* demonstrate that ownership-control divergence augments the cost of equity capital in the absence of legal investor protection. However, the negative signs for *DIV* × *INSTITUTION* show that in countries with well-developed disclosure requirements and securities regulations in securities offerings, the increase in cost of equity as motivated by the ownership-control divergence of the ultimate owner is effectively constrained. These findings lend support to the second hypothesis. The coefficients for *INSTITUTION* are persistently positive which is in contrast to the negative relation between the cost of equity capital and institutional variables documented in Hail and Leuz (2006a)[15]. Unlike *DIV*, the results for *CASH* and *CASH* × *INSTITUION* are less promising as the signs are inconsistent across the regressions. The interaction variable is significant with expected signs in column (2) only which means the incentive alignment effect of *CASH* in lowering the equity cost merely operates in countries with well-established securities regulations. The coefficients for all traditional controls are highly significant with expected relations in both regressions.

The effects of extra-legal investor protection on the relation between ownership-control divergence and cost of equity capital are summarized in Table 8. As expected, the coefficients for *DIV* are significant and positive indicating that the cost of equity increases in countries with low product market competition and poor tax enforcement. On the other hand, the negative and significant coefficients for *DIV* × *INSTITUTION* show that better extra-legal investor protections

[15] Nevertheless, the coefficient for *INSTITUTION* becomes negative (except for disclosure requirements) when the institutional variables are added without the interaction between ownership variables and legal protection variables. The ownership variables remain significant with expected signs.

limits the risk of expropriation of the minority shareholders, consistent with the third hypothesis. Although *MKTCOM* has the opposite sign, the result (unreported) vanishes when only the extra-legal institution is added in the regression analysis. Finally, the coefficient for *CASH* is significant and negative in column (2) but *CASH* × *TAXCOM* has incorrect sign. The regressions of column (1) and (2) show no clear evidence for *CASH* and *CASH* × *INSTITUTION* variables, similar to the results obtained for the legal investor protections variables.

Combining the results in both sections demonstrate that the cost of equity capital induced by ownership-control divergence is significantly limited in countries with extensive disclosures requirements, strong securities regulations enforcement, keen market competition as well as effective tax system. The results support the second and third hypotheses in that the legal and extra-legal investor protections do play an important role in restricting the expropriation risk of the minority shareholders hence are effective corporate governance mechanisms.

6. CONCLUSION

This paper investigates whether the separation of ownership and control of the ultimate owner is systematically related to international differences in the cost of equity capital. Prior research documents considerable evidence on expropriation of minority shareholders as induced by the ultimate ownership structure. However, little evidence is found as to whether such agency problem eventually translates to a higher external financing cost. Employing a unique firm-level data set of a sample of 1,791 listed firms (or 8,868 firm-years) from East Asia and Western Europe, the regression results suggest that the ownership-control divergence of the ultimate owner is associated with a significant increase in firms' cost of equity capital, even after controlling for the traditional risk, industry and country factors. This finding supports the entrenchment hypothesis in that controlling owners have both the motivations and opportunities to expropriate the minority investors thereby augment the costs of the company. Further analyses are conducted to test if the cost of equity effects vary with different institutional environments.

Using several proxies for the level of legal and extra-legal investor protections, evidence shows that the increase in equity cost as motivated by the ownership-control divergence of the ultimate owner is significantly limited in countries with extensive prospectus disclosure requirements, effective securities regulation enforcement, intense product market competition and strong disciplinary power of the taxing authority. The results suggest that the institutional factors are effective corporate governance mechanisms and are significant in explaining the international variations in the cost of equity capital.

This study provides additional insights on the determinants of cost of equity over and above traditional risk and country factors. In particular, it provides direct evidence as to the relationship between the expropriation risk of minority shareholders and the firm's external capital cost. Through the adoption of the ex ante cost of equity models, the cost of capital effect is isolated from the cash flow effect of the valuation models and the finding supplements prior research on why firm value declines when control rights exceed the ownership rights of the ultimate owner. This study also attempts to examine the sole effect and the interaction effect of internal and external forces on the equity cost by including both the ultimate ownership structure and the legal or extra-legal institutions in the regression analyses. The research design should contribute more robust results since the major variables of study (i.e. ownership-control divergence and the cost of equity capital) are both firm-level. Finally, this study provides further empirical evidence about the effectiveness of the implied cost of equity models outside the United States.

APPENDIX I - COST OF EQUITY MODELS

Below are the four cost of equity models stated in the form of a pricing equation and the model specific assumptions.

Notation:

P_t = Price per share at date t

bv_t = Book value of equity per share at date t

$bv_{t+\tau}$ = Expected book value of equity per share at date $t+\tau$

$dps_{t+\tau}$ = Expected dividend per share at date $t+\tau$

$eps_{t+\tau}$ = Expected earnings per share at date $t+\tau$

g, g_{st}, g_{lt} = Expected perpetual, short-term and long-term growth rate, respectively

$r_{CT}, r_{GLS}, r_{OJ}, r_{PEG}$ = Implied cost of equity capital of Claus and Thomas (2001), Gebhardt et al. (2001), Ohlson and Juettner-Nauroth (2005) and Easton (2004), respectively

Claus and Thomas (2001)

$$P_t = bv_t + \sum_{\tau=1}^{T} \frac{(eps_{t+\tau} - r_{CT} \cdot bv_{t+\tau-1})}{(1+r_{CT})^{\tau}} + \frac{(eps_{t+T} - r_{CT} \cdot bv_{t+T-1})(1+g)}{(r_{CT} - g)(1+r_{CT})^{T}}$$

This model is an abnormal earnings model. The pricing equation shows that the current stock price equals the current book value of equity plus the present value of future expected abnormal earnings. Future abnormal earnings are proxies for economic profits and are computed by deducting a charge of equity capital from expected earnings. The model assumes an explicit forecast period of five years (T = 5) hence uses a stream of five expected earnings per share forecasts. Beyond year 5, all future earnings are assumed to grow perpetually at g, which is proxied by the country-specific one-year ahead realized annual inflation rate.

Gebhardt, Lee and Swaminathan (2001)

$$P_t = bv_t + \sum_{\tau=1}^{T-1} \frac{(eps_{t+\tau} - r_{GLS} \cdot bv_{t+\tau-1})}{(1+r_{GLS})^{\tau}} + \frac{(eps_{t+T} - r_{GLS} \cdot bv_{t+T-1})}{r_{GLS}(1+r_{GLS})^{T-1}}$$

This model is an abnormal earnings model. The pricing equation shows that the current stock price equals the current book value of equity plus the present value of future expected abnormal earnings. It specifies a forecast period of twelve years (T = 12). It first forecasts earnings explicitly for three years and then forecasts implicitly by mean reverting the period t + 3 firm return on equity to the industry-specific median return on equity. The mean reversion attempts to capture the long-term erosion of abnormal earnings over time. It further assumes that any growth in earnings past year 12 is value neutral hence all future abnormal earnings thereafter are assumed to be constant.

Ohlson and Juettner-Nauroth (2005)

$$P_t = \frac{eps_{t+1}}{r_{OJ}} \cdot \frac{(g_{st} + r_{OJ} \cdot dps_{t+1}/eps_{t+1} - g_{lt})}{(r_{OJ} - g_{lt})}$$

This model relates share price to expected earnings per share one-year ahead, the expected dividends per share one-year ahead, the short-term growth and long-term growth in expected earnings and the cost of equity capital. It assumes that the present value of dividends per share affects share price though the dividend policy is irrelevant. Following the approach of Gode and Mohanram (2003), g_{st} is proxied by the average of the growth in expected earnings between period t + 1 and t + 2 and the explicit five-year growth forecast. The model also assumes positive growth in expected earnings so as to generate a solution. g_{lt} mirrors the growth rate of the overall economy and is proxied by the country-specific one-year ahead realized annual inflation rate.

Easton (2004)

$$P_t = \frac{(eps_{t+2} + r_{PEG} \cdot dps_{t+1} - eps_{t+1})}{r_{PEG}^2}$$

This model emphasizes the role of short-term earnings forecasts in valuation. It assumes that price is determined by the abnormal earnings which is the expected earnings per share two-year ahead plus earnings from re-invested dividends per share one-year ahead minus the expected earning per share one-year ahead. In addition, the model assumes that the abnormal earnings is constant over time and constrains positive growth in expected earnings so as to obtain a solution.

Estimation Procedure

The four models collectively require earnings forecasts of three years ahead (eps_{t+1}, eps_{t+2} and eps_{t+3}) and the expected five-year earnings growth rate (g_5). All estimates are mean analyst consensus forecasts. Together with stock price (P_t), they are gathered from I/B/E/S using the native currency. To be included in the sample, an observation must have P_t, eps_{t+1} and eps_{t+2} data and either eps_{t+3} or g_5. If eps_{t+3} is missing, it is assumed to be the two-year ahead earnings forecast growing at the five-year earnings growth rate, that is, $eps_{t+3} = eps_{t+2} \times (1+ g_5)$. Any earnings forecasts beyond year 3 are generalized in the same way. On the other hand, g_5 can be proxied by computing a growth rate between the two-year ahead and three-year ahead earnings forecasts, that is, $g_5 = (eps_{t+3} - eps_{t+2}) / eps_{t+2}$. All negative earnings forecasts and growth rates are eliminated.

The financial data in the models are matched with the price and earnings forecasts taken +10 months after the fiscal year end, following Hail and Leuz (2006a), to ensure that all financial information are available to investors and can be impounded into the model at the time of cost of equity estimation[16]. The book value of equity per share (bv_t) is computed as the total common equity divided by the number of common shares outstanding as of the fiscal year end, both of which are taken from Worldscope. Unlike I/B/E/S, Worldscope data applies Euro retroactively. Hence total common equity of the eight Euro-in countries can be extracted using the legacy currency throughout the sample period. Currency consistency is required in the cost of equity estimation as all price and analyst forecasts are either in the native currency or the legacy currency after the currency conversion.[17] For the expected book value of equity per share

[16] Though +10 months is somewhat arbitrary, Hail and Leuz (2006a) show that all analyses remain qualitatively similar when +7 months is used.To adjust for the time misalignment between financial data and forecasts data, Hail and Leuz (2006a) discount +10 months price to the beginning of the fiscal year by the inputted cost of capital, that is, $(1+ r)^{-10/12}$. The results are virtually indifferent with or without the adjustment.

[17] On January 1, 1999, eleven of the countries in the European Economic and Monetary Union (EMU) decided to give up their own currencies and adopted the Euro currency. Among the Euro-in countries, Austria, Belgium,

($bv_{t+\tau}$), clean surplus accounting is assumed, that is, $bv_{t+\tau} = bv_{t+\tau-1} + eps_{t+\tau} - dps_{t+\tau}$. The expected dividend per share ($dps_{t+\tau}$) is computed as a constant percentage of the expected earnings per share, that is, $dps_{t+\tau} = eps_{t+\tau} \times k_t$. Dividend payout ratio is obtained directly from Worldscope and k_t is defined as the historic three-year mean dividend payout ratio. If k_t is missing or less than zero, it is replaced by the country-year median payout ratio.

Both g and g_{lt} represent the perpetual or long-term growth rate in expected earnings. They are proxied by the country-specific one-year ahead realized annual inflation rate, which are gathered from Datastream or the Statistical Yearbook[18]. Any negative inflation rates are substituted by the country-median inflation rates over the entire sample period. The rationale is that deflation is not expected to persist in the long-run, consequently a substitution is necessary.

Except for the Ohlson and Juettner-Nauroth (2005) model, there is no closed form solution provided to the equity valuation models. Each cost of equity proxy is therefore determined by an iterative numerical approximation which identifies an annual firm-specific discount rate that equates P_t to the right hand side of the pricing equation. The iteration starts at zero and increments by 0.0001 and will discontinue either when the cost of equity proxy is accurate at two decimal places or when the proxy reaches a value of one. A maximum of one is set in the iteration procedure because any cost of equity estimate that is greater than 100% seems irrational. To serve as a check over the iteration process, an inputted price is computed by placing the proxy back to the pricing equation and any proxy that results in greater than 1% difference between P_t and the inputted price is eliminated.

Finland, France, Germany, Italy, Portugal and Spain are included in the sample. The I/B/E/S data of these eight countries are in legacy currency before the Euro adoption but are in Euro after the participation. An adjustment is made to correct this currency misalignment by converting the price and earnings forecasts data after January 1999 to the legacy currency based on the monthly exchange rate obtained from I/B/E/S. By performing the currency conversion, all stock price and earnings forecasts have consistent currency over the entire sample period.

[18] As the Indonesian inflation rates of 1992 to 1996 are missing from Datastream, they are replaced by the data from the Statistical Yearbook 1997.

APPENDIX II – DISTRIBUTION OF FIRM-YEAR OBSERVATIONS AND COVERAGE ACROSS THE SAMPLE COUNTRIES

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total/ Average
Austria	--	--	--	9 (29.76%)	13 (27.86%)	13 (49.76%)	16 (45.58%)	12 (32.29%)	18 (47.24%)	7 (21.46%)	11 (36.84%)	11 (26.77%)	13 (44.38%)	123 (36.20%)
Belgium	--	8 (48.79%)	6 (54.29%)	17 (65.68%)	20 (68.89%)	23 (63.87%)	19 (48.12%)	21 (49.89%)	20 (42.04%)	21 (32.25%)	20 (34.65%)	15 (34.93%)	15 (37.67%)	205 (48.42%)
Finland	--	9 (46.49%)	15 (62.57%)	20 (36.43%)	23 (49.04%)	27 (43.97%)	21 (33.80%)	33 (25.06%)	29 (7.34%)	27 (8.90%)	27 (13.66%)	32 (20.32%)	30 (17.31%)	293 (30.41%)
France	28 (26.97%)	26 (23.60%)	40 (25.58%)	51 (27.69%)	51 (25.63%)	67 (29.04%)	72 (33.23%)	74 (37.48%)	74 (30.23%)	61 (22.79%)	60 (14.98%)	54 (16.16%)	52 (19.47%)	710 (25.60%)
Germany	48 (49.75%)	53 (51.23%)	56 (56.88%)	49 (45.73%)	61 (45.24%)	87 (57.30%)	84 (46.61%)	76 (44.31%)	74 (53.45%)	67 (42.43%)	56 (48.14%)	54 (52.54%)	63 (45.15%)	828 (49.14%)
Hong Kong	29 (55.13%)	25 (31.17%)	31 (50.54%)	24 (39.48%)	32 (41.51%)	33 (42.43%)	41 (54.02%)	38 (51.60%)	39 (50.83%)	39 (33.78%)	42 (36.23%)	41 (29.00%)	59 (31.09%)	473 (42.06%)
Indonesia	--	--	16 (40.55%)	17 (42.53%)	11 (32.41%)	9 (33.47%)	--	--	10 (16.74%)	--	5 (13.74%)	10 (13.77%)	10 (14.28%)	88 (25.94%)
Italy	--	--	7 (13.47%)	12 (27.82%)	15 (20.87%)	17 (9.59%)	19 (15.35%)	21 (18.48%)	14 (12.91%)	16 (16.68%)	16 (11.04%)	14 (11.29%)	15 (10.53%)	166 (15.27%)
Japan	22 (8.28%)	22 (5.37%)	37 (9.07%)	57 (18.62%)	22 (6.53%)	93 (23.60%)	120 (25.02%)	92 (21.68%)	184 (28.12%)	250 (34.35%)	227 (27.76%)	246 (41.12%)	266 (39.79%)	1,638 (22.26%)
Korea (South)	--	--	--	--	--	--	--	--	--	6 (0.25%)	34 (31.89%)	13 (28.47%)	17 (15.19%)	70 (18.95%)
Malaysia	20 (39.07%)	20 (46.86%)	36 (47.66%)	40 (38.41%)	47 (51.08%)	47 (41.37%)	23 (15.73%)	14 (13.74%)	40 (46.47%)	34 (24.78%)	32 (34.44%)	26 (40.09%)	32 (32.70%)	411 (36.34%)
Norway	--	5 (63.30%)	8 (59.84%)	10 (56.34%)	15 (54.30%)	17 (57.63%)	11 (40.80%)	19 (41.98%)	13 (12.48%)	15 (27.76%)	13 (22.51%)	16 (8.02%)	14 (24.05%)	156 (39.08%)
Philippines	--	--	--	7 (12.59%)	6 (11.20%)	9 (19.32%)	9 (25.13%)	17 (45.38%)	16 (39.24%)	14 (34.72%)	12 (29.66%)	11 (25.76%)	9 (34.37%)	110 (27.74%)
Portugal	--	--	--	--	5 (19.18%)	7 (52.22%)	7 (41.64%)	8 (42.97%)	8 (43.74%)	--	--	--	--	35 (39.95%)
Singapore	19 (52.11%)	21 (49.78%)	25 (50.36%)	29 (54.46%)	25 (48.69%)	33 (47.70%)	29 (30.02%)	36 (46.46%)	30 (28.59%)	21 (15.58%)	23 (21.43%)	24 (35.54%)	24 (31.18%)	339 (39.38%)
Spain	6 (18.15%)	10 (35.65%)	20 (43.52%)	24 (45.68%)	20 (42.46%)	22 (45.18%)	25 (38.93%)	27 (38.38%)	30 (21.94%)	35 (17.77%)	28 (19.19%)	23 (18.15%)	24 (18.41%)	294 (31.03%)
Sweden	5 (18.86%)	7 (28.59%)	10 (33.09%)	16 (39.45%)	17 (30.98%)	28 (35.99%)	25 (38.16%)	34 (41.44%)	35 (34.05%)	24 (23.15%)	31 (39.67%)	33 (46.19%)	33 (36.77%)	298 (34.34%)
Switzerland	--	7 (4.67%)	13 (5.37%)	18 (5.85%)	22 (4.95%)	22 (3.20%)	27 (3.34%)	27 (2.40%)	26 (2.64%)	23 (1.86%)	18 (1.19%)	15 (1.10%)	19 (1.55%)	237 (3.18%)
Taiwan	--	--	5 (9.82%)	--	6 (12.22%)	19 (19.08%)	22 (19.04%)	21 (22.11%)	15 (26.92%)	11 (12.88%)	15 (16.97%)	12 (11.87%)	9 (4.79%)	135 (15.57%)
Thailand	--	--	5 (6.73%)	7 (8.29%)	8 (10.62%)	--	--	--	5 (4.60%)	6 (6.85%)	14 (23.87%)	11 (11.88%)	13 (13.60%)	69 (10.81%)
United Kingdom	59 (45.58%)	93 (50.19%)	118 (56.37%)	155 (51.92%)	153 (51.87%)	213 (55.84%)	209 (51.64%)	233 (51.75%)	239 (37.34%)	162 (26.38%)	164 (43.17%)	190 (30.55%)	202 (37.25%)	2,190 (45.37%)
Total	236	306	448	562	572	786	779	803	919	839	848	851	919	8,868 (31.24%)

The percentage represents coverage which is measured as the sum of the sample US$ market capitalization divided by the sum of the overall US$ market capitalization in each country each year.

REFERENCE

Ashbaugh, H.; D. W. Collins; and R. LaFond. "Corporate governance and the cost of equity capital." Working paper, University of Wisconsin-Madison and University of Iowa, 2004.

Attig, N.; W. M. Fong; Y. Gadhoum; and H. P. L. Lang. "Effects of Large Shareholding on Information Asymmetry and Stock Liquidity." *Journal of Banking and Finance* 30 (2006): 2875-92.

Baek, J-S.; J-K. Kang; and K-S. Park. "Corporate governance and firm value: evidence from the Korean financial crisis." *Journal of Financial Economics* 71 (2004): 265-313.

Becker C. L.; M. L. DeFond; J. Jiambalvo; and K. R. Subramanyam. "The effect of audit quality on earnings management." *Contemporary Accounting Research* 15 (1998): 1-24.

Bekaert, G.; and C. Harvey. "Foreign speculators and emerging equity markets." *Journal of Finance* 55 (2000): 565-613.

Bhattacharya, U.; and H. Daouk. "The World Price of Insider Trading." *Journal of Finance* 57 (2002): 75-108.

Botosan, C. "Disclosure Level and the Cost of Equity Capital." *The Accounting Review* 72 (1997): 323-49.

Botosan, C.; and M. Plumlee. "A re-examination of disclosure level and expected cost of equity capital." *Journal of Accounting Research* 40 (2002): 21-40.

Botosan, C.; and M. Plumlee. "Assessing Alternative Proxies for the Expected Risk Premium." *Accounting Review* 80 (2005): 21-53.

Brockman, P.; and D. Y. Chung. "Investor Protection and Firm Liquidity." *Journal of Finance* 58 (2003): 921-37.

Christie, A.; M. Joye; and R. Watt. "Decentralization of the firm: theory and evidence." *Journal of Corporate Finance* 34 (2003): 3-36.

Claessens, S.; S. Djankov; and L. H. P. Lang. "The separation of ownership and control in East Asian corporations." *Journal of Financial Economics* 58 (2000): 81-112.

Claessens, S.; S. Djankov; J. P. H. Fan; and L. H. P. Lang. "Disentangling the Incentive and Entrenchment Effects of Large Shareholdings." *Journal of Finance* 57 (2002): 2741-2771.

Claus, J.; and J. Thomas. "Equity Premia as Low as Three Percent? Evidence from Analysts' Earnings Forecasts for Domestic and International Stock Markets." *Journal of Finance* 56 (2001): 1629-66.

Cronqvist, H.; and M. Nilsson. "Agency Costs of Controlling Minority Shareholders." *Journal of Financial and Quantitative Analysis* 38 (2003): 695-719.

Doidge, C. "U.S. cross-listings and the private benefits of control: evidence from dual-class firms." *Journal of Financial Economics* 72 (2004): 519-53.

Doidge, C.; G. A. Karolyi; and R. M. Stulz. "Why are foreign firms listed in the U.S. worth more?" *Journal of Financial Economics* 71 (2004): 205-38.

Dyck, A. “Ownership structure, legal protections and corporate governance”, in Boris Pleskovic, and Nicholas Stern, eds, *Annual World Bank Conference on Development Economics*, 2000.

Dyck, A.; and L. Zingales. “Private Benefits of Control: An International Comparison.” *Journal of Finance* 59 (2004): 537-600.

Easley, D.; and M. O’Hara. “Information and the Cost of Capital.” *Journal of Finance* 59 (2004): 1553-83.

Easton, P. “PE Ratios, PEG Ratios, and Estimating the Implied Expected Rate of Return on Equity Capital.” *The Accounting Review* 79 (2004): 73-95.

Easton, P.; and S. Monahan. “An Evaluation of Accounting Based Measures of Expected Returns.” *Accounting Review* 80 (2005): 501-38.

Errunza, V.; and D. Miller. “Market segmentation and the cost of capital in international equity markets.” *Journal of Financial and Quantitative Analysis* 35 (2000): 511-600.

Faccio, M.; and L. H. P. Lang. “The ultimate ownership of Western European corporations.” *Journal of Financial Economics* 65 (2002): 365-95.

Fama, E. F.; and K. R. French. “Industry costs of equity.” *Journal of Financial Economics* 43 (1997): 153-93.

Fama, E. F.; and K. R. French. “Value versus growth: the international evidence.” *Journal of Finance* 53 (1998): 1975-999.

Fan, J. P. H.; and T. J. Wong. “Corporate Ownership Structure and the Informativeness of Accounting Earnings in East Asia.” *Journal of Accounting and Economics* 33 (2002): 401-25

Fan J. P. H.; and T. J. Wong. “Do External Auditors Perform a Corporate Governance Role in Emerging Markets? Evidence from East Asia.” *Journal of Accounting Research* 43 (2005): 35-72.

Francis, J.; R. LaFond; P. Olsson; and K. Schipper. “Cost of Capital and Earnings Attributes.” *Accounting Review* 79 (2004): 967-1010.

Gebhardt, W. R.; C. M. C. Lee; and B. Swaminathan. “Toward an Implied Cost of Capital.” *Journal of Accounting Research* 39 (2001): 135-76.

Guay, W.; S. P. Kothari; and S. Shu. “Properties of Implied Cost of Capital Using Analysts’ Forecasts.” Working paper, University of Pennsylvania, MIT and Boston College, 2005.

Hail, L. “The Impact of Voluntary Corporate Disclosures on the Ex-ante Cost of Capital for Swiss Firms.” *The European Accounting Review* 11 (2002): 741-73.

Hail, L.; and C. Leuz. “International Differences in the Cost of Equity Capital: Do Legal Institutions and Securities Regulation Matter?” *Journal of Accounting Research* 44 (2006a): 485-531.

Hail, L.; and C. Leuz. “Cost of Capital Effects and Changes in Growth Expectations around U.S. Cross-Listings.” Working paper, University of Pennsylvania and University of Chicago, 2006b.

Harvey, C. “Predictable risk and returns in emerging markets.” *Review of Financial Studies* 8 (1995): 773-816.

Haw, I. M.; B. Hu; L. S. Hwang; and W. Wu. “Ultimate Ownership, Income Management, and Legal and Extra-Legal Institutions.” *Journal of Accounting Research* 42 (2004): 423-62.

Hope, O-K. “Disclosure Practices, Enforcement of Accounting Standards and Analysts’ Forecast Accuracy: An International Study.” *Journal of Accounting Research* 41 (2003): 235-73.

Jensen, M; and W. Meckling. “Theory of the firm: Managerial behavior, agency costs, and ownership structure.” *Journal of Financial Economics* 3 (1976): 305-60.

Khanna, T.; and K. Palepu. “Why focused strategies may be wrong for emerging markets.” *Harvard Business Review* July-August (1997): 41-51.

La Porta, R.; F. Lopez-de Silanes; A. Shleifer; and R. Vishny. “Legal Determinants of External Finance” *Journal of Finance* 52 (1997): 1131-50.

La Porta, R.; F. Lopez-de Silanes; A. Shleifer; and R. Vishny. “Law and Finance.” *Journal of Political Economy* 106 (1998): 1113-55.

La Porta, R.; F. Lopez-de Silanes; and A. Shleifer. “Corporate Ownership Around the World.” *Journal of Finance* 54 (1999): 471-517.

La Porta, R.; F. Lopez-de Silanes; A. Shleifer; and R. Vishny. “Investor protection and corporate governance.” *Journal of Financial Economics* 58 (2000): 3-27.

La Porta, R.; F. Lopez-de Silanes; A. Shleifer; and R. Vishny. “Investor Protection and Corporate Valuation.” *Journal of Finance* 57 (2002): 1147-70.

La Porta, R.; F. Lopez-de Silanes; and A. Shleifer. “What Works in Securities Laws?” *Journal of Finance* 61 (2006): 1-32.

Lemmon, M. L.; and K. V. Lins. “Ownership Structure, Corporate Governance, and Firm Value: Evidence from the East Asian Financial Crisis.” *Journal of Finance* 58 (2003): 1445-68.

Leuz, C.; D. Nanda; and P. D. Wysocki. “Earnings management and investor protection: an international comparison.” *Journal of Financial Economics* 69 (2003): 505-27.

Lins, K. V. “Equity Ownership and Firm Value in Emerging Markets.” *Journal of Financial and Quantitative Analysis* 38 (2003): 159-84.

Lombardo, D.; and M. Pagano. “Legal Determinants of the Return on Equity.” Working paper, Stanford Graduate School of Business and University of Salerno, 2002.

Ohlson, J. A.; and B. E. Juettner-Nauroth. “Expected EPS and EPS Growth as Determinants of Value.” *Review of Accounting Studies* 10 (2005): 249-65,

Shleifer, A.; and R. W. Vishny. “A Survey of Corporate Governance.” *Journal of Finance* 52 (1997): 737-83.

Stulz, R. “Globalization, corporate finance, and the cost of capital.” *Journal of Applied Corporate Finance* 12 (1999): 8-25.

United Nations, Department of Economic and Social Affairs Statistics Division. “Statistical Yearbook 1997.” 44th Issue, New York (2000).

Table 1
Descriptive Statistics - Cost of Equity Proxies, Legal and Extra-legal Protection Variables

Panel A: Distributional Statistics

Variable	*N*	*Mean*	*Standard Deviation*	*Minimum*	*Percentile*			*Maximum*
					Q1	*Q2*	*Q3*	
r_{CT}	8,894	10.09%	4.13%	3.49%	7.27%	9.40%	11.96%	31.38%
r_{GLS}	8,968	9.37%	4.37%	2.28%	5.84%	9.03%	12.17%	24.07%
r_{OJ}	8,923	11.97%	4.27%	5.01%	9.08%	11.10%	14.02%	32.49%
r_{PEG}	13,374	11.94%	5.48%	2.92%	8.29%	10.89%	14.49%	40.69%
r_{AVG}	8,868	10.89%	3.91%	4.37%	8.13%	10.26%	12.83%	28.22%

Panel B: Pearson Correlation Coefficients among Cost of Equity Proxies

Variable	r_{CT}	r_{GLS}	r_{OJ}	r_{PEG}
r_{GLS}	0.609 *			
r_{OJ}	0.810 *	0.528 *		
r_{PEG}	0.562 *	0.465 *	0.865 *	
r_{AVG}	0.865 *	0.758 *	0.938 *	0.856 *

$\boldsymbol{r_{CT}}$, $\boldsymbol{r_{GLS}}$, $\boldsymbol{r_{OJ}}$ and $\boldsymbol{r_{PEG}}$ represent the implied cost of equity capital derived from the Claus and Thomas (2001) model, the Gebhardt et al. (2001) model, the Ohlson and Juettner-Nauroth (2005) model and the Easton (2004) model, respectively. Appendix I provides brief summary and specific assumptions of the models. $\boldsymbol{r_{AVG}}$ is the mean of the four cost of equity proxies. The final sample consists of 8,868 firm-years from 21 countries between 1991 and 2003. It includes firm-years with sufficient I/B/E/S earnings forecast and price data, Worldscope financial data, ownership data from Claessens et al. (2000) and Faccio and Lang (2002) as well as the legal and extra-legal institution variables. It excludes firm-years with (1) greater than 25% of expected inflation, (2) less than 5 observations in a country-year and (3) ± 1% of all firm-level attributes (except for size which uses natural logarithm). All financial data are as of fiscal year end while earnings forecasts and stock price are taken +10 months after fiscal year end. All earnings forecasts are mean analysts consensus forecasts. Ownership data are as of 1996 to 1999, depend on country. For individual cost of equity proxy, the sample size is after deleting 1% extreme observations of all firm-level attributes (except for size) and of that particular equity proxy. This sample size will be used in the sensitivity analyses to test the main model by using different proxies. Except stated otherwise, all statistics are based on $\boldsymbol{r_{AVG}}$, that is, the final sample of 8,868 observations. * indicates statistical significance at 1% level (two-tailed).

Table 2
Sample Information, Cost of Equity Proxies and Institution Variables by Country

							Legal Protection		*Extra-legal Protection*	
	Country	*Firm-Years*	*Country-Years*	*Mean Coverage*	*Mean* r_{AVG}	*Std. Deviation* r_{AVG}	*Disclosure Requirement*	*Securities Regulation*	*Market Competition*	*Tax Compliance*
1	Austria	123	10	36.20%	11.00%	3.36%	0.25	0.18	5.29	3.60
2	Belgium	205	12	48.42%	11.05%	3.52%	0.42	0.34	--	--
3	Finland	293	12	30.41%	13.23%	3.97%	0.50	0.49	5.26	3.53
4	France	710	13	25.60%	11.13%	3.56%	0.75	0.58	5.83	3.86
5	Germany	828	13	49.14%	10.62%	3.59%	0.42	0.21	5.91	3.41
6	Hong Kong	473	13	42.06%	13.41%	4.25%	0.92	0.81	5.85	4.56
7	Indonesia	88	8	25.94%	16.42%	4.81%	0.50	0.59	4.42	2.53
8	Italy	166	11	15.27%	9.76%	3.09%	0.67	0.46	5.14	1.77
9	Japan	1,638	13	22.26%	7.84%	2.69%	0.75	0.47	5.64	4.41
10	Korea (South)	70	4	18.95%	15.72%	4.35%	0.75	0.55	4.90	3.29
11	Malaysia	411	13	36.34%	10.39%	3.31%	0.92	0.78	4.84	4.34
12	Norway	156	12	39.08%	12.85%	3.68%	0.58	0.43	4.96	3.96
13	Philippines	110	10	27.74%	14.28%	4.24%	0.83	0.89	4.61	1.83
14	Portugal	35	5	39.95%	10.07%	2.78%	0.42	0.55	4.81	2.18
15	Singapore	339	13	39.38%	10.31%	4.12%	1.00	0.84	5.21	5.05
16	Spain	294	13	31.03%	10.94%	3.12%	0.50	0.50	5.07	1.91
17	Sweden	298	13	34.34%	12.00%	3.99%	0.58	0.45	5.08	3.39
18	Switzerland	237	12	3.18%	11.19%	2.75%	0.67	0.48	5.22	4.49
19	Taiwan	135	10	15.57%	10.43%	2.69%	0.75	0.64	5.56	3.25
20	Thailand	69	8	10.81%	14.22%	4.42%	0.92	0.62	4.77	3.41
21	United Kingdom	2,190	13	45.37%	11.64%	3.53%	0.83	0.73	5.74	4.67
	Total/Average	8,868	231	31.24%	11.83%	3.61%	0.66	0.55	5.21	3.47

This table lists the 21 countries, the number of firm-years and country-years for each country that are included in the sample. ***Mean coverage*** is the country time-series average coverage. Coverage is computed as the sum of US$ market capitalization in the sample divided by the sum of US$ market capitalization in each individual country. ***Mean*** r_{AVG} is the country mean r_{AVG}. ***Disclosure requirement*** measures the strength of disclosure regulations in securities offerings in 49 countries. It is the arithmetic mean of six sub-indices which include prospectus, compensation, shareholders, inside ownership, contracts irregular and transactions indices. ***Securities regulation*** is the mean of the disclosure requirement index, the liability standard index and the public enforcement index. It measures the complementary effect of securities rules and enforcement. The two legal protection variables are from La Porta et al. (2006). ***Market competition*** measures the effectiveness of competition laws in 39 countries. ***Tax compliance*** measures the disciplinary power (or enforcement quality) of the tax authority in 39 countries. The two extra-legal protection variables are from Dyck and Zingales (2004).

Table 3
Descriptive Statistics - Control Variables and Ownership Variables

Panel A: Distributional Statistics

					Percentile			
Variable	*N*	*Mean*	*Standard Deviation*	*Minimum*	*Q1*	*Q2*	*Q3*	*Maximum*
INFL	8,868	1.78%	1.88%	–3.20%	0.60%	1.70%	2.91%	11.88%
SIZE	8,868	6.635	1.627	1.359	5.468	6.506	7.723	12.432
RETVAR	8,868	0.098	0.047	0.029	0.065	0.088	0.118	0.354
DB	8,868	0.536	0.780	0.000	0.076	0.309	0.679	7.495
ROAVAR	8,868	0.030	0.033	0.002	0.010	0.019	0.036	0.241
FBIAS	8,868	0.009	0.041	–0.061	–0.005	0.0004	0.010	0.439
CASH	8,868	20.93%	19.85%	0.00%	5.00%	15.00%	31.33%	100.00%
VOTE	8,868	25.00%	20.42%	0.00%	10.00%	20.00%	36.00%	100.00%
DIV	8,868	0.196	0.297	0.000	0.000	0.000	0.381	1.000

Panel B: Pearson Correlation Coefficients

Variable	*INFL*	*SIZE*	*RETVAR*	*DB*	*ROAVAR*	*FBIAS*	*CASH*	*VOTE*	*DIV*
SIZE	–0.108 *								
RETVAR	–0.052 *	–0.148 *							
DB	–0.075 *	0.134 *	0.020 #						
ROAVAR	0.112 *	–0.207 *	0.187 *	–0.062 *					
FBIAS	–0.019 #	–0.123 *	0.158 *	0.063 *	0.052 *				
CASH	0.144 *	–0.229 *	0.013	–0.035 *	0.038 *	0.048 *			
VOTE	0.139 *	–0.239 *	0.013	–0.032 *	0.031 *	0.053 *	0.930 *		
DIV	–0.172 *	0.075 *	0.007	0.050 *	–0.097 *	0.010	–0.400 *	–0.135 *	
r_{AVG}	0.251 *	–0.418 *	0.200 *	0.051 *	0.226 *	0.271 *	0.128 *	0.134 *	–0.087 *

The sample consists of 8,868 firm-years from 21 countries over the period from 1991 to 2003. ***INFL*** is the country-specific one year ahead realized annual inflation rate. ***SIZE*** is the natural logarithm of US$ market capitalization at fiscal year end. ***RETVAR*** is the return variability computed as the annual standard deviation of monthly stock returns taken +10 months after fiscal year end. ***DB*** is the ratio of total long-term debt to total common equity at fiscal year end. ***ROAVAR*** is the standard deviation of accounting return on total assets over the last five years. ***FBIAS*** stands for forecast bias which is computed as the mean one-year ahead earnings forecast minus actual earnings per share scaled by actual price taken + 10 months after fiscal year end. ***CASH*** and ***VOTE*** are the cash flow rights and voting rights of the ultimate owner, respectively. ***DIV*** measures the degree of divergence between ownership rights and control rights of the ultimate owner. It is computed as one minus the ratio of cash flow rights to voting rights and ranges from 0 to 1. $\boldsymbol{r_{AVG}}$ is the mean of the four cost of equity proxies as described in Appendix I. * and # indicate statistical significance at 1% and 10% levels (two-tailed), respectively.

Table 4
Regression Analysis of Implied Cost of Equity Capital
on Ownership Variables, Risk and Country Control Factors

$$r_{AVGit} = \beta_0 + \beta_1 DIV_{it} + \beta_2 CASH_{it} + \beta_3 INFL_{it} + \beta_4 SIZE_{it} + \beta_5 RETVAR_{it} + \beta_6 DB_{it} + \beta_7 ROAVAR_{it} + \beta_8 FBIAS_{it} + \sum \beta_j YEAR_{it} + \sum \beta_k INDUSTRY_{it} + \sum \beta_l COUNTRY_{it}$$

Variable	*Predicted Sign*	*Model One*	*Model Two*	*Model Three*	*Model Four*
N		8,868	8,868	8,868	13
Intercept	?	15.711 *	16.095 *	16.016 *	20.588 *
		(16.14)	(16.21)	(16.03)	(5.26)
VOTE	+		0.004	--	--
			(0.58)		
DIV	+		--	0.295 **	0.277 *
				(1.96)	(3.31)
CASH	–		–0.013 **	–0.008 *	–0.007 *
			(–2.05)	(–2.83)	(–3.47)
INFL	+	0.208 *	0.208 *	0.208 *	–2.251
		(6.07)	(6.08)	(6.06)	(–1.64)
SIZE	–	–0.729 *	–0.747 *	–0.745 *	–0.658 *
		(–27.28)	(–27.29)	(–27.32)	(–9.46)
RETVAR	+	8.028 *	8.001 *	7.993 *	9.857 *
		(8.37)	(8.35)	(8.35)	(6.14)
DB	+	0.639 *	0.636 *	0.634 *	0.616 *
		(10.39)	(10.42)	(10.40)	(13.09)
ROAVAR	+	3.222 **	3.147 **	3.218 **	4.799 *
		(2.19)	(2.14)	(2.18)	(3.27)
FBIAS	+	19.466 *	19.482 *	19.480 *	17.540 *
		(14.62)	(14.59)	(14.57)	(9.61)
Year controls		Included	Included	Included	--
Industry and country controls		Included	Included	Included	Included
Adjusted R^2		43.60%	43.75%	43.79%	48.82%
F-Statistic		150.01 *	144.70 *	144.89 *	--

The sample consists of 8,868 firm-years from 21 countries over the period from 1991 to 2003. r_{AVG} is the mean of the four cost of equity proxies as described in Appendix I. ***CASH*** and ***VOTE*** are the cash flow rights and voting rights of the ultimate owner, respectively. ***DIV*** measures the degree of divergence between ownership rights and control rights of the ultimate owner. It is computed as one minus the ratio of cash flow rights to voting rights and ranges from 0 to 1. ***INFL*** is the country-specific one year ahead realized annual inflation rate. ***SIZE*** is the natural logarithm of US$ market capitalization at fiscal year end. ***RETVAR*** is the return variability computed as the annual standard deviation of monthly stock returns taken +10 months after fiscal year end. ***DB*** is the ratio of total long-term debt to total common equity at fiscal year end. ***ROAVAR*** is the standard deviation of accounting return on total assets over the last five years. ***FBIAS*** stands for forecast bias which is computed as the mean one-year ahead earnings forecast minus actual earnings per share scaled by actual price taken +10 months after fiscal year end. *YEAR*-fixed effects, *INDUSTRY*-fixed effects and *COUNTRY*-fixed effects are included in the regression where indicated, but not reported. The table reports OLS coefficient estimates and, in parentheses, t-statistics based on Newey-West heteroscedasticity and autocorrelation corrected standard errors. * and ** indicate statistical significance at 1% and 5% levels (two-tailed), respectively. *Model Four* is based on the Fama-MacBeth approach hence the sample size is the number of annual regression.

Table 4a
Sensitivity Analyses for Regression of Implied Cost of Equity Capital on Ownership Variables, Risk and Country Control Factors

		Alternative Cost of Equity Proxies					*Exclude 8 Euro-in Countries*	*Exclude UK Firms*	*Exclude Japanese Firms*	*Exclude Asian Firms during 95 to 97*
Variable	*Predicted Sign*	r_{MED} (1)	r_{PC} (2)	r_{PREM} (3)	r_{DP} (4)	r_{FF} (5)	(6)	(7)	(8)	(9)
N		8,858	8,868	8,868	7,083	6,037	6,214	6,678	7,230	8,224
Intercept	?	15.446 *	2.235 *	14.325 *	4.891 *	3.174 *	16.148 *	17.363 *	16.149 *	16.566 *
		(17.35)	(4.98)	(13.34)	(12.90)	(4.47)	(15.75)	(14.93)	(13.77)	(14.79)
DIV	+	0.268 #	0.129 **	0.252 #	0.136 #	0.278 **	0.438 **	0.286 #	0.345 #	0.295 #
		(1.78)	(1.96)	(1.74)	(1.73)	(2.03)	(2.57)	(1.81)	(1.67)	(1.88)
CASH	–	–0.007 **	–0.003 *	–0.009 *	–0.003 **	0.002	–0.009 **	–0.003	–0.009 *	–0.008 *
		(–2.43)	(–2.76)	(–3.31)	(–2.00)	(0.77)	(–2.24)	(–1.08)	(–3.00)	(–2.91)
INFL	+	0.200 *	0.092 *	--	0.084 **	0.036	0.209 *	0.237 *	0.209 *	0.222 *
		(5.69)	(6.10)		(3.40)	(1.33)	(5.46)	(6.57)	(5.89)	(6.00)
SIZE	–	–0.759 *	–0.329 *	–0.757 *	–0.185 *	–0.006	–0.763 *	–0.781 *	–0.748 *	–0.750 *
		(–27.65)	(–27.47)	(–28.58)	(–12.74)	(–0.24)	(–23.07)	(–24.66)	(–23.98)	(–26.59)
RETVAR	+	8.359 *	3.533 *	7.604 *	–4.402 *	11.676 *	8.557 *	6.374 *	7.833 *	8.394 *
		(8.61)	(8.38)	(7.63)	(–8.39)	(10.70)	(7.68)	(6.01)	(7.29)	(8.09)
DB	+	0.659 *	0.282 *	0.627 *	–0.011	0.261 *	0.507 *	0.717 *	0.660 *	0.649 *
		(10.65)	(10.46)	(10.70)	(–0.42)	(5.27)	(7.50)	(10.66)	(8.18)	(10.37)
ROAVAR	+	3.233 **	1.384 **	3.028 **	–5.556 *	8.925 *	2.826 #	4.722 **	2.913 #	3.127 **
		(2.20)	(2.15)	(2.09)	(–6.65)	(6.11)	(1.73)	(2.47)	(1.92)	(2.07)
FBIAS	+	19.250 *	8.474 *	19.439 *	--	--	21.478 *	17.082 *	20.444 *	18.848 *
		(14.38)	(14.37)	(14.42)			(12.22)	(12.22)	(14.58)	(13.21)
$g_{Forecasts}$	+/–	--	--	--	–0.291 *	--	--	--	--	--
					(–4.82)					
Year, industry & country controls		Included	Included	Included	Included	Included	Included	Included	Included	Included
Adjusted R^2		42.69%	43.10%	37.44%	26.09%	19.57%	47.70%	47.13%	35.94%	41.83%
F-Statistic		138.42 *	140.94 *	113.88 *	55.34 *	36.82 *	142.64 *	127.63 *	87.31 *	124.17 *

The sample consists of a maximum of 8,868 firm-year observations from 21 countries over the period from 1991 to 2003. r_{MED} is the median of the four cost of equity proxies as described in Appendix I. r_{PC} is the first principal component of the four individual estimates. r_{PREM} is the inflation-adjusted risk premium. r_{DP} is the dividend yield which is measured as the actual dividends per share scaled by actual price taken +10 months after fiscal year end. r_{FF} is the expected return derived from the international two-factor model as described in Fama and French (1998). The eight Euro-in countries are Austria, Belgium, Finland, France, Germany, Italy, Portugal and Spain. Asian firms include Hong Kong, Indonesia, Japan, Korea, Malaysia, Philippines, Singapore, Taiwan and Thailand. $g_{Forecasts}$ is the one-year ahead percentage change in analyst earnings per share forecasts. Definitions of other variables are as described in Table 3. *, ** and # indicate statistical significance at 1%, 5% and 10% levels (two-tailed), respectively.

Table 4b
Sensitivity Analyses for Regression of Implied Cost of Equity Capital on Ownership Variables, Risk and Country Control Factors

Variable	*Predicted Sign*	*Group Affiliation* (10)	*Diversification* (11)	*External Capital Need* (12)	*Financial Constraint* (13)	*2-stage regressions* (14)	*Foreign Listing* (15)	*Big-5 Auditor* (16)	*CIFAR* (17)
N		3,333	8,523	7,720	8,422	4,651	8,518	8,488	1,283
Intercept	?	15.786 *	15.774 *	16.127 *	17.135 *	16.204 *	16.277 *	16.042 *	8.290 *
		(12.95)	(15.89)	(16.05)	(16.70)	(9.90)	(16.29)	(15.93)	(3.97)
DIV	+	0.377 **	0.340 **	0.369 **	0.324 **	2.851 #	0.378 **	0.354 **	0.474 #
		(1.98)	(2.24)	(2.27)	(2.13)	(1.84)	(2.49)	(2.33)	(1.74)
CASH	–	0.017 **	–0.006 **	–0.006 **	–0.006 **	–0.004	–0.006 **	–0.007 **	0.026 *
		(2.50)	(–2.32)	(–2.17)	(–2.17)	(–1.35)	(–2.19)	(–2.57)	(3.95)
Additional variable	+/–	–0.0008	0.065 *	0.000	–1.159 *	--	0.514 *	–0.061	0.031 **
		(–0.01)	(2.82)	(0.98)	(–6.15)		(4.10)	(–0.74)	(2.03)
INFL	+	0.355 *	0.217 *	0.230 *	0.218 *	0.078	0.218 *	0.197 *	0.256 *
		(8.28)	(6.23)	(6.41)	(6.22)	(1.43)	(6.19)	(5.76)	(3.88)
SIZE	–	–0.833 *	–0.760 *	–0.741 *	–0.717 *	–0.732 *	–0.797 *	–0.732 *	–0.000 *
		(–18.65)	(–26.41)	(–25.47)	(–25.61)	(–19.66)	(–25.80)	(–25.82)	(–2.69)
RETVAR	+	5.889 *	7.892 *	8.061*	7.290 *	6.171 *	7.819 *	7.758 *	18.329 *
		(4.31)	(8.11)	(7.83)	(7.39)	(4.67)	(8.04)	(7.96)	(6.32)
DB	+	0.725 *	0.611 *	0.642 *	0.608 *	0.768 *	0.621 *	0.629 *	0.533 *
		(9.02)	(9.88)	(9.52)	(9.71)	(9.97)	(9.99)	(10.17)	(4.61)
ROAVAR	+	5.166 **	3.439 **	3.162 **	1.441	3.658	2.975 **	3.490 **	–0.583
		(2.05)	(2.27)	(2.09)	(0.97)	(1.57)	(1.98)	(2.30)	(–0.10)
FBIAS	+	17.038 *	19.409 *	20.218 *	19.684 *	15.684 *	19.403 *	19.420 *	11.836 **
		(7.81)	(14.28)	(13.40)	(14.05)	(8.71)	(14.30)	(14.25)	(2.44)
Year, industry & country controls		Included	Included	Included	Included	Included	Included	Included	Included
Adjusted R^2		56.62%	44.10%	43.10%	44.75%	49.34%	44.22%	43.76%	51.71%
F-Statistic		118.54 *	138.21 *	120.33 *	140.18 *	95.33 *	138.81 *	135.78 *	30.85 *

The sample consists of a maximum of 8,868 firm-year observations from 21 countries over the period from 1991 to 2003. ***Group affiliation*** is a dummy variable which equals one if a firm is affiliated. The data is downloaded from the Journal of Financial Economics and is available for Asian firms only. ***Diversification*** is measured as the number of different SIC codes in a firm. ***External capital need*** is proxied by the cash flow from sale of common and preferred stock. ***Financial constraint*** is a dummy variable which is equal to one if a firm pays cash common dividend in a particular year. The ***two-stage regressions*** include number of years firm went public, natural logarithm of market capitalization, return on total assets, capital expenditure as a percentage of sales and nominal GDP per capita averaged from 1981 to 1990 as first-stage instrumental variables. ***Foreign listing*** is a dummy variable which equals one if a firm is ADR-listed. ***Big-5 auditor*** is a dummy variable which equals one if a firm employs Big-5 auditors or affiliates. ***CIFAR*** is the 1993 Center for International Financial Analysis and Research firm-level disclosure score which is a 90-point index created by examining and rating companies' 1991 annual reports on their inclusion or omission of 90 specific items. Except stated otherwise, all data is taken from Worldscope. Definitions of other variables are as described in Table 3. *, ** and # indicate statistical significance at 1%, 5% and 10% levels (two-tailed), respectively.

Table 5
Difference in the Cost of Equity Capital Effects conditional on Legal Protection Variables

$$r_{AVGit} = \beta_0 + \beta_1 DIV_{it} + \beta_2 CASH_{it} + \beta_3 INFL_{it} + \beta_4 SIZE_{it} + \beta_5 RETVAR_{it} + \beta_6 DB_{it} + \beta_7 ROAVAR_{it} + \beta_8 FBIAS_{it} + \sum \beta_j YEAR_{it} + \sum \beta_k INDUSTRY_{it} + \sum \beta_l COUNTRY_{it}$$

Variable	*Predicted Sign*	*Disclosure Requirement (DISRE)*		*Securities Regulations (SECRE)*	
		Low	*High*	*Low*	*High*
N		2,320	6,548	3,944	4,924
Intercept	?	17.526 *	15.701 *	16.216 *	14.971 *
		(6.75)	(16.40)	(9.86)	(11.83)
DIV	+	0.559 #	0.234	0.348 **	0.297
		(1.77)	(1.37)	(2.07)	(0.99)
CASH	–	–0.005	–0.009 **	–0.006	–0.008 **
		(–1.19)	(–2.45)	(–1.51)	(–2.23)
INFL	+	–0.165	0.241 *	0.004	0.249 *
		(–1.48)	(6.31)	(0.05)	(6.40)
SIZE	–	–0.792 *	–0.744 *	–0.745 *	–0.751 *
		(–13.87)	(–23.78)	(–18.49)	(–20.22)
RETVAR	+	7.907 *	8.114 *	8.193 *	7.314 *
		(3.89)	(7.50)	(5.68)	(5.76)
DB	+	0.873 *	0.542 *	0.695 *	0.562 *
		(6.57)	(7.90)	(9.38)	(5.51)
ROAVAR	+	5.065 #	2.475	4.374	2.539
		(1.74)	(1.47)	(1.60)	(1.46)
FBIAS	+	16.698 *	20.359 *	15.459 *	22.591 *
		(7.50)	(12.49)	(8.31)	(12.46)
Year, industry & country controls		Included	Included	Included	Included
Adj.R^2		38.33%	45.59%	47.36%	36.94%
F-Statistic		41.03 *	141.66 *	99.53 *	74.96 *

The sample consists of 8,868 firm-year observations from 21 countries over the period from 1991 to 2003. The sample is partitioned into two sub-samples based on two criteria. (1) ***Disclosure Requirement*** measures the strength of disclosure regulations in securities offerings in 49 countries (La Porta et al., 2006). (2) ***Securities regulation*** is the mean of disclosure requirement index, the liability standard index and the public enforcement index (La Porta et al., 2006). ***DISRE*** and ***SECRE*** are equal to low for countries with less than or equal to the median index value of disclosure requirement and securities regulation in 49 countries, respectively. r_{AVG} is the mean of the four cost of equity proxies as described in Appendix I. ***CASH*** is the cash flow rights of the ultimate owner. ***DIV*** measures the degree of divergence between ownership rights and control rights of the ultimate owner. It is computed as one minus the ratio of cash flow rights to voting rights and ranges from 0 to 1. ***INFL*** is the country-specific one year ahead realized annual inflation rate. ***SIZE*** is the natural logarithm of US$ market capitalization at fiscal year end. ***RETVAR*** is the return variability computed as the annual standard deviation of monthly stock returns taken +10 months after fiscal year end. ***DB*** is the ratio of total long-term debt to total common equity at fiscal year end. ***ROAVAR*** is the standard deviation of accounting return on total assets over the last five years. ***FBIAS*** stands for forecast bias which is computed as mean one-year ahead earnings forecast minus actual earnings per share scaled by actual price taken + 10 months after fiscal year end. Year-fixed effects, industry-fixed effects and country-fixed effects are included in the regression but not reported. The table reports OLS coefficient estimates and, in parentheses, t-statistics based on Newey-West heteroscedasticity and autocorrelation corrected standard errors. *, ** and # indicate statistical significance at 1%, 5% and 10% levels (two-tailed), respectively.

Table 6
Difference in the Cost of Equity Capital Effects conditional on Extra-legal Protection Variables

$$r_{AVGit} = \beta_0 + \beta_1 DIV_{it} + \beta_2 CASH_{it} + \beta_3 INFL_{it} + \beta_4 SIZE_{it} + \beta_5 RETVAR_{it} + \beta_6 DB_{it} + \beta_7 ROAVAR_{it} + \beta_8 FBIAS_{it} + \sum \beta_j YEAR_{it} + \sum \beta_k INDUSTRY_{it} + \sum \beta_l COUNTRY_{it}$$

Variable	*Predicted Sign*	*Market Competition (MKTCOM)*		*Tax Compliance (TAXCOM)*	
		Low	*High*	*Low*	*High*
N		1,531	7,132	1,196	7,467
Intercept	?	19.029 *	14.142 *	16.397 *	15.550 *
		(12.77)	(16.03)	(5.62)	(16.89)
DIV	+	1.071 **	0.196	0.834 #	0.230
		(2.43)	(1.19)	(1.76)	(1.55)
CASH	–	–0.007	–0.008 **	–0.005	–0.008 *
		(–1.07)	(–2.50)	(–0.74)	(–3.02)
INFL	+	0.122	0.226 *	0.048	0.214 *
		(1.34)	(5.89)	(0.44)	(6.06)
SIZE	–	–0.859 *	–0.733 *	–0.865 *	–0.728 *
		(–10.87)	(–24.71)	(–10.49)	(–26.86)
RETVAR	+	3.792 #	8.419 *	3.586	8.144 *
		(1.76)	(7.84)	(1.47)	(7.88)
DB	+	0.543 *	0.648 *	0.655 *	0.628 *
		(3.70)	(9.55)	(4.73)	(10.09)
ROAVAR	+	3.126	3.160 #	9.650 *	2.117
		(0.92)	(1.87)	(2.71)	(1.35)
FBIAS	+	22.089 *	19.133 *	15.666 *	20.233 *
		(7.65)	(12.02)	(3.82)	(13.87)
Year, industry & country controls		Included	Included	Included	Included
Adj.R^2		42.74%	43.10%	46.08%	43.39%
F-Statistic		32.73 *	143.12 *	30.17 *	147.76 *

The sample consists of 8,663 firm-year observations from 21 countries over the period from 1991 to 2003. The sample is partitioned into two sub-samples based on two criteria. (1) ***Market competition*** measures the effectiveness of competition laws in 39 countries (Dyck and Zingales, 2004). (2) ***Tax compliance*** measures the disciplinary power (or enforcement quality) of the tax authority in 39 countries (Dyck and Zingales, 2004). ***MKTCOM*** and ***TAXCOM*** are equal to low for countries with less than or equal to the median index value in 39 countries. r_{AVG} is the mean of the four cost of equity proxies as described in Appendix I. ***CASH*** is the cash flow rights of the ultimate owner. ***DIV*** measures the degree of divergence between ownership rights and control rights of the ultimate owner. It is computed as one minus the ratio of cash flow rights to voting rights and ranges from 0 to 1. ***INFL*** is the country-specific one year ahead realized annual inflation rate. ***SIZE*** is the natural logarithm of US$ market capitalization at fiscal year end. ***RETVAR*** is the return variability computed as the annual standard deviation of monthly stock returns taken +10 months after fiscal year end. ***DB*** is the ratio of total long-term debt to total common equity at fiscal year end. ***ROAVAR*** is the standard deviation of accounting return on total assets over the last five years. ***FBIAS*** stands for forecast bias which is computed as mean one-year ahead earnings forecast minus actual earnings per share scaled by actual price taken + 10 months after fiscal year end. Year-fixed effects, industry-fixed effects and country-fixed effects are included in the regression but not reported. The table reports OLS coefficient estimates and, in parentheses, t-statistics based on Newey-West heteroscedasticity and autocorrelation corrected standard errors. *, ** and # indicate statistical significance at 1%, 5% and 10% levels (two-tailed), respectively.

Table 7
Regressions of the Implied Cost of Equity Capital on Ownership Variables, Legal Protection Variables and Traditional Controls

$$r_{AVGit} = \beta_0 + \beta_1 DIV_{it} + \beta_2 DIV \times INSTITUTION_{it} + \beta_3 INSTITUTION_{it} + \beta_4 CASH_{it} + \beta_5 CASH \times INSTITUTION_{it} + \beta_6 INFL_{it} + \beta_7 SIZE_{it} + \beta_8 RETVAR_{it} + \beta_9 DB_{it} + \beta_{10} ROAVAR_{it} + \beta_{11} FBIAS_{it} + \sum \beta_j YEAR_{it} + \sum \beta_k INDUSTRY_{it}$$

Variable	*Predicted Sign*	*DISRE* (1)	*SECRE* (2)
N		8,868	8,868
Intercept	?	13.527 *	11.779 *
DIV	+	2.454 *	1.266 **
DIV × DISRE	–	–3.931 *	
DIV × SECRE	–		–2.359 **
DISRE	–	0.495	
SECRE	–		3.346 *
CASH	–	–0.007	0.027 *
CASH × DISRE	–	0.012	
CASH × SECRE	–		–0.042 *
INFL	+	0.553 *	0.515 *
SIZE	–	–0.833 *	–0.807 *
RETVAR	+	8.640 *	7.909 *
DB	+	0.546 *	0.583 *
ROAVAR	+	10.846 *	10.182 *
FBIAS	+	18.841 *	18.995 *
Year & industry controls		Included	Included
Adj.R^2		33.85%	34.29%
F-Statistic		147.38 *	150.28 *

The sample consists of 8,868 firm-year observations from 21 countries over the period from 1991 to 2003. ***Disclosure Requirement*** (*DISRE*) measures the strength of disclosure regulations in securities offerings in 49 countries (La Porta et al., 2006). ***Securities regulation*** (*SECRE*) is the mean of disclosure requirement index, the liability standard index and the public enforcement index in 49 countries (La Porta et al., 2006). It measures the complementary effect of securities rules and enforcement. r_{AVG} is the mean of the four cost of equity proxies as described in Appendix I. ***CASH*** is the cash flow rights of the ultimate owner. ***DIV*** measures the degree of divergence between ownership rights and control rights of the ultimate owner. It is computed as one minus the ratio of cash flow rights to voting rights and ranges from 0 to 1. ***INFL*** is the country-specific one year ahead realized annual inflation rate. ***SIZE*** is the natural logarithm of US$ market capitalization at fiscal year end. ***RETVAR*** is the return variability computed as the annual standard deviation of monthly stock returns taken +10 months after fiscal year end. ***DB*** is the ratio of total long-term debt to total common equity at fiscal year end. ***ROAVAR*** is the standard deviation of accounting return on total assets over the last five years. ***FBIAS*** stands for forecast bias which is computed as mean one-year ahead earnings forecast minus actual earnings per share scaled by actual price taken + 10 months after fiscal year end. Year-fixed effects and industry-fixed effects are included in the regression but not reported. The table reports OLS coefficient estimates and, in parentheses, t-statistics based on Newey-West heteroscedasticity and autocorrelation corrected standard errors. * and ** indicate statistical significance at 1% and 5% levels (two-tailed), respectively.

Table 8
Regressions of the Implied Cost of Equity Capital on Ownership Variables, Extra-legal Protection Variables and Traditional Controls

$$r_{AVGit} = \beta_0 + \beta_1 DIV_{it} + \beta_2 DIV \times INSTITUTION_{it} + \beta_3 INSTITUTION_{it} + \beta_4 CASH_{it} + \beta_5 CASH \times INSTITUTION_{it} + \beta_6 INFL_{it} + \beta_7 SIZE_{it} + \beta_8 RETVAR_{it} + \beta_9 DB_{it} + \beta_{10} ROAVAR_{it} + \beta_{11} FBIAS_{it} + \sum \beta_j YEAR_{it} + \sum \beta_k INDUSTRY_{it}$$

Variable	*Predicted Sign*	*MKTCOM* (1)	*TAXCOM* (2)
N		8,663	8,663
Intercept	?	9.225 *	14.436 *
DIV	+	13.048 *	2.778 **
DIV × MKTCOM	–	–2.396 *	
DIV × TAXCOM	–		–0.757 *
MKTCOM	–	0.903 *	
TAXCOM	–		–0.120
CASH	–	0.034	–0.041 *
CASH × MKTCOM	–	–0.006	
CASH × TAXCOM	–		0.011 *
INFL	+	0.583 *	0.561 *
SIZE	–	–0.838 *	–0.832 *
RETVAR	+	8.417 *	8.267 *
DB	+	0.542 *	0.547 *
ROAVAR	+	11.208 *	10.902 *
FBIAS	+	19.076 *	19.085 *
Year & industry controls		Included	Included
Adj.R^2		33.93%	34.01%
F-Statistic		144.51 *	145.03 *

The sample consists of 8,663 firm-year observations from 21 countries over the period from 1991 to 2003. ***Market competition*** measures the effectiveness of competition laws in 39 countries (Dyck and Zingales, 2004). ***Tax compliance*** measures the disciplinary power (or enforcement quality) of tax authority in 39 countries (Dyck and Zingales, 2004). r_{AVG} is the mean of the four cost of equity proxies as described in Appendix I. ***CASH*** is the cash flow rights of the ultimate owner. ***DIV*** measures the degree of divergence between ownership rights and control rights of the ultimate owner. It is computed as one minus the ratio of cash flow rights to voting rights and ranges from 0 to 1. ***INFL*** is the country-specific one year ahead realized annual inflation rate. ***SIZE*** is the natural logarithm of US$ market capitalization at fiscal year end. ***RETVAR*** is the return variability computed as the annual standard deviation of monthly stock returns taken +10 months after fiscal year end. ***DB*** is the ratio of total long-term debt to total common equity at fiscal year end. ***ROAVAR*** is the standard deviation of accounting return on total assets over the last five years. ***FBIAS*** stands for forecast bias which is computed as mean one-year ahead earnings forecast minus actual earnings per share scaled by actual price taken + 10 months after fiscal year end. Year-fixed effects and industry-fixed effects are included in the regression but not reported. The table reports OLS coefficient estimates and, in parentheses, t-statistics based on Newey-West heteroscedasticity and autocorrelation corrected standard errors. * and ** indicate statistical significance at 1% and 5% levels (two-tailed), respectively.